

CHAPTER III

RESEARCH METHODOLOGY

As briefly stated in chapter I, this study is conducted to answer two research problems. Firstly, this study is conducted to find out whether or not teaching writing descriptive text using Students Teams Achievement Division (STAD) technique is effective in improving students' writing performance. Secondly, this study is attempted to investigate the students' perception towards STAD technique in teaching writing descriptive text. Furthermore, this chapter discusses the method of the study. It discusses hypothesis, research design, data collection, research procedure, data analysis and finally conclusion.

3.1 Hypothesis

The null hypothesis (H_0) and alternative hypothesis (H_a) are as follows:

H_0 : There is no difference in writing skill of descriptive text between experimental and control groups for students who received STAD technique and those who did not. They belong to the same population.

H_a : There is a difference in writing skill of descriptive text between experimental and control groups for students who received STAD technique and those who did not. They belong to the different population.

However, this study has been designed to test the null hypothesis (H_0), meaning testing two-tailed hypothesis.

3.2 Research Design

In order to get empirical data, quasi experimental design used in this study was aimed at investigating the implementation of STAD technique in teaching descriptive text. Quasi-experimental design was also used in this study because it was not feasible to conduct true experimental design because of some limitations. However, qualitative data was also used to explain or to build upon initial quantitative results (Burns, 1995). Qualitative data was needed to answer a problem of the study which investigates students' perceptions toward implementing STAD technique. It was used to explain statistical results by exploring students' perceptions in more depth.

This study involved two classes. The first class was chosen as an experimental group which is given STAD treatment. Whereas, the second class was chosen as a control group which is not given STAD treatment. The experimental design can be illustrated in table 3.1.

Table 3.1
Research Design

Groups	Pretest	Treatment	Posttest
Experimental	T ₁ E	X	T ₂ E
Control	T ₁ C	-	T ₂ C

(Hatch and Farhady, 1982)

T₁E = Pretest for Experimental Group

T₂E = Posttest for Experimental Group

X = Treatments

T₁C = Pretest for Control Group

T₂C = Posttest for Control Group

3.3 Variables

There were two variables which were investigated in this quasi experimental research, namely an independent variable and a dependent variable. An independent variable is the variable which influences dependent variable; meanwhile a dependent variable is the variable that will be affected by independent variable (Coolidge, 2000: 15). Moreover, independent variable in this study is implementing of STAD technique. Meanwhile, dependent variable is students' writing performance.

3.4 Data Collection

The data collection in this study includes population and sample and research instrument.

3.4.1 Population and sample

The population of this study was eighth grade students of an SMP in Bandung registered in 2011-2012 academic year. There were several reasons why the researcher chose them as sample in this study. First, they have learned English for many years. It could be assumed that they have learned more vocabulary that helped them in writing descriptive text. Second, based on curriculum for Junior High School (2006), one of the competencies that must be achieved by eighth grader was able to write descriptive text in form of monologue and dialogue text.

The selected population then was narrowed into a sample. Therefore, the researcher took two classes which were determined as experimental group and

control group in this study. They were chosen due to the recommendation of their English teacher that all members of the selected group had similar characteristic.

Experimental group and control group were given pretest and posttest to measure students' writing performance, especially in writing a descriptive text. Meanwhile, treatment was only given to experimental group.

3.4.2 Research instrument

In collecting the data, there were two kinds of instruments used in this study, namely writing performance test and questionnaire.

Firstly, writing performance test was used in pretest and posttest. Students in both experimental and control groups were assigned to write a descriptive text based on topic given. The pretest was given in the first meeting to find out students' previous ability in writing descriptive text before the treatment. Meanwhile, the posttest was conducted at the end of the treatment to find out the influence of STAD technique in writing descriptive text.

Secondly, questionnaire was distributed to get deeper information which was not gained through test. It was conducted to obtain additional information related to students' perception in experimental group toward the implementation of STAD technique. In this study, the researcher used a *Likert Scale* which asked an individual to respond a series of statements by indicating whether she or he strongly agree (SA), agree (A), was undecided (U), disagree (D) or strongly disagree (SD) with each statement (Likert, 1932). Each response was associated with a point value, and an individual's score is determined by summing the point

values for each statement. Moreover, there are fifteen questions that cover students' perception toward writing lesson, students' perception toward cooperative learning, and students' perception on cooperative learning in improving their writing descriptive skill and social skill.

3.5 Research Procedure

Research procedure includes organizing teaching procedure, administering pilot test, conducting treatment, administering pretest and posttest, and administering questionnaire.

3.5.1 Organizing teaching procedure

In conducting this study, the researcher acted as a teacher and a facilitator. The preparation was implemented into two steps. The first step was preparing appropriate materials for teaching and learning process during the treatment. The second step was organizing teaching procedure in control and experimental group.

STAD technique was given to experimental group related to the teaching materials and procedures, while, control group was given whole class lecturing method. There were four steps in teaching procedure in experimental group including teacher presentation, team study, individual quiz, and team recognition (Slavin, 2005).

The teaching and learning procedure for the control group was carried out by using a whole-class lecturing method. Teacher explained the materials to the students, assessed their understanding by giving and answering questions.

Afterwards, teacher gave a task for each student. Finally, the teacher asked students to study the task after the teacher's presentation.

3.5.2 Administering pilot test

Before conducting this study, a pilot test is administered to investigate the validity. The pilot test was carried out to 30 students of different class at the same grade of this study. Class VIII-E was chosen as sample in pilot test and this test was conducted on October, 31th 2011. They were asked to write a descriptive text based on topic given.

3.5.3 Conducting treatment

In the process of the treatment two classes of eighth grader were chosen as experimental and control group. STAD was implemented to experimental group related to the teaching materials and procedures, while, whole class lecturing method was given to control group.

The treatment schedule was set to make the treatment run well. It was conducted based on school schedule. The material and topic were also set in lesson plan. The lesson plans used were divided into two different types, which one for experimental group and the other for control group (see appendix H).

3.5.4 Administering pretest and posttest

Pretest was administered to know students' prior knowledge. It was given to both groups (experimental and control group). After pretest, STAD treatment

was given to experimental group only. Meanwhile, whole class lecturing method was given to control group. In the end, posttest was held to investigate whether or not STAD technique improves students' writing performance, especially in writing descriptive text.

3.5.5 Administering questionnaire

Questionnaire was distributed to find out students' perceptions in experimental group toward the implementation of STAD technique in writing descriptive text. The questionnaire design used was a *Likert Scale* which consists of 15 close-ended questions. A *Likert Scale* asks an individual to respond a series of statements by indicating whether she or he strongly disagree (STS: Sangat Tidak Setuju), disagree (TS: Tidak Setuju), not sure (R: Ragu-ragu), agree (S: Setuju) and strongly agree (SS: Sangat Setuju) with each statement (Likert, 1932). Each response was associated with a point value, and an individual's score is determined by summing the point values for each statement.

3.6 Data Analysis

Data analysis consists of scoring technique, data analysis on pilot test, data analysis on pretest and posttest, and data analysis on questionnaire.

3.6.1 Scoring technique

The scoring guide is chosen as the criteria of scoring represent the basic aspects of writing. They are content, organization, vocabulary, language use and

mechanics (Jacobs et al 1981). Content aspect dealing main ideas stated clearly and accurately. Organization is aspect that emphasizes in coherent and logical. Meanwhile, vocabulary refers to choices of words, use of idioms and word form. The next aspect is language use which has important role to control of structure. The last is mechanics which focuses on mastery of spelling, punctuation and capitalization (see appendix A).

However, because STAD technique was employed to experimental group, one of the techniques to assess students' writing performance is team summary sheet. Team summary sheet was made to figure the team score for each group. It was employed after conducting quiz. Then the teacher announced the team score in the form of a newsletter or a bulletin board. The team summary sheet can be seen in the following table 3.2.

Table 3.2
Team Summary Sheet

Team's Name: _____

Team members	Initial/ base score	Quiz score	Improvement score
Total Team Score			
Team mean score			
Team recognition			

(Adapted from Slavin: 2005)

A complete description about how to fulfill the team summary sheet is explained into the steps below.

Step 1: Writing Team's Name

Step 2: Writing Team Members

Step 3: Determining initial or base score which is gotten from the students' initial writing score.

Step 4: Calculation Students' Quiz Score

The formula used to calculate quiz is:

$$\text{Quiz score} = \frac{\text{the number correct answer}}{\text{The number of questions}} \times 100$$

Step 5 : Calculating the Students' Improvement Scores

The improvement score of previous quiz is the initial/base score for the next meeting. The formula used to calculate the improvement is:

$$\text{Improvement score} = \text{Quiz score} - \text{initial/base score}$$

Step 6 : Calculating Total Team Score

The formula used to calculate total team score is:

$$\text{Total Team Score} = \text{the total of the team member's improvement score}$$

Step 7 : Calculating Team Mean Score

The formula used to calculate total team mean score is:

$$\text{Total Team Mean Score} = \frac{\text{Total team score}}{\text{The number of the team member}}$$

Step 8 : Recognizing Team.

Each group is given a reward based on its mean. There are three levels of rewards that can be given to the teams (Slavin, 2005).

3.6.2 Validity of test

Before applying instrument to experimental and control group, the value of its validity should be examined. In this study, the researcher used content validity which can be met if the test items reflect the subject matter contents of the curriculum the students have learned (Hatch & Farhady, 1982). Regarding this view, it can be said that the pretest and posttest used in this study have content validity as they were constructed based on the curriculum and course objectives. It is emphasized by Alderson, et.al. (1995) who states that rational (or content validation) depends on a logical analysis of the test's content to see whether the test contains representative sample of the relevant language skills. In other words, it measures what it is intended to measure, i.e. to measure student's writing skills on descriptive texts (model silabus dan RPP Bahasa Inggris, 2007).

3.6.3 Data analysis of pretest

Pretest was conducted on November, 1st 2011 to 72 eighth grade students that divided into two classes (VIII-F as experimental group and VIII-C as control group). The result of pretest was statistically analyzed by SPSS 17.0 for Windows. The calculation includes normality distribution, homogeneity variance, and independent *t*-test.

3.6.3.1 Normality distribution

Firstly, analyze normality distribution. The step in determining normality was: setting the hypothesis, H_0 = the score between experimental and control group is normally distributed. After that, setting of significant (0.05), computing normality using *Kolmogorov-Smirnov* in SPSS 17.0 for Windows, then comparing score between the result and level of significant value. If *Asymp. Sig* > 0.05, the null hypothesis is not rejected, which means the sample score is normally distributed. In contrast, if *Asymp. Sig* < 0.05, the null hypothesis is rejected which means the score is not normal (Hatch and Farhady, 1982).

In this study, the result shows that the probability (*Asymp.sig*) of the control group is 0.067 and the experimental group is 0.074 which are higher than the level of significance (0.05). Thus the null hypothesis is not rejected because the control and the experimental group are normally distributed (see appendix L).

3.6.3.2 Homogeneity variance

Secondly, calculate homogeneity variance. The steps in measuring data were: setting the hypothesis. In this study, the null hypothesis is stated. Afterward, the next step are setting the level of significant 0.05, measuring homogeneity variance using *Laverne's test* and alpha level of significant. If $\text{Asymp.Sig} < 0.05$, the null hypothesis is rejected, which means the two groups are not equal. In contrary, if $\text{Asymp.Sig} > 0.05$, the null hypothesis is not rejected which means the variance data of two groups is equal (Hatch and Farhady, 1982).

The test of homogeneity of variance shows that the probability of the pretest is higher than the level of significance ($0.491 > 0.05$) which means the null hypothesis is not rejected; the variance of two groups are equal. The computation is presented in appendix L.

3.6.3.3 Independent *t*-test

Thirdly is calculating independent *t*-test computation on pretest. Independent *t*-test was used to analyze the significant differences between the pretest means score in experimental and control groups. The first step is stating the null hypothesis which states that there is no significant difference of means between the control and experimental groups. Furthermore, the next step is setting the level of significance *t*-test 0.05 (two-tailed). If the significance value of pretest of the control and experimental group is smaller than 0.05, then H_0 is rejected. On the other side, if the significance value is larger than 0.05, then H_0 is retained (Hatch and Farhady, 1982:88). After that, the next step is calculating *t*-test score

using SPSS 17.0; comparing t_{obt} and t_{crit} . If $t_{obt} > t_{crit}$, it means that the hypothesis is not rejected, there is a significant difference between two groups. In contrary, if $t_{obt} < t_{crit}$, the hypothesis is rejected, there is no significant difference between the two groups (Kranzler, G. & Moursund, J., 1999).

The computation of independent t -test shows that the data from the experimental and control groups are equal with t_{obt} is lower than t_{crit} ($0.491 < 2.000$). The t_{crit} is 2.000 at the level of 0.05. It indicates that the null hypothesis is retained. In other words, there is no difference between means of experimental and control groups. This result implies that the experimental and control group are similar in their initial ability. It is presented in appendix L.

3.6.4 Data analysis of questionnaire

The questionnaire in this study consisted of 15 statements. Each statement has five various alternatives options that should be chosen by the students. The researcher used *Likert scale* with typical five-level as shown in table 3.3.

Table 3.3
Criteria Likert Scale

NO	CRITERIA	SCORE
1	Strongly disagree (STS: <i>Sangat Tidak Setuju</i>)	5
2	Disagree (TS: <i>Tidak Setuju</i>)	4
3	Undecided/Neither agree nor disagree (R: <i>Ragu-ragu</i>)	3
4	Agree (S: <i>Setuju</i>)	2
5	Strongly agree (SS: <i>Sangat Setuju</i>)	1

(Sugiyono, 2007: 135)

The result of questionnaires is calculated in percentage below.

$$p = \frac{F \times 100}{N}$$

(Riduwan, 2009)

Note: P = Percentage

F = Frequency

N = Response

100 = Constant

3.7 Conclusion

This section has presented a brief discussion of methodology related to aspect of the study, including hypothesis, research design, population and sample, data collection and data analysis.

The next chapter will explain the findings and discussion data obtained from the instruments of this study, i.e. test and questionnaire.