

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

This chapter explains the methodology of this research due to answering the questions. This chapter contains design of the research, population and sample, the instrument, data collection technique, and data analysis.

#### **3.1 Design of the Research**

Commonly, in educational research it is much more difficult to do true experimental in relation to the limitation of schedule and school regulation which did not allow randomizing participants. Since it is not feasible to employ research with random assignment, this research was conducted by using quasi experimental design with nonequivalent group. This kind of design was also used in previous researches especially in the use of TGT method and considered appropriate to be used in education field (Mustikasari, Purnamasari, 2007).

A quasi experimental design is an experiment in which units are not assigned to conditions random (Shadish, W.R. et. al, 2002). While the nonequivalent means that the researcher did not control the assignment to groups through the mechanism of random assignment (Trochim, 2006). The formula of quasi experimental with nonequivalent groups design used can be seen in Figure 3.1 below:

**Figure 3.1**

**Quasi Experimental with Nonequivalent Group Design**

G1	T1	X	T2
G1	T1		T2

Note: G1 = Nonequivalent experimental group  
G1 = Nonequivalent controlled group  
T1 = Pretest  
T2 = Posttest  
X = Treatment

(Best, 1989: 128)

The design notation of quasi-experimental above shows that this research used two groups which were experimental and controlled groups. Both groups were given pretest and posttest. The vertical alignment of T1s indicates that pretest and posttest on both groups were measured at the same time. But only for the experimental group, treatment was administered after the pretest. The treatment was organized in form of using the TGT method in the learning process. The addition of treatment for the experimental group has specific purpose which is to diagnose the difference between groups on the posttest result.

Additionally, there were two variables investigated in this research, namely independent variable and dependent variable. As mention by Fraenkel and Wallen (2007: 43), the independent variable is what the researcher chosen in study in order to assess its possible effects on one or more other variables, whereas the dependent variable is the variable that independent variable is presumed to affect. The relationship between independent and dependent variables in this research can be simplified as follows:

**Figure 3.2**  
**The Independent and Dependent Variables**



In organizing the outcome, the null hypothesis ( $H_0$ ) was predicted in this research. Creswell (1994:73-74) explains that the researchers employ  $H_0$  whether there is no relationship between the variables.

The  $H_0$  of this research: there is no difference in reading comprehension between students who use TGT and students who do not use TGT.

Armstrong (1974 as cited in Creswell, 1994: 73) reveals that good researchers should be objective to determine the result of the research. Therefore, the researcher tended to employ  $H_0$ . If the  $H_0$  is rejected, it means that TGT method works well and vice versa.

Meanwhile, the researcher used qualitative and quantitative methods to analyse the data. For the main question, the researcher analysed data from the reading comprehension test qualitatively. While for the second question, the researcher used quantitative method in analysis data from field notes and questionnaire.

## **3.2 Data Collection**

### **3.2.1 Population and Sample**

Population is the larger group to which the researcher hopes to apply the results (Fraenkel and Wallen, 2007: 92). The population of this study was the second grade students of a private secondary school in Bandung. This school was purposively chosen because of the heterogeneity of students and the school surroundings the researcher had already been familiar with.

According to Fraenkel and Wallen (2007: 92), the sample is the group on which information is obtained. In academic year 2010/ 2011, there are six classes of the second grade. Only two classes participated as the sample in this study for the experimental group and the controlled group. Class 8D was the experimental group and class 8C was the controlled group. Both classes were chosen because students on both classes have almost equal academic skill. Each class consists of 40 students, but only 32 students were involved. So, the total participant in the study was 64 students.

### **3.2.2 Instruments**

As stated in chapter one, the data in this research were collected by using three instruments, which are reading comprehension test, field notes, and questionnaire. The following are details of the instruments:

#### **1. Reading Comprehension Test**

Reading comprehension test was given to measure students' achievement in reading. This study used multiple choice form because the multiple choice is

the most used form in assessing comprehension (Nana, 2009: 25). The test consisted of 20 questions with 6 narrative passages. The researcher used Standard Competency and Base Competency based on the curriculum implemented in the school for second grade as the guide in making questions. For the passage, the researcher used several sources as from the textbooks for second grade secondary school and other sources from internet. The complete test is included in Appendix B.2.

In answering the pretest and posttest, the students get one point for the right answer without any reduction for every wrong answer. The test was conducted to both experimental and controlled groups. The test consisted of pretest and posttest. The pretest was given on the first meeting before treatments, while the posttest was given on the last meeting. The pretest was given to check students' initial reading ability. It is also treated as guidance for researcher to group the students on the first TGT activity in experimental group. The posttest was conducted to examine whether the treatment with TGT to the experimental group was effective or not by comparing it with the pretest.

## 2. Field Notes

This kind of instrument was used to help the researcher collecting information about the setting, the participant, the frequency and duration, the activity, and the subtle factor (Meriam, 1991 in Amelia, 2010). The researcher in this case acted as the observer got involved in the group activities were observed. That is way, this research used participant observation.

The information was noted during the teaching and learning process which was about one month, started from 28th March 2011 to 9th May 2011. Further information about the field notes is presented in Appendix D.1.

### 3. Questionnaire

Questionnaire was given to the experimental group in order to clarify the data about students' view related to the use of TGT in reading activity in learning descriptive text. By applying questionnaire, the researcher can dig deeper participants' reason to the answer of the questions (Nazir, 1999). Therefore, in order to answer the second question, the researcher distributed questionnaire after treatment had been completed. The questionnaire had 10 items. The researcher used structured questionnaire in which the students choose one answer for each item. The questions were formed in checklist in order to ease the students in answering. The complete questionnaire is included in Appendix B.3.

### **3.3 Procedure of the Research**

Generally, these are the procedural steps of the research conducted for the experimental group:

1. Preparing the instruments and the teaching material for treatment.
2. Administering a pilot test to a group of students out of participant (experimental and controlled groups) in order to find out the validity and reliability of the instruments.

3. Assigning the pretest to the participants (both experimental and control groups) to check students' initial reading ability and find the means of both groups.

4. Doing treatments for several meetings to the experimental group.

5. Assigning the posttest to both groups of participant to investigate whether TGT gave some effects in students' reading ability, then find the means of both groups.

6. Giving questionnaire to the experimental group in order to complete the data.

7. Analyzing the data from pretest, posttest, and questionnaire.

8. Drawing a conclusion.

To distinguish how the researcher conducted the research between the experimental and control group, this chapter is completed with the procedure of the research for control group as follows:

1. Preparing the instruments and the teaching material for treatment.

2. Assigning the pretest to the participants (both experimental and control groups) to check students' initial reading ability and find the means of both groups.

3. Doing treatments for several meetings to the control group.

4. Assigning the posttest to both groups of participant to investigate whether TGT gave some effects in students' reading ability, then find the means of both groups.

5. Analyzing the data from pretest, posttest, and questionnaire.
6. Drawing a conclusion.

Furthermore, the complete procedures for both groups and control group in form of lesson plans are presented in Appendix A.2 - A.4 (experimental) and Appendix A.11 - A.13 (control).

### **3.4 Data Analysis**

#### **3.4.1 Analysis of Pilot Test**

Before being tested in pretest, the reading comprehension test needs to be checked in a pilot test in case of the difficulty, the discriminating index, the validity, and the reliability.

##### **3.4.1.1 The Difficulty Index**

The difficulty index is the opportunity to give right answer in a certain level of ability (Ministry of Education, 2008). Thus, the difficulty index is important because it deals with students' capability in answering the questions. Arikunto (2003) divides the difficulty index in three categories: easy, moderate, and difficult. All the categories have to be in balance. In this study, the difficulty index was calculated by Anatest V4 program.

##### **3.4.1.2 The Discriminating Index**

The Ministry of Education (2008) also states that the discriminating power index is the ability of test item in discriminating between students who completely



comprehend the lesson and students who do not or less comprehend the lesson. This study used Anatest V4 program to calculate the discriminating index.

#### **3.4.1.3 The Validity**

A good test has to be valid and reliable. Basically, validity is the appropriateness of instruments in measuring what should be measured (Arikunto, 2003: 167). Gronlund (1985: 55) also states that:

“If the results are to be used as a measure of pupils’ reading comprehension, we should like our interpretations to be based on evidence that the scores actually reflect reading comprehension and are not distorted by irrelevant factors. Basically, then, validity is always concerned with the specific use of the results and the soundness of our proposed interpretations.”

Given this starting point, it is clear that the instrument of this study has to be valid in term of measuring the students’ reading comprehension. In order to check its validity, variables should be correlated. This study used Anatest V4 program to calculate the validity.

#### **3.4.1.4 The Reliability**

Another important evidence of a good test is reliability. Reliability is the consistency that makes validity possible (Gronlund, 1985: 86). When a test is reliable, it will not result high difference in scores when administered in different time. A student who gets high score in the first test will also get high score for the second test. The reliability of the reading comprehension test in this study was analyzed with Anatest V4 program.

#### **3.4.2 Analyses of Pre and Post Test**

The following are details of the analysis of reading comprehension test:

### **3.4.2.1 The Normality Test**

The calculation of normality is important to determine the kind of statistic technique in analysis (Sugiyono, 2008: 79). If the data is normal, the parametric statistic is used. If the data is abnormal, the nonparametric statistic is used. In this study, the normal distribution was calculated by using Kolmogorov-Smirnov formula with the assistance of SPSS 17 for windows program.

### **3.4.2.2 The Homogeneity Test**

Homogeneity was used to determine kind of formula in testing the hypothesis. This study used Lavene test formula in SPSS 17 for windows. Score can be examined by t-test only if variance of the scores in the population is equal.

### **3.4.2.3 The Mann-Whitney U Calculation**

After determining the normality and the homogeneity, the collected data from pretest and posttest of both groups was analyzed to check the hypothesis. Because the data in this research was not normal, the data was analyzed by using Mann-Whitney U formula with the assistance of SPSS 17 for windows program. If the value of Asymp. Sig. (2-tailed)  $> 0.05$ , the null hypothesis should be accepted and vice versa.

In order words, the use of this calculation was aimed to evaluate whether there was the difference in score between experiment group and control group

after treatments given. Indirectly, it showed whether or not TGT method was effective to increase students' reading comprehension.

### 3.4.3 Analysis of Questionnaire

The data from questionnaire was analyzed to know students' response toward the use of TGT in classroom. The data collected by questionnaire was analyzed with the following procedures:

1. Classifying students' answer
2. Calculating students' answer with this numeral percentage formula:

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

Note: P = numeral percentage  
*f* = frequency of answer  
*n* = number of sample

(Sudjana, 2009: 129)

3. Interpreting the computation by giving rank. Koentjaraningrat (in Qodaruddin, 2010) divided the categories into:

**Table 3.1**

**The Sudents' Response Categories**

Score (%)	Interpretation
0	No one of participant
1-25	A small number of participant
26-49	Almost half of participant
50	A half of participant

51-75	Much of participant
76-99	Almost all of participant
100	All of participant

#### 4. Drawing a conclusion

Furthermore, the analysis result can be checked in the Appendix C and the discussion of the data were presented and discussed in Chapter IV.

