

## CHAPTER III

### RESEARCH METHODOLOGY

This chapter mostly discusses research methodology applied in the research. It comprises research design, population and sample, research instruments, research procedures, and data analysis.

#### 3.1 Research Design

Quasi experimental study of nonequivalent groups design was applied in this study. Hatch and Farhady (1982: 22) stated that the nonequivalent groups design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes which may be similar.

In this study, particular treatment or picture narrating technique was given to the experimental group in teaching speaking. It was aimed at finding out the significance of picture narrating technique use in developing students' speaking ability. Meanwhile, non-picture narrating technique was applied in the control group. The research design can be illustrated as follow:

**Table 3.1**  
**Experimental Design**

Sample	Pre-test	Treatment	Post-test
Experimental Group	T1e	X	T2e
Control Group	T1c		T2c

Notes:

T1e: Students' speaking skill of experimental group pretest

T1c : Students' speaking skill of control group pretest

T2e : Students' speaking skill of experimental group post-tets

T2c : Students' speaking skill of control group post-test

X : The treatment using picture narrating technique

(Sugiyono, 2008: 116)

### **3.1.1 Variables**

Hatch and Farhady (1982) defined variable as a certain attribute of a person or an object that differs each another. There were two variables in the present study: independent variable and dependent variable. Independent variable is the major variable which is investigated. It is the variable which is selected, manipulated and measured in this study. While dependent variable is the variable which is observed and measured to determine the effect of the independent variable. Therefore, this study had two variables as well: the use of picture narrating technique as the independent variable and students' speaking ability as the dependent variable.

### **3.1.2 Research Hypothesis**

According to Nadzir (1983: 183), "Hypothesis is a prediction of some sort regarding the possible outcomes of a study". The null hypothesis (denoted by  $H_0$ )

employed in this study states that the use of picture narrating is not able to develop students' speaking ability.

### 3.2 Population and Samples

The population of this study was the second grade students of vocational high school in Bandung. The sample of the study was two classes, it has been chosen based on purposive sampling technique. This technique was employed by considering certain conditions. The first class was KBPU 1 (Konstruksi Badan Pesawat udara 1) as experimental group and the second class was PPU 4 (Pemesinan Pesawat Udara 4) as control group. Both of classes consisted of 30 students.

### 3.3 Data Collection

The data collection in this study included research instruments, they are: pre-test, post-test and interview. **Pre-test** was conducted to figure out the initial differences between the groups of students who have similar level of speaking competency. It has been given to both of the group; control and experimental. **Post-test** was employed in the end of the research. It has been done after giving treatments and exercises to the experimental group. The result of the post-test is used to compare with the data of the pre-test and analyze the picture narrating technique effectiveness. **Interview** was done after finding the data from pre-test and post-test. The interview comprises of a set of questions concerning with

students' responses toward picture narrating technique. Sugiono (2008) stated that instrument is a media used to collect the data.

### **3.4 Research Procedures**

This research was begun by conducting the pre-test to measure students' speaking ability. Afterwards, treatments were given to the experimental group namely picture narrating technique; however the control group was given like treatments. Before starting teaching the class, the teacher prepared lesson plans. It comprises of competency standard, basic competence, indicators, aims of learning, teaching-learning methods, materials, learning steps and media.

In experimental group, the material was delivered by picture narrating technique through giving a context 'Travelling around the City' in the first meeting. The students then had to propose five ideas on what things should be done in travelling around the city. Those five ideas would be used as topic in the next five meetings. In addition, the five topics delivered were 'Going to the Mall', 'Visiting Friend's House', 'Going Hiking,' 'Going to the Library,' and 'Going Swimming'. While in control group, the material used was the same as in experimental group but there was no context and taught with different method.

After the series of preparation and teaching-learning process had been conducted, the teacher then evaluate the materials given. This evaluation was needed to see whether or not students were ready to employ the next steps of this research namely post-test.

### 3.4.1 Pre-test

Pre-test was employed to both groups as the first step of the research. This test was purposed to obtain the data of the students' basic speaking skill and to ascertain that the students from both groups had the same capability and the same English proficiency before they received the treatment. The procedure of test was exactly same with try out test.

### 3.4.2 Conducting Treatment

This research was conducted to see the effect of the two groups namely experimental and control group with different treatment. The experimental group was taught by using picture narrating technique as treatment, while the control group was given the same treatment.

Treatments were applied in the experimental group through series of teaching-learning process. The materials which were taught by the teacher included past tense then followed by picture narrating technique. Treatment schedule is presented as follow:

**Table 3.2**  
**Time Schedule of Research**

No.	Experimental Group		Control Group	
	Date	Material	Date	Material
1.	March 26, 2011	Pre-test	March 21, 2011	Pre-test
2.	March 26, 2011	Past tense: Going to the Mall	March 21, 2011	Past tense: Going to the Mall
3.	April 2, 2011	Past tense:	April 4, 2011	Past tense:

		Going to the Friend's house		Going to the Friend's house
4.	April 9, 2011	Past tense: Going to the Internet Shop	April 11, 2011	Past tense: Going to the Internet Shop
5.	April 16, 2011	Past tense: Going to the Movie	April 18, 2011	Past tense: Going to the Movie
6.	April 23, 2011	Past tense: Going Camping	April 25, 2011	Past tense: Going Camping
7.	April 30, 2011	Post-test Interview	May 2, 2011	Post-test

#### 3.4.3 Administering Post-test

The study employed the post test at the end of the research. It was used to measure the students' speaking skill after the treatments. It was employed to both experimental and control groups. This was intended and also to find out the differences between students' score of both group. The posttest was almost similar to the try out test.

#### 3.4.4 Conducting Interview to the Experimental Group

After conducting Pre-test and post-test, interview was conducted to reveal the students' responses toward picture narrating technique. Interview is particularly useful for getting the story behind a participant's experiences. The interviewer can pursue in-depth information around the topic (McNamara, 1999).

There were five questions asked to the students in experimental group, after the treatment was conducted. This instrument gave the assessment of the

method used in students' point of view. By having interview, students were expected to share their opinion about the treatment that they had done.

In order to get a description of additional information, concerning picture narrating technique, students in experimental group were interviewed one by one. The interview is expected to support the data gained from the instruments used in this study.

### **3.5 Data Analysis**

After collecting the data by using the instruments, the researcher analyzed it. The process of the data analysis was done on the pre-test and post-test scores to find out the students development by picture narrating technique after the treatments. There were scores and criteria which were settled to give brief explanation for every score given in assessing student's speaking ability. Criteria of assessment in conducting pre-test and post-test were settled by the scoring guide adapted from Hughes Arthur (1989). They are grammar, vocabulary, and comprehension.

Table 3.3

## Score Criteria for Pre-test and Post-test

## SCORING CRITERIA ON PRETEST AND POST TEST

No	Aspect	Score	Indicators
1.	Grammar	4	<ul style="list-style-type: none"> <li>- The student frequently uses narrative pattern such as one day, one month ago, two days ago, etc.</li> <li>- The student frequently recounts a sequence such as first, after that, and then, etc.</li> <li>- The student frequently tells the story in the form of past tense.</li> </ul>
		3	<ul style="list-style-type: none"> <li>- The student occasionally uses narrative pattern such as one day, one month ago, two days ago, etc.</li> <li>- The student occasionally recounts a sequence such as first, after that, and then, etc.</li> <li>- The student occasionally tells the story in the form of past tense.</li> </ul>
		2	<ul style="list-style-type: none"> <li>- The student very rarely uses narrative pattern such as one day, one month ago, two days ago, etc.</li> <li>- The student very rarely recounts a sequence such as first, after that, and then, etc.</li> <li>- The student very rarely tells the story in the form of past tense.</li> </ul>
		1	<ul style="list-style-type: none"> <li>- There is no evidence that the student uses narrative pattern such as one day, one month ago, two days ago, etc.</li> <li>- There is no evidence that the student recounts a sequence such as first, after that, and then, etc.</li> <li>- There is no evidence that the student tells the story in the form of past tense.</li> </ul>
2	Vocabulary	4	<ul style="list-style-type: none"> <li>- The student frequently uses the verbs learned (more than 10 verbs)</li> <li>- The student frequently uses verbs 2</li> </ul>
		3	<ul style="list-style-type: none"> <li>- The student occasionally uses the verbs learned (6-10 verbs)</li> <li>- The student occasionally uses verbs 2</li> </ul>
		2	<ul style="list-style-type: none"> <li>- The student very rarely uses the verbs</li> </ul>



			<p>learned (1-5 verbs)</p> <ul style="list-style-type: none"> <li>- The student very rarely uses verbs 2</li> </ul>
		1	<ul style="list-style-type: none"> <li>- There is no evidence that the student uses the verbs learned</li> <li>- There is no evidence that the student uses verbs 2</li> </ul>
3	Comprehension	4	<ul style="list-style-type: none"> <li>- The student frequently relates the pictures learned to his/her experiences.</li> <li>- The student frequently understood of what they are talking about.</li> </ul>
		3	<ul style="list-style-type: none"> <li>- The student occasionally relates the pictures learned to his/her experiences.</li> <li>- The student occasionally understood of what they are talking about</li> </ul>
		2	<ul style="list-style-type: none"> <li>- The student very rarely relates the pictures learned to his/her experiences.</li> <li>- The student very rarely understood of what they are talking about</li> </ul>
		1	<ul style="list-style-type: none"> <li>- There is no evidence that the student relates the pictures learned to his/her experiences.</li> <li>- There is no evidence that the student understood of what they are talking about</li> </ul>

*(Adapted from Hughes Arthur, 1998)*

### 3.5.1 Data Analysis on Pre-test

The pre-test scores from the students' speaking were analyzed statistically by using SPSS 16. The calculation covers normality distribution, homogeneity variance, and t-test. In detail, the data analysis is presented as follow.

#### 3.5.1.1 Normal Distribution Test

The statistical calculation of normality test used One-Sample Kolmogorov-Smirnov by following three steps below:

- 1) Setting the level of significance ( $\rho$ ) at 0.05 and establishing the hypotheses as follows:

Ho : the variances of experimental and control group are normally distributed.

H1 : the variances of experimental and control group are not normally distributed.

- 2) Analyzing the normality distribution with One-Sample Kolmogorov-Smirnov test.
- 3) Comparing the asymp.sig with the level of significance ( $\rho$ ) to test the hypothesis. If the asymp.sig  $>$  0.05, the null hypothesis is not rejected and the distribution of data is normal. Hence, if the asymp.sig  $<$  0.05, the null hypothesis is rejected and it means the data is not normally distributed.

### 3.5.1.2 Homogeneity of Variance

The homogeneity of variance test used a SPSS program namely Levene test. The steps are as follows:

- 1) Setting the level of significance ( $\rho$ ) at 0.05 and establishing the hypotheses as follows:

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

H1 : the variances of the experimental and the control group are not homogenous.s

- 2) Analyzing the homogeneity of variance by using Levene test.

- 3) Comparing the *asyp.sig* with the level of significance to the test
- 4) Hypothesis. If the *asyp.sig*  $> 0.05$ , the null hypothesis is not rejected and it suggests that the variances of data are homogenous. However, if the *asyp.sig*  $\leq 0.05$ , the null hypothesis is rejected and it clarifies that the variances are significantly different.

### 3.5.1.3 Independent *t* Test

After revealing the result of normality and homogeneity test, the next statistical computation namely independent t-test is conducted. Those are the procedures to follow in calculating the independent t-test of pre test and post test data:

- 1) Setting the level of significance ( $\rho$ ) at 0.05 and establishing the null hypothesis for the pre test and post test data analysis. The hypothesis is stated as bellow:  
  
Ho: there is no significant difference between the means in experimental and control group.  
  
H<sub>1</sub>: there is significant difference between the means in experimental and control group.
- 2) Analyzing the independent t-test by using SPSS 16.0.
- 3) Comparing the *t obt* and *t crit* at  $\rho = 0.05$  and  $df = 58$  to examine the hypothesis. If the *t obt*  $> t crit$ , the null hypothesis is rejected and it clarifies that there is difference of means between experimental and control group.

However, if the  $t_{obt} < t_{crit}$ , the null hypothesis is not rejected and it declares that there is no difference of means between experimental and control group.

### 3.5.1.4 Dependent $t$ Test

Dependent  $t$ -test was used to analyze the difference between pretest and post-test experimental groups' means (Coolidge, 2000). In line with this, Hatch and Farhady (1982: 114) state that dependent  $t$ -test or matched  $t$ -test is used to analyze the pretest and post-test score and to investigate whether or not the difference of pretest and post-test means of each group are significant. The steps are as follows:

- 1) Setting the level of significance ( $\rho$ ) at 0.05 and establishing the null hypothesis for the pre test and post test data analysis. The hypothesis is stated as bellow:
- 2)  $H_0$ : there is no significant difference between the means in experimental and control group.
- 3)  $H_1$ : there is significant difference between the means in experimental and control group.
- 4) Analyzing the dependent  $t$ -test by using SPSS 16.0.
- 5) Comparing the  $t_{obt}$  and  $t_{crit}$  at  $\rho = 0.05$  and  $df = 58$  to examine the hypothesis. If the  $t_{obt} > t_{crit}$ , the null hypothesis is rejected and it clarifies that there is difference of means between experimental and control group. However, if the  $t_{obt} < t_{crit}$ , the null hypothesis is not

rejected and it declares that there is no difference of means between experimental and control group.

### 3.5.2 Data Analysis on Post-test

Data analysis on post-test employed exactly the same steps as in the pre-test data analysis which is included normality test, homogeneity test, and independent t-test by using SPSS 16 for window.

### 3.5.3 The Calculation of Effect Size

According to Coolidge (2001: 151) effect size is the effect of the influence of independent variable upon the dependent variable. It means that effect size is a way to consider how well the treatment works. If there is a large different between the two groups' means, it states that the treatment really works, and then there is said to be a much effect size. If the difference between the two groups' means is small, then there is said to be a small effect size.

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

Notes:

r = Effect size

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

df = N1 + N2 - 2

After gaining the effect size, then the score will be matched with the following scale to interpret the effect size.

**Table 3.3**

**Effect Size Value**

<b>Effect Size</b>	<b>r value</b>
Small	.100
Medium	.243
Large	.371

(Coolidge, 2000: 151)

#### **3.5.4 Data Analysis of Interview Results**

The data gained from interview were classified into some major answers. Those were the advantages of using picture narrating technique toward students' speaking ability; the advantages of using picture narrating technique in learning process; and the obstacles were met by them when using picture narrating technique.

After gaining the data, the interview results were presented in graph to show visually the comparison among each student's response to draw the conclusion. Afterward, the next chapter will explore the findings and discussions of the research.