CHAPTER III

RESEARCH METHODOLOGY

This chapter presents introduction, research design, data collection which is divided into two parts namely population and sample, research instrument. There are also research procedures which consist of organizing teaching procedure, administering pilot-test, conducting treatment, administering pre-test and post-test, administering interview. In the last part of this chapter, data analysis is presented into four parts namely scoring technique, data analysis on pilot-test, data analysis on the pre-test and post-test, data analysis on the interview.

3.1 Introduction

This study adopted experimental method with quasi-experimental design. Hatch & Farhady (1982: 24) state that quasi experimental is practical compromises between true experimental and the nature of human language behavior which we wish to investigate. By using this design, we control as many variables as we can and also limit the kinds of interpretation we make about the cause-effect relationships and hedge the power of our generalization statements.

3.2 Research Design

This study was experimental study with quasi-experimental design. There were two groups taken as the investigated groups. One group was for the experimental group that will receive guessing game in teaching speaking in its treatment, while another group was for the control group that receives no treatment. According to Hatch and Farhady (1982: 22) the pre-test post-test 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, speaking test was conducted to find out whether there were significant changes in experimental group after being given guessing game or not. In addition, based on the method of this study that was quasi-experimental design, the research design can be illustrated as follows.

Table 3.1

Research Design

Sample	Pre-test	Treatment	Post-test
Experimental Group	Se_1	T	Se_2
Control Group	Sc_1	0	Sc_2

Notes:

Se_1 : Students' speaking ability of experimental group in pre-test

Sc_1 : Students' speaking ability of control group in pre-test

Se_2 : Students' speaking ability of experimental group in post-test

Sc_2 : Students' speaking ability of control group in post-test

T   : Treatments teaching speaking using guessing game

According to Fraenkel and Wallen (1990: 40) a research question is often restated as a hypothesis. Hypothesis is a prediction of some sort regarding the possible outcomes of a study. In this study, two hypotheses were formulated as follows:

$H_o = \bar{x}_1 = \bar{x}_2$

In null hypothesis, it was stated that "there is no difference in mean adjustment level between the class using Guessing Game technique as treatment and class without using Guessing Game technique."

$H_a = \bar{x}_1 \neq \bar{x}_2$

In alternative hypothesis, it was stated that "there is a difference in mean adjustment level between the class using Guessing Game technique as treatment and class without using Guessing Game technique."

3.2.1 Data Collection

3.2.1.1 Population and Sample

The population of this study was the second year students of SMKN 2 Bandung. The sample of this study was two classes, it was chosen due to research feasibility factor. The first class was XITP1 (Teknik Permesinan-1) as the experimental group and the second class was XITGM (Teknik Gambar Mesin) as the control group.

Both of classes consisted of 34 students. However, there was a possibility that not all of the students of each class became the sample of this study. It was due to students' comprehension in participating to the pre-test, treatments, and post-test given.

In addition, the sample of this study was selected randomly by using cluster random sampling technique. The researcher identified naturally occurring units, such as schools, classes, not individual subject and then randomly selected some of these units for the study. According to Fraenkel and Wallen, 1990: 72, 73 Cluster sampling was employed since it was difficult to select a random sample of the individuals. It was also easier to implement in school and it was less time-consuming.

With the reason above, two classes were selected for the study. The classes were XI-TP1 and XITGM. Both classes were chosen as the sample with a consideration from the English teacher of SMKN 2 Bandung that the classes have the same level of English competence.

3.2.1.2 Research Instruments

According to Arikunto, 1996: 136, instrument is a media used by the researcher in collecting the data. The instruments were used to collect data in order to answer the research questions. There were three instruments used in this study namely pre-test, post-test and interview. These three instruments were elaborated as follows.

Pre-test was conducted to find out the initial differences between the groups of students who had similar level of speaking. **Post-test** was employed in the last program of this research. After giving some treatments and exercises to the experimental group in certain period of time, post-test was carried out by giving the students a certain situation. In this study pre-test was compared with the data of the post-test for the analysis of Guessing Game effectiveness.

After getting the data related to the teaching-learning process, **interview** would be administered to the sample of this study. The interview consisted of a set of questions asking students' point of view about strengths and weaknesses of Guessing Game. By administering interview, students' feeling or impressions after the instructional process and its strengths and weaknesses for them would be observed.

3.2.2 Research Procedure

3.2.2.1 Organizing Teaching Procedure

In the beginning of students and teacher's meeting, pre-test was carried out in measuring students' speaking ability. Afterwards, treatment was conducted for the experimental group. This study used Guessing Game technique to apply in teaching-learning process. Before started to teach in class, teacher prepared lesson plan. It was needed to note all contents in supporting teaching-learning process

namely competence standard, basic competence, indicators, aims of learning, teaching-learning methods, materials, learning steps, and media.

After having the preparation, teacher taught Describing Thing material which was included in pre-test and post-test. Describing Thing material was taught in four meetings. The first and second meetings were about Describing Thing then followed by Guessing Game which used things to guess. The third and fourth meetings were about Describing Someone's Job, and then followed by Guessing Game which used someone's job to guess. In the rest of two meetings, students were asked to bring their favorite thing and described in front of class.

The series of preparation and teaching-learning process had been conducted, teacher then needed to have an evaluation of the materials given. This evaluation was needed to see whether or not students were ready to employ the next following step of this study that was post-test.

3.2.2.2 Administering Pilot-test

Pilot-test was needed in order to find out whether or not pre-test and post-test were appropriate for experimental and control group to carry out. In this study, pilot-test was employed in terms of the same level of speaking ability as experimental and control group. Sample of the pilot-test were taken from second grade students of XI IPA2 class in SMA Karya Budi.

There were ten students chosen randomly as the sample of the pilot-test. The ten students were asked to have speaking test, which was employed using the following instruction.

In the beginning of the test, researcher said, "Before you go with your test, please choose one picture you like the most from five pictures." Five pictures were shown namely cellular phone, laptop, i-pod (MP3 player), digital camera and LCD TV (Liquid Crystal Display Television). In the next instruction researcher said, "I will give you two minutes to think about its characteristics and prepare to make a description of it." Before the test began, the researcher gave the last instruction, "Alright, now all you have to do is to describe to me characteristics of the thing you have chosen, and tell me the reasons why you like it. You can start now."

While ten students had the speaking test one by one, the rest of students in class were given the task to make the description in written form. In addition, the criteria of assessment consisted of four aspects namely fluency, pronunciation, grammar, organization of idea and choice of words (diction).

3.2.2.3 Conducting Treatment

This study was conducted to see the effect of the two different groups namely experimental and control group with different treatment. The experimental group was taught using Guessing Game as its treatment in their lesson, while

control group would undergo teaching learning process as they do daily with their teacher.

There was treatment conducted for the experimental group, which exceeded the series of teaching learning process. Materials that were taught by teacher included Describing Thing then followed by Guessing Game. In giving brief details, the treatment or research schedule will be figured out as follows.

Table 3.2

Research Schedule

No.	Experimental Group Treatment	
	Date	Activity
1	11-09-2009	Pre-test
2	16-09-2009	• Describing Thing Using Adjectives • Guessing Game (Things)
3	18-09-2009	• Describing Thing Using Adjectives in Sentences • Guessing Game (Things)
4	02-10-2009	• Describing Someone's Job Using Adjectives • Guessing Game (Someone's Job)
5	07-10-2009	• Describing Someone's Job Using Adjectives in Sentences • Guessing Game (Someone's Job)
6	09-10-2009	Students' Performance in Describing A Thing They Have
7	14-10-2009	Students' Performance in Describing A Thing They Have
8	16-10-2009	Post-test

In applying Describing Thing material, teacher gave a picture to stick on blackboard. Students were asked to write adjectives related to characteristics of the thing as many as possible. After collecting adjectives, teacher gave an example to use the adjectives in sentences orally. Students then were asked to make their own sentences, using adjectives that were written on board. These process happened three times, in which means there were three pictures shown. The implementation of Describing Thing material will be drawn by following scheme.
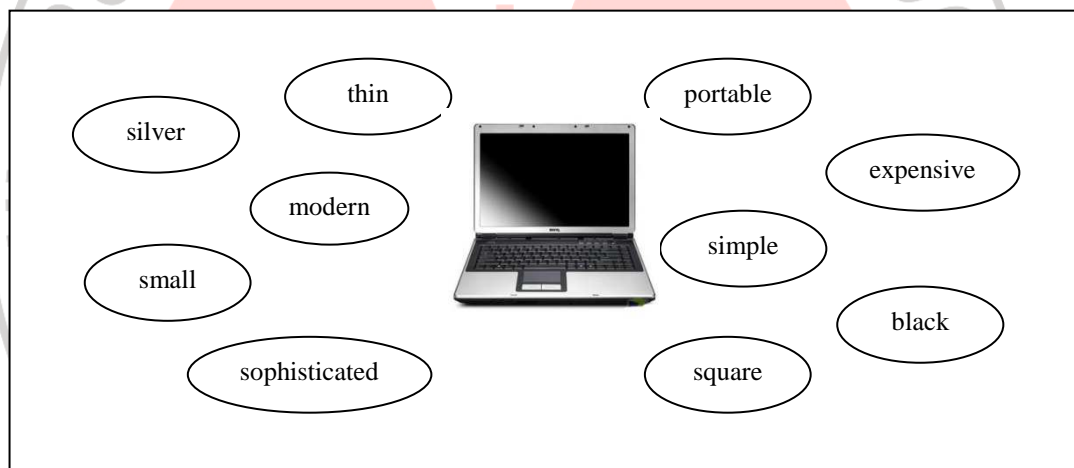
Guessing Game will be given as a treatment, and also a part of lesson. After describing thing using materials in the lesson, teacher and students were together having the simulation namely Guessing Game.

3.2.2.4 Administering Pre-test and Post-test

In this study, speaking test was conducted as the research instrument of students' speaking ability for both experimental and control group. Moreover, the tests used were pre-test and post-test design.

In conducting this test, students of both groups were asked to describe thing, which was in form of five pictures. They had to choose one of five pictures given, as one that they like the most. Meanwhile, the pictures were about electronic gadgets which were well known. They were pictures of cellular phone, laptop, i-pod (MP3 player), digital camera and LCD TV (Liquid Crystal Display Television). After choosing one of five pictures, students were required to describe the thing by using two instructions.

First instruction was students have to describe characteristics of the thing they had chosen. Secondly they had to tell researcher the reasons why they like that thing. By using this kind of test researcher could asses how students' speaking ability were. Furthermore, there were five aspects to assess students' speaking ability in this study namely fluency; pronunciation; grammar; organization of idea; choice of words. These criteria were available to apply in both groups.

3.2.2.5 Administering Interview

The interview was aimed at getting a description about additional information related to the process of the study, particularly for the treatment. 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 Guessing Game technique, students in experimental group were interviewed one by one. This process would support this study in order to assess advantages, disadvantages of Guessing Game, strategies used to overcome the obstacles learning speaking using the technique based on students' point of view.

3.2.3 Data Analysis

3.2.3.1 Scoring Technique

In assessing students' speaking ability through speaking tests, there should be scores and criteria which gave brief explanation for every score given. Criteria of assessment in conducting the pre-test and post-test were described more detail as follows:

Table 3.3

Criteria of Assessment of Fluency

Score	Criteria
10	The speaker speaks naturally and continuously.
8-9	The speaker generally speaks naturally and continuously, but there are some pauses in the utterances.
6-7	There are some pauses but the speaker manages to rephrase and continue.
<6	The utterances run less continuously and there are many pauses.

Table 3.4

Criteria of Assessment of Pronunciation

Score	Criteria
10	The speaker speaks the utterances phonemically accurate.
8-9	There are some occasional phonemic errors, nearly perfect.
6-7	There are several errors in pronunciation, but it is generally accepted.
<6	There are many phonemic errors and very difficult to perceive meaning.

Table 3.5

Criteria of Assessment of Grammar

Score	Criteria
10	Grammatical aspects (linking verbs) are appropriately used.
8-9	There are some grammar errors, but generally comprehensible.
6-7	There exist several errors in linking verbs use, but the utterances are generally accepted.
<6	There are still inappropriate uses of linking verbs.

Table 3.6

Criteria of Assessment of Organization of idea

Score	Criteria
10	• There is clear and logical simple present tense usage in the utterances. • The utterances provide well-ordered of noun phrase. • There is relating verbs usage appropriately.
8-9	• There is clear and logical simple present tense usage in the utterances. • The utterances use some appropriate noun phrase. • There is relating verbs usage.
6-7	• Simple present tense usages are incomplete, but generally acceptable. • Noun phrases are used inappropriately. • Relating verbs usages are nearly perfect.
<6	• Simple present tense usages (in the utterances) are incomplete or unclear. • Noun phrases are used inappropriately. • Relating verbs usages are unclear.

Notes:

- Noun phrases (e.g.: a large open row boat; a sweet young lady, etc.)
- Relating verbs (e.g.: it is really cool, it has very thick fur, etc.)

Table 3.7

Criteria of Assessment of Diction

Score	Criteria
10	The specific nouns and adjectives used are selected and have variation; they are relevant with the situation.
8-9	The chosen specific nouns and adjectives are generally relevant with the situation and have variation, but there are some inappropriate words.
6-7	The specific nouns and adjectives have already been relevant with the topic and situation; they however do not have any variation yet.
<6	There are still lots of specific nouns and adjectives used inappropriately.

Notes:

- Specific nouns (e.g.: television, laptop, digital camera, etc.)

- Specific adjectives (e.g.: modern, small, large, etc.)

3.2.3.2 Data Analysis on Pilot-test

Scores of students' speaking test on pilot-test was calculated using a computer program named SPSS (Statistical Package for the Social Sciences) version 16. The program would support this study to measure in terms of parametric test namely the data was continuous, homogeny and normal.

3.2.3.3 Data Analysis on the Pre-test and Post-test

3.2.3.3.1 Normal Distribution Test

In having parametric tests, there were some terms available. One of the terms was data should be normal. As stated by Field (2005: 93) that way of looking at the problem is to see whether the distribution as a whole deviates from a comparable normal distribution. The Komolgrov-Smirnov and Shapiro-Wilk tests do just this: they compare the scores in the sample to a normally distributed set of scores with the same mean and standard deviation.

The data will be normal if the test is non-significant ($p>.05$). The distribution of the sample was not significantly different from normal distribution, in which meant data were normal. On the other hand, data will be non-normal if the test is significant ($p<.05$). The distribution was significantly different from a

normal distribution. In measuring normality distribution, this study used Komolgrov-Smirnov test which was calculated using SPSS 16 for Windows Program.

To give more details, the steps of normality distribution analysis were as follows. First, the hypotheses and set the alpha level was stated at 0.05 (two tailed test)

H_0 : The score of the experimental and the control group are normally distributed

H_1 : The score of the experimental and the control group are not normally distributed

Second, the normality distribution was analyzed using Kolmogrov-Smirnov test in SPSS 16 for windows. Finally, the Asymp Sig. (probability) was compared with the level of significance to test the hypothesis. If the Asymp Sig. is more than the level of significance (0.05), the null hypothesis accepted; the score are normally distributed.

3.2.3.3.2 The Homogeneity of Variance Test

The research of Homogeneity of variance test was conducted to test whether or not the score of research was homogeneous variance. The testing carried out was Lavene test formula in SPSS 16 for windows. The procedures of

the test were as follows. First, hypothesis and setting the alpha level were stated at 0.05 (two-tailed test).

H_0 : The variance of the experimental group and the control group are homogeneous.

H_1 : The variance of the experimental group and the control group are not homogeneous.

Second, the homogeneity of variance was analyzed by using Lavene test formula in SPSS 16 for windows. Third, the significant value was compared with the level of significance for testing the hypothesis. If the significant value is more that the level of significance (0.05) the null hypothesis is accepted; the variance of control group and experimental group are homogeneous.

3.2.3.3.3 The Independent *t-test*

Independent *t-test* was used to find out the significant differences between the post-test score of experimental and control group after treatment given. As stated by Kranzler and Moursund (1999: 89) that the primary purpose of *t*-test is to determine whether the means of two groups of scores, differ to a statistically significant degree.

There were some requirements of the data that must be considered before conducting *t*-test. First, the data should be in formed of interval ratio. Second, the data should be homogenous or formed in the same type; and third, the data should

41

have a normal distribution (Coolidge, 2000: 143). Meanwhile, the hypothesis was stated as follows

H_0 : There is no significant difference between the pre-test/post-test means for the experimental group and for the control group.

H_a : There is significant difference between the pre-test/post-test mean for experimental group and for the control group.

According to Hatch and Farhady (1982: 88), the level of significance criterion to determine homogeneity of variance test was as follows if the $p < 0.05$, Ha is accepted. In details, the procedures of the test were as follows. First, the hypothesis and setting the alpha level were stated at 0.05 (two-tailed test). Second, the t value with the independent sample test was found using computation in SPSS 16 for windows. Third, the significant value was compared with the level of significance for testing the hypothesis. If the significant value is less than the level of significance (0.05) the null hypothesis is accepted; the two groups are equivalent.

3.2.3.3.4 The Calculation of Effect Size

To measure how well the treatment worked, there was the calculation of effect size. According to Coolidge (2000: 15) effect size refers to the effect of the influence of independent variable upon the dependent variable. Another way to

consider effect size is how well the treatment works as stated by Coolidge (2000: 151) that the calculation of the effect size is used to determine the effect of the influence of independent variable, upon the dependent variable. If the treatment really works as detected by a large difference between the two groups' means, then there is said to be a small effect size. If the difference between the two groups' means is small, then there is said to be a small effect size.

The formula of the effect size can be derived as follows.

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

Notes:

r = effect size

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

$df = N_1 + N_2 - 2$

The computation of the effect size was technically done by using the SPSS 16 for Windows Program. After the value of *r* has been obtained, then the score was matched with the following scale to interpret the effect size.

Table 3.8

Effect Size Value

Effect size	*r* value
Small	.100
Medium	.243
Large	.371

(Coolidge, 2000: 151)

3.2.3.3.5 The Dependent *t-test*

Dependent *t-test* in was used to find out the significant differences between the scores of pre-test and post-test of experimental group, after treatment was given. As stated by Hatch and Farhady (1982: 114) that to investigate whether or not the difference of the pre-test and post-test means of experimental group's score was significant, the researcher analyzed the pre-test and post-test scores using dependent or *t*-test.

Meanwhile, the hypothesis was stated as follows.

H_0 : there is no significant difference between the pre-test and post-test scores

H_1 : there is significant difference between the pre-test and post-test scores

According to Hatch and Farhady (1982: 88) the level of significance criterion to determine homogeneity of variance test was as follows if the

probability $p< 0.05$, Ha is accepted. In details, the steps were as follows. First, the hypothesis and setting the alpha level were stated at 0.05 (two-tailed test). Second, the t value with the dependent sample test was founded using computation in SPSS 16 for windows. Third, the level of significance from the calculation of independent t-test was compared with the level of significance for testing the hypothesis. If the probability is more than or equal to the level of significance, the null hypothesis is accepted. In other words, if the probability is less than the level of significance, so the null hypothesis is rejected.

3.2.3.4 Data Analysis on Interview

Interview was one of research instrument that carried out in this study. According to Sukmadinata (2005: 112) interviews are done by giving some general questions to the respondents. In this study interview was conducted in order to see the advantages, disadvantages, and strategies to overcome the obstacles in learning speaking using Guessing Game technique based on the students' point of view.

The data analysis was done after collecting the required data and the conclusion was made after completing the whole process of this study. According Sukmadinata (2000: 114-115) the interview data was analyzed through five steps namely collecting and limiting the research questions; interviewing sample;

collecting basic data with intensive analysis; collecting closed data; and compiling

the result of data analysis by drawing charts and concluding answers.