

CHAPTER III

RESEARCH METHODOLOGY

3.1 Formulation of the Problems

The aim of this study, as previously mentioned in chapter one, is finding out whether the Role Play method effective or not in improving students' speaking skill in senior high school level. In this study, the researcher measured the students' speaking skill through speaking test to determine the effectiveness of the treatment. Therefore, there are two types of variable in this study: (1) dependent variable which is students' speaking skill; and (2) independent variable which is the Role Play method.

3.2 Research Design

The true-experimental design is used in this research. The research design is presented as follow:

G ₁ (random)	T _{1A} X T _{2A}
G ₂ (random)	T _{1B} T _{2B}

(Hatch and Farhady, 1983)

Note:

G₁ : experimental group

G₂ : control group

T_{1A} : pre-test of experimental group

T_{2A} : post-test of experimental group

T_{1B} : pre-test of control group

T_{2B} : post-test of control group

X : treatment (using Role Play method)

3.3 Population and Samples

3.3.1 Population

According to Anderson (1975) as cited in Arikunto (1996), a population is a set (or collection) of all elements possessing one or more attributes of interest. Thus, the population of this study was the first grade students of a private senior high school in Bandung in academic year of 2008-2009 which was grouped into three classes. Each class consists of about 40 students. It means that the total population was about 120 students.

3.3.2 Samples

According to Coolidge (2000), a sample is a smaller group of scores selected from the population of scores. There were two classes as samples of this study, X 1 as control group and X 2 as experimental group. Both classes consist of 40 students. However, not all students of each class became the sample of this study due to the time limit in conducting the pre-test, which was in the form of speaking test. Arikunto (1996) stated that in determining the number of the sample, we can take 10% until 25% or more of the total population. Therefore, the sample of this study was 15 students of each group.

3.4 Research Procedures

There are several steps in completing the study. The first step of the research procedures was organizing the teaching method in experimental and control group. The Role Play method was given to the experimental group while the control group was treated by usual (normal) treatment. The second step was organizing the research instruments. Speaking test and questionnaire was used as the research instruments in this study. The speaking test was tested to find out the validity, reliability, difficulty index, and discrimination index of the instruments. The third step of the research procedures was giving pre-test to the experimental and control group at the beginning of the study to find initial students' speaking skill in both groups. The test was given by the researcher but the assessment process was done by three assessors. The assessors were selected by the researchers to assess the result of the test. The assessors consist of one English teacher from the school which was the object of the study and two English teachers from other school. Organizing the lesson plan and conducting teaching experiment using Role Play method in experimental groups was the fourth step of the research procedures in this study. The fifth step was giving post-test to experimental and control group at the end of the study to find out the result of the treatment. The researcher was involved in the test but was not involved in the assessment process. Same with pre-test's assessment process, the result of the post-test was assessed by the assessors. After that, questionnaire was distributed to experimental group to find out the students' perception towards the Role Play method. The last step of the research procedures in this study was analyzing the data based on data analysis procedure.

3.5 Data Collection

The data of the study were collected through pre-test, post-test, and questionnaire.

3.5.1 Try-out the Research Instruments

Speaking test is one of the research instruments in this study. The test items were tried-out to 30 students taken from a different class out of the samples on January 3, 2009. The speaking test was composed based on the standard in Indonesian Curriculum of Teaching English of the first grade of SMA.

The try-out was aimed to analyze the validity and reliability of the test. There were several steps in analyzing the test items. The steps were arranging try-out score of each student, calculating the validity and reliability of the test, determining the difficulty index of each item, and determining the discrimination index of each item.

3.5.2 Validity

Validity refers to the extent to which the results of the procedure serve the uses for which they are intended (Hatch and Farhady, 1982). Borg and Gall (1979) define validity as the correlation between subject response to particular item and their scores. The validity of the test was used to find out whether or not each item of the test is appropriate as the research instrument. The validity of each item in the test was calculated by using SPSS 16.0. Pearson's Product Moment Correlation formula was used to estimate the validity of the test items. The correlation coefficient of each item which was calculated with Pearson's Product Moment Correlation formula was verified

through the criteria of validity. The Pearson's Product Moment Correlation formula was as follow:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} \{N \sum Y^2 - (\sum Y)^2\}}}$$

Note:

r_{xy} : coefficient correlation between X and Y

X : score of each item for every student

Y : total scores of every student

N : total number of students

Table 3.1

Criteria of Validity

$r_{xy} < 0.20$	The validity of item is very low
$0.20 \leq r_{xy} < 0.40$	The validity of item is low
$0.40 \leq r_{xy} < 0.60$	The validity of item is moderate
$0.60 \leq r_{xy} < 0.80$	The validity of item is high
$r_{xy} \geq 0.80$	The validity of item is very high

3.5.3 Reliability

Hatch and Farhady (1982) define reliability as the extent to which a test produces consistent result when administered under similar condition.

In this study, the reliability of the test was calculated using SPSS 16.0. There are two steps in finding out the reliability of the test. The first was estimating the reliability of the half of the test by using split-half method. After obtaining reliability of

the half of the test, Spearman-Brown formula was used to find out reliability of the whole test. The Spearman-Brown formula was as follow:

$$r_{11} = \frac{2r_{\frac{1}{2}, \frac{1}{2}}}{(1 + r_{\frac{1}{2}, \frac{1}{2}})}$$

Finally, the reliability of the test, which was obtained from the calculation with Spearman –Brown formula, was verified through the criteria of reliability.

Table 3.2

Criteria of Reliability

$0.80 < r_{11} \leq 1.00$	very high reliability
$0.60 < r_{11} \leq 0.80$	high reliability
$0.40 < r_{11} \leq 0.60$	moderate reliability
$0.20 < r_{11} \leq 0.40$	low reliability
$0.00 < r_{11} \leq 0.20$	very low reliability

3.5.4 Index of Difficulty

The index of difficulty or facility value (FV) of an item illustrates how easy or difficult the certain item established in the test (Heaton, 1995). In estimating the index of difficulty of an item, the following formula was used:

$$FV = \frac{R}{N}$$

Note:

FV : facility/index of difficulty

R : the number of correct answers

N : the number of students taking the test

Table 3.3

Criteria of Difficulty Index

FV 0.00 – 0.30	Difficult item
FV 0.30 – 0.70	Moderate item
FV 0.70 – 1.00	Easy item

3.5.5 Discrimination Index

Heaton (1995) stated that the discrimination index of an item indicates the extent to which the item distinguishes between the testees, separating the more able testees from the less able. The index of discrimination (D) tells us whether students who do well on the entire test tend to do well or badly on each item of the test.

There are some procedures to find out the discrimination index. The procedures were as follows: (1) arranging the students' total score and dividing the score into two groups of equal size (the top half and the bottom half), (2) counting the number of the students in the upper group who answer each item correctly; then counting the number of lower group students who answer the item correctly, (3) subtracting the number of correct answers in the upper group to find the difference in the proportion passing in the upper group and the proportion passing the lower group, and (4) dividing the difference by the total number of students in one group.

The following formula is used to calculate the discrimination index of an item:

$$D = \frac{\text{Correct } U - \text{Correct } L}{n}$$

Note:

D : discrimination index

U : upper half

L : lower half

n : number of students in one group; $n = 1/2N$

Table 3.4

Criteria of Discrimination Index

0.00 - 0.20	Poor
0.20 - 0.40	Moderate
0.40 - 0.70	Good
0.70 - 1.00	Excellent

3.6 Research Instruments

A speaking test was chosen as the instrument of the study. It was used to find out the effectiveness of Role Play method in improving students' speaking skill. Besides speaking test, questionnaire was used to support the data in explaining information about students' perception toward the Role Play method.

3.6.1 Pre-test and Post-test

The same instrument was used by the researcher for pre-test and post-test for both control and experimental group. The test is in the form of oral test. The pre-test and post-test were administered in the form of live conversation or so called as scored interview.

3.6.1.1 Pre-test

Pre-test was administered to capture the initial differences between the groups (Hatch and Farhady, 1983). Pre-test was given to both groups to find out the initial students' speaking skill. The test was carried out on February 3, 2009. The

researcher asked the student individually to the teacher's desk and gave pre-test in the form of scored interview.

3.6.1.2 Post-test

Post-test was given to find out whether there was any progress in students' speaking skill after the treatment or not. The procedure of the test was the same as the pre-test. The post-test was carried out on February 24, 2009.

3.6.2 Scoring System

The criteria of scoring system which was used in pre-test and post-test of this research is the oral-English rating scale which is proposed by Haris (1969) as cited in Reni Ramdhiani (2008). The oral-English rating scale for scored interview is as follows:

Table 3.5
The Oral English Rating Scales

	SCORE	CRITERIA
PRONUNCIATION	5	Has few traces of foreign accent.
	4	Always intelligible, though one is conscious of a definite accent.
	3	Pronunciation problems necessitate concentrated listening and occasionally lead to misunderstanding.
	2	Very hard to understand because of pronunciation problems. Must frequently be asked to repeat.
	1	Pronunciation problems so severe as to make speech virtually unintelligible.

GRAMMAR	5	Makes few (if any) noticeable errors of grammar of word order.
	4	Occasionally makes grammatical and/ or word-order errors which do not, however, obscure meaning.
	3	Makes frequent errors of grammar and word order which occasionally obscure meaning.
	2	Grammar and word order errors make comprehension difficult. Must often rephrase sentences and/or restrict himself to basic patterns.
	1	Errors in grammar and word order so severe as to make speech virtually unintelligible.
VOCABULARY	5	Use of vocabulary and idiom is virtually that of a native speaker.
	4	Sometimes uses inappropriate terms and/or must rephrase ideas because of lexical inadequacies.
	3	Frequently uses the wrong words; conversation somewhat limited because of inadequate vocabulary.
	2	Misuse of words and very limited vocabulary make comprehension quite difficult.
	1	Vocabulary limitations so extreme as to make conversation virtually impossible.
FLUENCY	5	Speech as fluent and effortless as that of a native speaker.
	4	Speed of speech seems to be slightly affected by language problems.
	3	Speed and fluency are rather strongly affected by language problems.
	2	Usually hesitant; often forced into silence by language limitations.

	1	Speech is so halting and fragmentary as to make conversation virtually impossible.
COMPREHENSION	5	Appears to understand everything without difficulty.
	4	Understands nearly everything at normal speed, although occasional repetition may be necessary.
	3	Understands most of what is said at slower-than-normal speed with repetitions.
	2	Has great difficulty following what is said. Can comprehend only "social conversation" spoken slowly and with frequent repetitions.
	1	Cannot be said to understand even simple conversational English.

3.6.3 Questionnaire

Radhakrishna (2007) states that questionnaires help gather information on knowledge, attitudes, opinions, behaviors, facts, and other information. Close questionnaire in multiple choice type was used as the questionnaire in this study. The questionnaire was used to find out students' perceptions toward Role Play method.

The questionnaire consists of 9 statements. Each statement consists of five alternative answers which can be chosen by the students. The five alternative answers are:

1. Strongly disagree (Sangat tidak setuju)
2. Disagree (Tidak setuju)
3. Undecided (Tidak tahu)

4. Agree (Setuju)
5. Strongly agree (Sangat setuju).

3.6.4 Recorder

In this research, the researcher used recorder to record the students' utterances during oral pre-test and post-test.

3.7 Time Allocation

The study was held for about one month or ten sessions, eight sessions for experimental group and two sessions for control group. The Role Play method was used in experimental group in five sessions. The schedules of the treatment were as follow:

Table 3.6
Time Allocation

Meeting	Treatment	Date
1.	Pre-test	February 3
2.	Theme: Recreation Preparation and warm up for the 1 st Role Play	February 4
3.	Theme: Recreation The 1 st Role Play and follow up	February 10
4.	Theme: School Life Preparation and warm up for the 2 nd Role Play	February 11
5.	Theme: School Life The 2 nd Role Play and follow up	February 17

6.	Theme: School Life Follow up and variations	February 18
7.	Post-test	February 24
8.	Questionnaire	February 25

3.8 Data Analysis

3.8.1 Pre-test Data Analysis

There were three procedures in analyzing pre-test data. The procedures of pre-test were as follows:

3.8.1.1 Calculation of normality distribution test

In this study, *Kolmogorov-Smirnov* test in SPSS 16.0 was used to calculate the normality of distribution. The hypotheses used were as follows:

H_0 : The data of the experimental and control groups were normally distributed.

H_1 : The data of the experimental and control groups were not normally distributed.

The criteria of normality test by using 5% level of significance ($p=0.05$) are:

If $-K_{table} > K_{obtain}$ or $K_{table} < K_{obtain}$, H_0 is rejected.

If $-K_{table} \leq K_{obtain} \leq K_{table}$, H_0 is not rejected.

3.8.1.2 Calculation of homogeneity variance test

After the normality of distribution was found, the researcher estimated the homogeneity of variance. *Levene* test in SPSS 16.0 was used to find out the homogeneity of variance. The hypotheses used were as follows:

H_0 : the variances of the pre-test of experimental and control group are homogeneous

H_1 : the variances of the pre-test of experimental and control group are not homogeneous.

The criteria of homogeneity variance test by using 5% level of significance are:

If significance value (Sig.) < 0.05, H_0 is rejected.

If significance value (Sig.) > 0.05, H_0 is not rejected.

3.8.1.3 Calculation of t-test

Independent t-test in SPSS 16.0 was used to compare means between experimental and control group. Two assumptions must be fulfilled in conducting t-test (parametric statistic) (Brown, 1990). The assumptions are the normality distribution of scores in each group and the homogeneity of the scores of both groups. If the assumptions do not fulfilled, non parametric formula could be used to compare the means between the two groups.

The hypotheses of the t-test are:

H_0 : there were no significance differences between the pre-test result of experimental and control group

H_1 : there were significance differences between the pre-test result of experimental and control group.

The criteria of independent t-test by using 5% level of significance ($p=0.05$) are:

If $-t_{table} > t_{obtain}$ or $t_{table} < t_{obtain}$, H_0 is rejected.

If $-t_{table} \leq t_{obtain} \leq t_{table}$, H_0 is not rejected.

3.8.2 Post-test Data Analysis

Post-test was carried out to find out whether there is any difference between students' speaking score of experimental and control group after the treatment. The

procedures of post test data analysis were the same as pre-test data analysis. In the calculation of t-test, besides calculating independent t-test, the researcher also used Paired Sample t-test to find out the differences between the pre-test and post-test scores in each group.

The researcher also calculated the coefficient correlation of the effect size to find out the effect size in the independent t-test and to know the influence of independent variable upon the dependent variable (Coolidge, 2000).

The formula to calculate the effect size of independent t-test was as follow:

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

The following scale is used to interpret the magnitude of effect size.

Table 3.7
The Scale of Effect Size

Effect Size	Value
Small	.100
Medium	.243
Large	.371

3.8.3 Questionnaire Analysis

The formula of percentage is used to analyze the questionnaire. Then, the data was interpreted based the frequency of the students' answer. The formula to calculate the percentage for calculating the questionnaire is as follow:

$$P = \frac{F_0}{n} \times 100\%$$

Note:

P : Percentage

F_0 : frequency of students' answers

n : number of samples

The following criteria are used to interpret the data which were derived from the questionnaires.

Table 3.8
Criteria of Percentage Categories

Percentage of Respondent	Criteria
1 - 25%	small number of the students
26 - 49%	nearly half of the students
50%	half of the students
51 - 75%	more than half of the students
76 - 99%	almost all of the students
100%	all of the students