

CHAPTER III

RESEARCH METHOD

This chapter discussed sources of data, subject and setting of research, research design, research variable, instruments, and procedures of experimentation, scoring technique, and method of data analysis.

A. RESEARCH DESIGN

A research design is a specification of operation for the testing of a hypothesis under a given set of conditions. ¹Research design played an important role in a research because the quality of research greatly depended on the design. In this research, the writer used the form of quantitative approach to analyze the data. According to Michael J Wallace, “*Quantitative is broadly used to describe what can be counted or measured and can therefore be considered objective*”.²

Experimental research is one of the most powerful research methodologies that researchers can use. Of many types of research that might be used, the experiment is the best way to establish cause-and-effect relationships among variables. Yet experiments are not always easy to conduct.³

An experimental research involved two groups: experimental group and control group. The experimental and control group are consisting of seventh grade students of SMPN 23 Semarang. An experimental group received a new treatment while control group received a usual treatment. According to Nunan, experiment is designed to collect data in such a way that threats to the reliability and validity of the research are ministered.⁴ This study used pre-test and post-test.

¹ Bruce W. Tuckman, *Conducting Educational Research*, (US : HBJ, 1978), p. 13

²Michael J Wallace, *Action Research for Language Teacher*, (Cambridge: Cambridge University Press, 1998), p. 38.

³Jack R. Fraenkle, Norman E. Wallen, *How to Design and Evaluate Research in Education*, (New York: The McGraw-Hill Companies, 2006), 6th Ed, p. 267

⁴David Nunan, *Research Method in Language Learning*, (Cambridge: Cambridge University Press, 1992), p. 47.

The design of the experiment could be described as follows:

$$\begin{array}{c} E 01 X 02 \\ \hline C 03 Y 04 \end{array}$$

Adopted from Arikunto.⁵

Where:

- E = experimental group
- C = control group
- 01 = pre-test for experimental group
- 02 = post test for experimental group
- 03 = pre-test for control group
- 04 = post test for control group
- X = treatment by performing drama
- Y = treatment without performing drama

From the design above, subjects of research were grouped into an experimental group (top line) and a control group (bottom line). The quality of subjects was first checked by pre-testing them (01 and 03). Then, the experimental treatment (taught by performing drama) was applied to the experimental group, while the control group was taught without performing drama. The test was held in the form of conversation. The results of post-test (02 and 04) were then computed statistically.

Activities should be conducted in experimental and control class as follows:

a. The Activities of Experimental Group

1) Pre-test

Pre-test was given before the treatments. First, the writer came to the class. Then, he explained to the students what they had to do. Finally, she distributed the instruments and asked them to do the test.

⁵Suharsimi Arikunto, *Prosedur penelitian Suatu Pendekatan Praktik*, (Jakarta: PT Rineka Cipta, 2006), p. 86.

2) Activities in Experimental Group

There were some activities in experimental group (Class VII B) as follows:

No	Activities	Time Allotment
1	1) Teacher explains about Simple Present Tense especially in affix “s” added. 2) Teacher drills the students to repeat the words in sibilant sounds. 3) Teacher divides the students into group. Each group consists of five students.	2x45’
2	1) Teacher gives script 1 to each group and to more easily know the script, students should memorize some of the most famous lines. And asks the students to perform it appropriate with the title of play. 2) Teacher will help students to become more aware to pronounce words that affix “s” added in sibilant sounds in play.	2x45’
3	1) Teacher gives script 2 to each group and to more easily know the script, students should memorize some of the most famous lines. And asks the students to perform it appropriate with the title of play. 2) Teacher will help students to become more aware to pronounce words that affix “s” added in sibilant sounds in play.	2x45’

3) Post-test

Post-test was held after all treatments were conducted. This test was used to measure students’ achievement after they were given treatments. The result of test was analyzed statistically.

b. The Activities of Control Group

1) Pre-test

Pre-test was given before the treatment. First, the writer came to the class. Then, he explained to the students what they had to do. Finally, he distributed the instruments and asked them to do the test.

2) Activities for control group

There were some activities in control group (class VII A) as follows:

No	Activities	Time Allotment
1	1) Teacher explains about the pattern of Simple Present Tense in positive, negative and interrogative. 2) Teacher gives the texts and the students identify the sentences in affix "s"	2x45'
2	1) Teacher explains the text about affix "s" added in the Simple Present Tense especially in positive. And the pattern in (S + V1 + s/es) 2) Teacher asks the students, what the sentence that is added "s" is, and how to pronounce it.	2x45'
3	1) Teacher explains the text about affix "s" added in the Simple Present Tense especially in positive. And the pattern in (S + V1 + s/es) 2) Teacher asks the students, what the sentence that is added "s" is, and how to pronounce it.	2x45'

3) Post-test

Post-test was held after all treatments were conducted. This test was used to measure students' ability after they were given treatments. The result of test was analyzed statistically.

B. THE SUBJECT OF THE RESEARCH

This study was conducted in SMPN 23 located at Jl. Raya RM. Hadi Soebeno Mijen, Semarang. The subjects of this study were the seventh grade students of SMPN 23 Semarang in 2010/2011 academic year. This study was conducted in first semester. Due to limitation of time, the writer did not take all students as the subjects of the study, but drew a sample.

1. Population

Population can be defined as a group to whom the researcher would like to generalize the result of the study.⁶ The population of the research was the seventh grade students of SMPN 23 Semarang in the academic year of 2010/2011 which consists of seven classes. Each class consists of thirty six students. The total population was 252 students.

2. Sample

A sample is a group in Research Study on which information is obtained. Because the population of the study is very big, the researcher did not take all the subject of the population. The researcher took some subjects from the population. The research is an experimental research, so the researcher needs to take two classes that will be an experimental and control class as the sample from seven classes of the population.

To determine the two classes, the researcher used purposive sampling technique. This technique was done by taking the subject/sample which is not based on strata, random or area but it is based on the consideration of a certain purpose.⁷

The consideration that the researcher tried to complete in preliminary research was the sample that will be chosen has to be homogeny, so that the research will be a good and valid research. Because we know that something that can be compared is something that has the similar characteristic.

The researcher took class VII A and VII B, because based on the result of the summative test of the first semester, these two classes gained similar average achievements and considered as homogeneous class. Each class consisted of 36 students. Students in class VII B was taught by performing drama and considered as experimental group. While students in class VII A was taught without performing drama and considered as control group.

⁶Jack R. Fraenkel and Norman E. Wallen, *op. cit.*, p.93

⁷Suharsimi Arikunto, *op.cit.*, p. 139

C. RESEARCH VARIABLES

A variable can be defined as an attribute of a person or an object which “varies” from person to person or from object to object.⁸ According to Fred D. Kerlinger as cited by Arikunto, that all experiments have one fundamental idea behind them; to test the effect of one or more independent variables on a dependent variable (it is possible to have more than one dependent variable in experiments).⁹

This research, that used role as method in teaching transactional and interpersonal text, had two variables. Those variables were:

1. The independent variable

Independent variable is the variable that the experimenter changes within a defined range; it is the variable in whose effect the experimenter is interested.¹⁰ The independent variable, which is a stimulus variable or input, operates either within his or her environment to affect behavior.¹¹ It is that factor which is measure, manipulated, or selected by the experimenter to determine to an observed phenomenon. The independent variable of this research was the use of performing drama.

2. The dependent variable

Dependent variable is variable that measures the influence of the independent variable.¹² The dependent variable is a response variable or input.¹³ It is that factor which is observed and measured to determine the effect of the independent variable. The dependent variable of this study was student’s pronunciation of affix “s” added to sibilant sounds in the Simple Present Tense.

⁸Evelyn Hatch, *Research Design and Statistics for Applied Linguistics*, (Rowley: Newbury House Publishers, 1982), p. 12

⁹Suharsimi Arikunto, *op.cit.*, p. 119.

¹⁰Larry B. Christensen, *Experimental Methodology*, (Massachusetts: University of South Alabama, 2001), 8th Ed, p. 145.

¹¹Bruce W. Tuckman, *op.cit.*, p. 58

¹²Larry B. Christensen, *op.cit.*, p. 145

¹³Bruce W. Tuckman, *op.cit.*, p. 59

D. TIME AND SETTING

This research was conducted on the second semester in the academic year of 2010/2011 for about 1 month began from August up to September 2010. It was conducted in SMPN 23 Semarang, which was located on Jl. Raya RM. Hadi Soebeno Mijen, Semarang.

E. METHODS OF DATA COLLECTION AND ANALYSIS

1. Source of Data

The data of this research were gathered from reading aloud each student in pre-test and post-test through short passage consist of affix “s” added especially pronunciation in sibilant sounds. And the documentation of students’ previous summative test score.

2. Success Indicators

The indicators of pronunciation teaching learning are as follow:

- a. The improvement of students’ pronunciation of affix “s” added to sibilant sounds in the Simple Present Tense.
- b. Students’ pronunciation achievement with the minimum standard of score (KKM) pronunciation 6.0

3. Methods of collecting data

- a. Test

A test is an attempt to determine how an individual will function in a set of actual situations. Rather than placing individuals in each actual situation, a test is used as a shortcut to determine their behaviors or performances in the set of situations.¹⁴ In order to discover how students are thinking and using the target language (English). The researcher will conduct oral test in reading aloud technique. The form of the test was direct test item of reading.

¹⁴*Ibid.*, p.165

The writer analyzed the result of the test and gave score. The test will be conducted to both control class and experimental class which consist of 36 students of control class and 36 students of experiment class in form of reading especially in pronunciation in affix “s” added to evaluate students' pronunciation before and after the treatment.

The scoring system will pay attention to the four aspects of speaking scoring; grammar and vocabulary, pronunciation, and fluency.

Test is used to measure the person's competence and to achieve the objective. The data was collected by giving oral test in reading text. It was conducted twice, there are pre-test and post-test. The form of the test is reading short passage and the teacher gave scores on pronunciation, grammar, vocabulary and fluency. The test in reading also was taken from performance test. The students are competence or not. The criteria are:

- 1) Intonation of Text
- 2) Utterance of Vocabulary
- 3) Voice which is heard by another person
- 4) The way to break sentences

b. Interview

Interview was used by researcher to know students' understanding about the material especially, in students' pronunciation of affix “s” added to sibilant sounds in the Simple Present Tense. It was also as support data, there were improvements or not. (The result of interview, in Appendix 10)

c. Observation

Observation was used to know the improvement of the students' pronunciation and as a proof. From this method, the researcher knew that performing drama surely could increase students' pronunciation.

Performing drama as a variable independent and as a variable X had a significance result. It provides a perfect opportunity for working on language generally, pronunciation in particular careful study on the script

(if one is used) is necessary before performance of it, and in particular, the ways in which stress placement contributes to the meaning of the lines.

Situations that learners are likely to encounter when using English in the real world can be simulated and a greater range of registers can be practiced than are normally available in the classroom.

Based on the observation that was done by researcher, there was significant and there were different between control class which used conventional method and experimental class which used performing drama as a method.

The result of teaching used conventional method in control class, the students weren't active. They seldom practice the English. They just heard when the teacher explained the material of affix "s" added to sibilant sounds in the simple present tense. They just sat on the chair and made them bored. So, there wasn't effect of teaching process to them especially in their pronunciation.

On the contrary, in the experimental class, that used performing drama as a method, the students were so interested in method of performing drama. They feel enjoy in drama, happy, and involved in the class activities. Furthermore, they more active and enthusiasm to follow process of study, they didn't only hear when the teacher explained the material of affix "s" added to sibilant sounds in the simple present tense. The method of performing drama was good for applications the material because that process. The researcher was able to find conversation among friends. Therefore, they were able to practice and drill their speaking to get good pronunciation.

4. Scoring Technique

In each test, the students read short passage contains of affix "s" added in the sentences. The researcher gave reading aloud test to the students to analyze their scores on pronunciation, grammar, vocabulary, and fluency.

In giving scores to the students, the writer used analytic scale which categorized by some categories and the writer follows these scoring criteria for each category. This analytic score has four items and each item scores five. So, the maximum score is 20. But it will be multiplied with 5, so the final maximum score will be 100.

Analytic scoring of speaking especially in students' pronunciation could be seen on the following figures:

Aspects	Score	Description
Pronunciation	5	Have few traces of foreign accent.
	4	Always intelligible, though one is conscious of a definite accent
	3	Pronunciation problem 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 and word order.
	4	Occasionally makes grammatical and/or word order errors which do not, however obscure the meaning.
	3	Make 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 idioms is virtually that of a native speaker.
	4	Sometimes uses inappropriate terms and/or must rephrase the idea because of lexical inadequate
	3	Frequently uses the wrong words; conversation somewhat limited because of inadequate vocabulary.
	2	Misuse of word and very limited vocabulary make comprehension quite difficult.

	1	Vocabulary limitations so extreme as to make conversation virtually impossible.
Fluency	5	Speed as fluent and effortless as that of a native speaker.
	4	Speed of the speech seems to be slightly affected by language problem.
	3	Speed and fluency are rather strongly affected by language problems.
	2	Usually hesitant; often forced into silent by language limitations.
	1	Speech is so halting and fragmentary as to make conversation virtually impossible.

Based on “*Testing English as a Second Language*”¹⁵

5. Methods of Data Analysis

There are two kinds of test that will be held in experimental research, they are pre-requisite test and hypothesis test. So there must be two process of analyzing the data collected from test.

1. Pre-requisite Test

Before the writer determines the sample, the writer should conduct a homogeneity test by choosing 2 classes with cluster random sampling. This test conducted to determine whether the data are homogenous or not. After conducted the test, data analysis was carried out to find out the homogeneity of the sample. It was meant to check if the research result met the requirement of good research or not.

It was meant to get the assumption that sample of research came from a same condition or homogenous. The writer used the formula as follows:

$$\text{Determine } F = \frac{\text{Biggest Variance}}{\text{Smallest Variance}}$$

Cited from Sugiono.¹⁶

¹⁵David P. Haris, *Testing English as a Second Language*, (Washington DC: Georgetown University, 1969), p. 84.

¹⁶Sugiyono, *Statistika Untuk Penelitian*, (Bandung: Alfabeta, 2007), p. 140.

Before the writer determines the statistical analysis technique used, the writer examined the normality and homogeneity test of the data.

a. Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. The normality test with Chi-square is done to find out the distribution data. Step by step Chi-square test is as follows:

1) Determine the range (R); the largest data reduced the smallest.

2) Determine the many class interval (K) with formula:

$$K = 1 + (3,3) \log n$$

3) Determine the length of the class, using the formula:

$$P = \frac{\text{range}}{\text{number of class}}$$

4) Make a frequency distribution table

5) Determines the class boundaries (bc) of each class interval

6) Calculating the average Xi (\bar{X}), with the formula:

$$\bar{X} = \frac{\sum f_i x_i}{\sum f_i}$$

7) Calculate variants, with the formula:

$$S = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n - 1}}$$

8) Calculate the value of Z, with the formula:

$$Z = \frac{x - \bar{x}}{s}$$

x = limit class

\bar{x} = Average

S = Standard deviation

9) Define the wide area of each interval

10) Calculate the frequency expository (Ei), with formula:

Ei = n x wide area with the n number of sample

- 11) Make a list of the frequency of observation (O_i), with the frequency expository as follows:

class	bc	Z	P	L	Ei	$\frac{O_i - E_i}{E_i}$
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- 12) Calculate the chi-square (X^2), with the formula:

$$X^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

- 13) Determine $dk = k-3$, where k is the number of class intervals and $\alpha = 5\%$

- 14) Determining the value of X^2 table

- 15) Determining the distribution normality with test criteria:

If $X^2_{count} > X^2_{table}$, the data is not normal distribution and the other way if the $X^2_{count} < X^2_{table}$, the data is normal distribution.¹⁷

b. Homogeneity Test

Is used to know whether experiment class and control class, that are taken from population have same variant or not. According to Nunan, a test should be given to both classes of students before the experiment just to make sure that the both classes really are the same.¹⁸

The steps as follows:

- 1) Calculate variants both classes (experimental and control classes), with the formula:

$$S_1^2 = \frac{\sum (x - \bar{x})^2}{n_1 - 1} \text{ And } S_2^2 = \frac{\sum (x - \bar{x})^2}{n_2 - 1}$$

¹⁷ Sudjana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 273.

¹⁸ David Nunan, *Research Method in Language Learning*, (Cambridge: University Press, 1992), p. 27.

2) Determine $F = \frac{Vb}{Vk}$

Where:

Vb: Bigger Varian

Vk: Smaller Varian

Determine $dk = (n_1 - 1) : (n_2 - 1)$

3) Determine F_{table} with $\alpha = 5\%$

4) Determining the distribution homogeneity with test criteria:

If $F_{count} > F_{table}$, the data is not homogeneous and the other way if the $F_{count} < F_{table}$, the data is homogeneous.¹⁹

c. Test of the Average

It is used to examine average whether experiment group and control group have been decided having different average.²⁰

T-test is used to analyze the data of this research. A t-test would be the measure you would use to compare the mean scores of the two groups.²¹

If $\sigma_1^2 = \sigma_2^2$ (has same variant), the formula is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

With:

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Where:

\bar{X}_1 : The mean score of the experimental group

\bar{X}_2 : The mean of the control group

n_1 : The number of experiment group

¹⁹ Sudjana, *op.cit.*, p. 250.

²⁰ Anas Sudijono, *Pengantar Statistik Pendidikan*, (Jakarta: PT. Raja Grafindo Persada, 1995), 6th Ed, p. 264.

²¹ Suharsimi Arikunto, *op cit.*, p. 205.

n_2 : The number of control group

S_1^2 : The standard deviation of experiment group

S_2^2 : The standard deviation of both groups

If $\sigma_1^2 \neq \sigma_2^2$ (has no same variant) the formula is:

$$t^1 = \frac{\bar{X} - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

The hypotheses are:

Ho = $\mu_1 = \mu_2$

Ha = $\mu_1 \neq \mu_2$

μ_1 : average data of experiment group

μ_2 : average data of control group

Criteria test is: Ho is accepted if $-t_{(1-\frac{1}{2}\alpha)} < t < t_{(1-\frac{1}{2}\alpha)}$, where

$t_{(1-\frac{1}{2}\alpha)}$ obtained from the distribution list t with $dk = (n_1 + n_2 - 2)$

and opportunities $(1 - \frac{1}{2}\alpha)$. Values for other t Ho rejected.²²

2. Hypothesis Test

Firstly, the test was done in both groups, experimental and control group. Secondly, the result of the test was scored by using analytic scale. Thirdly, the means score of the two groups were determined. Finally, the two means were compared by applying t-test formula. T-test was used to differentiate if the students' result of students' pronunciation of affix "s" added to sibilant sounds by performing drama and without drama was significant or not

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

²² Sudjana, *op.cit.*, p. 239.

Where:

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Cited from Karnadi Hasan.²³

Where:

\bar{X}_1 : The mean score of the experimental group

\bar{X}_2 : The mean of the control group

n_1 : The number of experiment group

n_2 : The number of control group

S_1^2 : The standard deviation of experiment group

S_2^2 : The standard deviation of both groups

Testing criteria that apply H_0 is accepted if $t_{count} > t_{table}$ with determine $dk = (n_1 + n_2 - 2)$ and $\alpha = 5\%$ with opportunities $(1 - \alpha)$.²⁴ Values for other t H_0 rejected. If the obtained score was higher than t -table score by using 5% alpha of significance, H_0 was rejected. It meant that H_a was accepted: "There was a significant difference in speaking achievement between the experimental and control group."

²³ Karnadi Hasan, *Dasar-Dasar Statistika Terapan*, (Semarang: IAIN Walisongo, 2008), p.17

²⁴ Sudjana, *op.cit.*, p. 243.