

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the steps taken to conduct the study. The description involves the research design, population and sample, research instruments, data collection technique, and data analysis technique.

A. Research Design

The research design which is used in this study is an experimental research. In conducting the experiment, the researcher devotes great care to the manipulation and the control of the variables and to the observation and measurement of the result³⁷.

In this experimental design, the researcher used quasi-experimental design, especially in nonequivalent (pre-test and post-test) control group design. In this design, there are two groups: experimental group and control group. Both of the groups are given pre-test and post-test. First, both groups are given a pre-test. Then the treatment is administered to the experimental group only. Both groups then are given a post-test to examine the difference between the two groups as the effect of treatment. In this research there are two variables of the study.

³⁷Ary, Donald. Lucy Cheser Jacobs, Chris Sorensen, *Introduction to Research in Education*, 8th Edition(Canada: Nelson Education,2010), 26

1. **Independent variable:**

According to Sugiono independent variable is a variable that affects or is the cause of the change or the emergence of the dependent variable³⁸. Independent variable is the mayor variable that is selected, manipulated, and measured to investigation. In this study, the used of simulation technique in teaching speaking of procedure text was the independent variable, which given symbol X.

2. **Dependent variable:**

According to Sugiono, dependent variable is a variable that is affected or which become result, because of the independent variable³⁹. Dependent variable is the variable that observed and measured for determines the effect of independent variable. In this study the scores of speaking ability of procedure text at seventh graders of SMP Patriot Jombang was dependent variable, that given symbol Y.

B. Population and Sample

The important part of a research is population and sample. Population is all subject have certain quality or characteristic which is determined by the

³⁸Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D*, (Bandung: Alfabeta, 2013), 39

³⁹Sugiyono, *Metode Penelitian.....*, 39

researcher. Meanwhile, sample is a part of the number of characteristics owned by the population⁴⁰.

1. Population

According to Sugiyono, population is a generalization region consisting of the object or subject that have certain qualities and characteristics defined by the researcher to learn and then drawn conclusions⁴¹.

The populations on this study are all the students of seventh graders at SMP Patriot Jombang in the academic year 2014-2015. There are three classes and all of the classes had similar average in score.

2. Sample

According to Sugiyono, sample is part of the number and characteristics possessed by this population. What is learned from the sample, the conclusion will be applied to the population⁴². In this research, the researcher took A and B classes by lottery in which A class was experimental class which got a treatment while B class was the control class. Each class consisted of 29 students, where A class consisted of 24 male and 5 female, while B class consisted of 23 male and 6 female.

Schematically, the experimental research is described below:

⁴⁰Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D*, (Bandung: Alfabeta, 2013), 80-81.

⁴¹Sugiyono, *Metode Penelitian.....*, 80

⁴²Sugiyono, *Metode Penelitian.....*, 81

Group	Pretest	Independent variable	Post test
A	Y ₁	X	Y ₂
B	Y ₁	-	Y ₂

(Non- randomized control group. Pretest post-test design. Ary, 2012: 307)

A : The experimental group that will be taught speaking of procedure text by using simulation technique.

B : The control group that will be taught speaking of procedure text by using non-simulation technique.

X : The treatment (simulation technique).

Y₁ : The pre-test before the experimental treatment.

Y₂ : The post-test after the experimental treatment.

C. Research Instrument.

As an experimental research, the instrument used in this research was test. By the test, the researcher differentiates the result of pre-test and post-test. According to Bachman and Palmer the test rubric defines the structure of an assessment and provides instructions to participants about what they should do.⁴³

The use of instrument is very important in the research, because its function as the device used to collect the data. According to Arikunto, research

⁴³ J Charles Alderson and Lyle F. Bachman, *Assessing Speaking* (Cambridge: Cambridge University Press, 2004) , 50.

instrument are tools or facilities that are using by the researcher in order to collect data. So that makes the job easier, complete and systematic⁴⁴

1. Paper based Test.

The teacher will use Test to answer the research question about whether simulation technique is more effective to improve students' speaking ability of procedure text or not. It was divided into two, pretest and post-test:

- a. Pretest: pretest it is preliminary test administered to determine a students' baseline knowledge for an educational experience or course of study⁴⁵

It was administered to both experimental and control group. This test was purposed to obtain the data of the students, basic speaking skill. Speaking test was the instrument for the study. The students were asked to present a speaking of procedure text orally. Four criteria are assessed in this test, they are grammar, vocabulary, pronunciation and fluency. (Appendix 3 and Appendix 4)

- b. Posttest: it is a test given to students after completion of experimental that used to measure the students' ability after getting treatments.

The last instrument used was posttest. It was conducted at the end of the study. It was used to measure the students' speaking ability after the treatment. It was also intended to know the differences between the students' score of both groups.

⁴⁴Suharsimi Arikunto, *Procedure Penelitian Suatu Pendekatan Praktek*, (Jakarta: PT Adi Mahasatya, 2006), 149

⁴⁵Oxford Learners, *Pocket Dictionary*. Dictionary, 3rded. (New York: Oxford University Press. 2008)

D. Data Collection Technique.

Data collection technique used in this study was in the form of test. The tests consisted of pre-test and post-test administered consecutively in both the experimental and control group.

Test is used to know the students' achievement in speaking of procedure text. The data in this study collected through the perform students speaking procedure text by using simulation technique, and also using scores, scores obtained by using scoring rubric.

1. Pre- Test.

Pre-test was a test which was given before the students get a treatment. Pre-test to measure the students' speaking ability in the beginning related to the material will be used. The pre-test is used in both experimental and control groups. The purpose of pre-test is to measure the equivalence scores between experimental and control class.

The researcher gives a performance test for the experimental group and control group about how to make omelet in procedure text. In giving the test the students have to retell the procedure text after they make a procedure text by their group. The teacher divided the class into some group, one group contains of 4-5 students, and then the teacher shows one picture about omelet in the slide.

In this test the students are scored based on some speaking components which include pronunciation, fluency, grammar, and

vocabulary. In each aspects there are score in level one until four, the students would get maximum score four when he or she masters in that aspect, they would get score three when there is one item that they cannot master it. They would lack one score when there is one item again that they cannot master and so on. After the test end, determine the score by calculation the total score.

2. Post-test

Post-test was given after teaching learning process done. Post-test is giving to both experimental group and control group. The aim is to know the different result between experimental and control group. In the post-test, the control groups will be create a procedure text with free topics and the topic must be different from the text which used for pre-test.

The experimental groups are asked to create a procedure text, first, the students prepare the thing they need to do simulation technique and present their procedure text in front of the class. There researcher examines the students' performance and gives score about their pronunciation, fluency, structure, and vocabulary. The last stage was assessing the students that had been done during their performance.

Table 3.1
The Grille of the Test

<p>1. Standard Competence</p> <p>Express the meaning in simple functional oral text and short functional text to communicate with the surroundings.</p>
<p>2. Basic Competence</p> <p>Express the meaning in simple and short monolog by using variety oral language, accurately, orderly, and acceptably to communicate with the surroundings in the form of descriptive and procedure.</p>
<p>3. Sub Basic Competence</p> <p>Express the meaning in simple and short monolog by using variety oral language, accurately, orderly, and acceptably to communicate with the surroundings in the form of descriptive.</p>
<p>4. Indicators</p> <ol style="list-style-type: none">1) The students are able to understand the procedure text well.2) The students are able to tell the goal of their procedure text.3) The students are able to mentions the ingredients and the materials of their procedure text.4) The students are able to mentions the steps of their procedure text.5) The students are able to present their procedure text based on its generic features; use of imperative, use of simple present tense, use of appropriate conjunctions.
<p>5. Questions</p>

Based on the topic, please compose a procedure text with your group then present it in front of the class!

Choose one of the topics below!

- a. How to make a cup of coffee
- b. How to make a cup of energen
- c. How to make a cup of sweet lemon tea
- d. How to make a cup of milk
- d. How to make a bowl of instant noodle
- e. How to make a plate of instant fried noodle
- f. how to make fried egg.

In this scoring there are four aspects which scored, there are grammar, pronunciation, fluency, and accuracy. The rubric of scoring as follow:

Table 3.2

The Scoring Rubric

Grade	4	3	2	1
Grammar	Able to use the language accurately. Errors in grammar are	Control of grammar is good. Able to speak with sufficient	Can handle elementary constructions quite accurately but does not	Errors in grammar are frequent, but speaker can be

	quite rare.	structural accuracy to participate in daily conversation.	have confident control of grammar.	understood by a native speaker.
Vocabulary	Can participate in any conversation with a high degree or precision of vocabulary.	Able to speak the language with sufficient vocabulary. Vocabulary is broad enough that he rarely has to grope for a word.	Has sufficient vocabulary to express himself simply with some circumlocutions.	Speaking with inadequate vocabulary.
Pronunciation	Errors in pronunciation are quite rare.	Errors never interfere with understanding and rarely disturb the native speakers.	Accent is intelligible though often quite faulty.	Errors in pronunciation are frequent but can be understood by a native speaker.

		Accent may be obviously foreign.		
Fluency	Able to use the language fluently. Can participate in any conversation with a high degree of fluency.	Can discuss particular interest of competence. Rarely has to group for words.	Can handle with confidence but not with facility most social situations, including introductions and casual conversations about current events.	Not specific fluency description. Refer to other four language areas for implied level of fluency.

Adapted from Brown (2004: 172 – 173)

E. Research Procedure.

Research Procedure is a process to get the data that are relevant with the research. In conducting this research some step which the researcher will do are:

1. Getting research license from UIN SunanAmpel Surabaya.

2. Asking permission to the headmaster of SMP Patriot Jombang, where the research was done.
3. Determining the class as the subject of the study. The researcher took A and B classes by lottery, which A class was the experimental and B class was the control class.
4. Giving pre-test to both experimental and control group.
5. Teaching the experimental group (A class) about procedure text material by using simulation technique. Simulation technique was a kind of treatment which the researcher gives.
6. Teaching the control group (B class) about procedure text material without using simulation technique.
7. Conducting a post test for both experimental (A class) and control group (B class). For A class, the students were asked to make a procedure text in a group and present it in front of the class by using simulation. For control group, the researcher will be asked the students to make a procedure text in group and present it in front of the class without using simulation technique.
8. Analyzing the result of comparison between pre-test and post-test from both groups.

Table 3.3

The schedule of treatment

Meeting	Date	Activity
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1.	1 st June 2015	Giving pre-test to both experimental and control groups.
2.	3 rd June 2015	Implementing simulation technique in experimental group.
3.	4 th June 2015	Implementing simulation technique in experimental group.
4.	8 th June 2015	Implementing simulation technique in experimental group.
5	10 th June 2015	Implementing simulation technique in experimental group.
6	11 th June 2015	Giving post-test to both experimental and control group.

In conducting this research, the treatment given by the researcher in experimental group is simulation technique. This technique is the independent variable which could affect the dependent variable in which the dependent variable of this research is the students' speaking ability. The steps in giving treatment to experimental group can be seen as follow:

Table 3.4
Process of Doing Treatment in Experimental and Control Group

Experimental Group	Control Group
Pre- activity	Pre- activity

<ol style="list-style-type: none"> 1. Greeting. 2. Checking students' presence. 3. Delivering the instructional objectives. <p>Whilst- activity</p> <p><i>Exploration</i></p> <ol style="list-style-type: none"> 1. The researcher sets up the class by dividing the class into some groups which consists of 4-5 students. 2. The researcher explains about procedure text. 3. The researcher explains about simulation technique as the way in giving the example of procedure text.* 4. The researcher gives the example of procedure text while doing simulation.* 5. The researcher gives some topics and ask each group to choose one 	<ol style="list-style-type: none"> 1. Greeting. 2. Checking students' presence. 3. Delivering the instructional objectives. <p>Whilst- activity</p> <p><i>Exploration</i></p> <ol style="list-style-type: none"> 1. The researcher explains about procedure text. 2. The researcher gives the example of procedure text without doing simulation.* 3. The researcher divides the students into some groups. 4. The researcher gives some topics and asks the students to choose one of the topics by lottery. 5. The researcher asks the students to compose a procedure text based on the topic given.
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<p>of the topic by lottery.</p> <p>6. The researcher explained the students' task and what should do with their task.</p> <p>7. The researcher asks the students to compose a procedure text with their group based on the topic they get.</p>	<p><i>Elaboration</i></p> <p>1. The researcher asks each group to present the procedure text in turn in front of the class without doing simulation.*</p> <p>2. The researcher observes the students' performance.</p>
<p><i>Elaboration</i></p> <p>1. The researcher asks the students to present their procedure text in turn with their group while doing simulation in front of the class.*</p> <p>2. The researcher observes the students' performance.</p>	<p><i>Confirmation</i></p> <p>1. The researcher gives some questions related to the procedure text that has been presented.</p> <p>2. The researcher gives feedback and correct the students' mistakes.</p>
<p><i>Confirmation</i></p> <p>1. The researcher gives questions related to the procedure text that has been presented.</p> <p>2. The researcher asks the students whether they get difficulty during</p>	<p>Post- activity</p> <p>1. Conclusion.</p> <p>2. Closing.</p>

<p>simulation.*</p> <p>3. The researcher does debriefing. In this case, the researcher discusses the students' performance and the students' mistakes and also gives some exploration presented.</p> <p>Post- activity</p> <p>1. Conclusion.</p> <p>2. Closing.</p>	
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Based on the table above, it could be seen that the teaching and learning process in both of the groups will do in many steps. But there are some differences in the way of teaching and the differences activities which the researcher do is show by asterisks. The difference is the technique that the researcher used. In control group the researcher will not use simulation as a technique in teaching learning process. Meanwhile, in experimental group the researcher use simulation technique in teaching procedure text and this technique is a kind of treatment that is given to the students.

1. The process conducted the treatment in experimental group.

The activity was divided into five parts; they were setting up, getting going, managing the activity, winding down, and assessing students. In

setting up, the teacher prepared the topic and the materials which would be needed. The teacher also asked the students to bring some materials by themselves.

The teacher chose some topics that were familiar to the students to make the lesson become meaningful. Then, the teacher moved on the second stage that was getting going. In getting going, the teacher introduced the students to their roles in the simulation by giving an example of making a glass of lemon tea. The teacher tried to make the students understood about their task.

After that, the teacher moved on to the third stage that was managing the activity. In this stage, the teacher asked the students to do the simulation in front of the class according to the topic that had been prepared by the teacher. The simulations were done depended on the topics. If the topics were easy and did not need much preparation, then the simulation would be done spontaneously. The students manage their activity and control the time, while the teacher only observed their performance and also assessed them.

The fourth stage was winding down. In winding down, the teacher did debriefing with the students. The teacher reviewed and discussed the students' mistake. The last stage was assessing the students that had been done during their performance.

The students were going to make simulations about making drinks and foods. Since drinks were simple topic, the teacher had the students to do the

simulation spontaneously. The teacher had prepared some ingredients to make some kind of drinks. The captain of each group was asked to pick some of the ingredients that they would need to make a drink. After that, the teacher commanded the students to not make their drink yet. The teacher asked them to imagine what they were going to do with those ingredients. She gave 5 minutes for the students to prepare. After the time for discussion and preparation was up, the teacher asked the students to come forward and do the simulation of making a drink. Before they did the simulation of making a drink, the teacher explained the criteria that would be assessed. Those criteria were grammar, vocabulary, pronunciation and fluency.

After getting treatment in four meetings, the post-test was conducted. They were given the speaking test of procedure text. The students are asked to create a procedure text, first, the students prepare the thing they need to do simulation technique and present their procedure text in front of the class. The researcher examines the students' performance and gives score about their pronunciation, fluency, structure, and vocabulary. The researcher was assessing the students that had been done during their performance.

2. The process of teaching in control group.

In teaching learning process, the students of seventh B class, as control class, were taught in four meetings using conventional method (lecturing technique). There were no significance difficulties, because as usual.

First, the teacher was informed about the topic would be going to discuss. Then the teacher explained about procedure text, generic structure, and language feature. The teacher also explained some related vocabulary. The teacher was explanation about how to make a glass of lemon tea. The students read a text about the related topic, they practice orally in groups. Then the teacher gave some correction of their mistaken.

After the time for discussion and preparation was up, the teacher asked the students to come forward and performed about their speaking of procedure text. Before they did the speaking of procedure text, the teacher explained the criteria that would be assessed. Those criteria were grammar, vocabulary, pronunciation and fluency.

In the next meeting, the teacher gave the other topic about speaking of procedure text. Then they try to discuss in groups and performed in front of class.

After four meetings, the post test was conducted. They were given the speaking test of procedure text. The students are asked to create a procedure text, first, the students prepare about their speaking and present their procedure text in front of the class. The researcher examines the students' performance and gives score about their pronunciation, fluency, structure, and vocabulary.

F. Data Analysis Technique.

Data analysis presents information about the step in analyzing the data. Data analysis is used to get the true answer about the problems of the research. However the data which has been collected must be analyzed to get accurate result.

In this study, the researcher analyzed the value of students' test including pre-test and post-test. The data which the researcher got from pre-test was counted by using means score. The formula as follow:

$$\text{Mean "to" (Pre-test)} = \frac{\sum to}{n}$$

$\sum to$ = total score of pre-test

n = the number of students

After calculating the mean score of pre-test, the researcher calculated the mean score of post-test. The mean score of post-test can be formulated as follow:

$$\text{Mean "t}_1\text{" (post-test)} = \frac{\sum t_1}{n}$$

$\sum t_1$ = total score of post -test

n = the number of students

1. Normality test

To analyze the normality of score, Kolmogrov – Smirnov formula is used in this study. The Kolmogrov – Smirnov is performed by using SPSS for windows. The hypotheses used are follows:

H_0 : sample is from population with normal distribution

H_1 : sample is from population with not normal distribution

The table of the data output from SPSS simply concluded as follow: by using 5% level of significance (α), the criteria of normality test is H_0 is rejected if significance value (Sig.) < 0.05 , meanwhile if the significance value (Sig.) $> 0,05$, H_0 is accepted.

2. Variant Homogeneity Test

After the result of normality test found, the researcher conduct variance homogeneity test. The hypotheses used as follows:

H_0 = the variance of the pre-test of experimental and control group are homogenous.

H_1 = the variance of the pre-test of experimental and control group are not homogenous.

To analyze the homogeneity of variance of the score, Levene's test formula is used in this study. The test formulated using SPSS for windows. The criteria of the test are H_0 is rejected if the significance value more than the level of significance (Sig $<0,05$). Meanwhile if significance value is less than the level of significance (Sig $>0,05$), therefore H_0 is accepted.

The independent t-test is conducted when the normality distribution and homogeneity of variance of each scores has been proven. However if the data do not fulfill the requirements, formula in non-parametric statistics can be used to compare two means of experimental and control group.

The score of both tests, pre-test and post-test were analyzed statistically by using a procedure of t-test formula with significance degree 5%. The researcher used t-test because the researcher wanted to compare between experimental group and control group and takes the following formula according to Sugiyono⁴⁶:

$$T = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left[\frac{S_1^2}{n_1}\right] + \left[\frac{S_2^2}{n_2}\right]}}$$

Note:

\bar{X}_1 = the mean value of experimental group

\bar{X}_2 = the mean value of control group

S_1^2 = the variants of experimental group

S_2^2 = the variants of control group

n_1 = the number of students in experimental group

n_2 = The number students in control group

3. Find the standard deviation

After calculating the mean value, the standard deviation of the data must be calculated. According to (Sudjana⁴⁷: 93), the formula is:

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

⁴⁶Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D* (Bandung: Alfabeta, 2013), 197

⁴⁷Sudjana, *Methoda Statistika: Sixth Edition*, (Bandung: Tarsito, 1996), 93

This formula is used to calculate the standard deviation of the data.

4. Find the degree of freedom

Find the degree of freedom (df), with the formula: $df = n_x + n_y - 2$

Note:

n_x = number of subject in experimental group

n_y = number of subject in control group

5. Find the progress from pretest to posttest

$$\text{Progress} = \frac{M_D}{M_{Pre}} \times 100$$

Note:

M_D = mean value of the difference score

M_{Pre} = mean of pretest

6. Comparing between t-test and t-table.

The formula above will give the interpretation to the result of t-test by comparing with t-table by proving the criteria of hypothesis as follows:

- 1). If t_{value} is higher or same with t_{table} , so the Null Hypothesis (H_0) is rejected and the Alternative Hypothesis (H_a) is confirmed. It means that there is significant difference between experimental group and control group.
- 2). If t_{value} is less than t_{table} , so the Null Hypothesis (H_0) is confirmed and the Alternative Hypothesis (H_a) is rejected which means that there is no significant difference experimental group and control group.