

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

Research methods are the tools and techniques for doing research, According to Sugiyono (2008) there are three major types of experimental research design via: pre-experimental, true-experimental and quasi-experimental. This research used quantitative method and the design of the research was quasi experimental study that aimed to find out the cause-effect between two variables.

According to Creswell (2003), a quantitative approach is one in which the study concentrates on using post-positive statements to advance knowledge, use inquiry techniques like surveys and experiments, and gathering data using pre-established tools to obtain particular statistical data.

There are two groups in this model: the experimental class and the control class. The subjects in this design are selected from a certain population. The experimental class is the class that gets treatment from the demonstration technique, while the control class is the group that does not get treatment. Additionally, at the conclusion of the learning process, both classes take the same test (post-test); this research design is a control group post-test only design. The design is as follows:

Table 3.1
The Design of The Research

R	X	O₁
R	-	O₂

Notes:

R: Random sample

X: Special treatment for implementing Demonstration Technique for learning

O₁: Posttest for experimental class

O₂: Posttest for control class

-: Ordinary treatment of applying conventional learning

B. Variable

Research variables are anything in whatever form determined by the researcher to be studied so that information about it is obtained, then conclusions are drawn" (Sugiyono, 2015). In this research, two variables will be shown, namely the independent variable and the dependent variable. An independent variable or independent variable is a variable that is the cause of the emergence or change in the dependent variable (free variable). Dependent variable or bound variable is a variable that is influenced or becomes a consequence, because of the existence of an independent variable. The use of Demonstration Technique in the experimental class in the independent variable (X), while student learning outcomes in the speaking skills as the dependent variable (Y).

C. Population and Sample of the Study

1. Population

Gay (2012:130) state population is the testing sample of the research can allow the researcher to make about performance of the larger group. Sugiyono (2010:117) says that population is a general area consisting of objects/subjects that have certain qualities and characteristics that are determined by researchers to be studied and then draw conclusions.

In this case, they are eleven classes at ninth grade students at Islamic Junior High School 3 Pariaman. The total number of the population are 166 students.

Table 3.1

Population of The Research

Class	Number of the students
IX.1	32
IX.2	32
IX.3	32
IX.4	28
IX.5	21
IX.6	21

Source: Officer of MTsN 3 Pariaman

2. Sample

Sample is part of the number and characteristics of the population (Sugiyono, 2018). According to Gay (1992) explains that in cluster sampling, intact groups, not individuals, are randomly selected. All the members of selected groups have similar characteristics. Sampling was carried out using cluster random sampling. Gay said that cluster random sampling is sampling whole groups, not individuals, who are chosen at

random. One way to do this is to write each individual's name on a separate piece of paper. The procedure is: first, identify six classes in ninth grade class as a population. Next, the researcher took a piece of paper and divided it into six parts. Then the researcher numbered the six pieces of paper, counting from one to six, and rolled them up. Finally, the researcher took two pieces of paper at random. The results are experimental and control classes. Researchers used flipping coins to divide experimental and control classes. The results of the coin toss determined class IX.3 as the control class and IX.5 as the experimental class.

Table 3.2

Sample of The Research

Type	Class	Total
Experimental Class	IX.5	21
Control Class	IX.3	32

Table 3.3

Schedule of The Research

Date	1 st Meeting		2 nd Meeting		3 rd Meeting		Post-Test	
	A	B	A	B	A	B	A	B
15-10-2024								
16-10-2024								
17-10-2024								
22-10-2024								
23-10-2024								
24-10-2024								

Annotations:

A : Control Class

B : Experimental Class

D. Research Instrument

One of most important activities in doing research is how to got and collect the data needed: the researcher has tried to applied some appropriate research instrument. According to Arikunto the research instrument is a device used by researchers while collecting data to make his work becomes easier and to get better result, complete, and systematic in order to make the data easy to be processed (Arikunto, 2006).

The only instrument of this study was test, students were instructed to explains a cup of coffee (performance test). They were recorded for analysis. It is shown in the speaking test table blueprint below:

Table 3.4

Blueprint of Speaking Test

No	Type	Topic	Durati on	Indicators					Scores
				P	G	V	F	C	
1. 2. 3. 4. ↓ 32.	Performance/ with instruction	Make a Cup of Coffee	2-4 Minut es						

From the table above, it is explained that the performance was type of this speaking test. After treatment meeting finished, the researcher gives students speaking test. In this speaking test, students are asked to explain about how to make a cup of coffee in front of the class, then researcher give durations about 2-3 minutes per individual. Depending on the student's circumstances, the researcher will either record the student's presentation on audio or video. Next,

using Hughes' assessment rubric, the researcher observes and assesses the students' speaking. Pronunciation, grammar, vocabulary, fluency and comprehension will all be assessed.

E. Technique of Data Collection

Collecting the data is one of the important things in this research. To make data accurately, the writer collected the data by using the test to students' speaking skills. The test was given to get the objectives data of students' vocabulary by using the treatments. The researcher gives the treatment using the demonstration technique to the students who are in the experimental class, while the control class is taught using the conventional technique.

Table 3.5

The following are the procedures used to treat the experimental class:

Fase	Learning Activity	Teacher Activity	Time
Pre-Teaching Activity	1. Apperception	- Greeting - Praying - Checking student attendance list	3'
	2. Motivation	- Teacher asks the students about last topic - The teacher writing the topic on whiteboard and introduce the topic - Teacher gives questions based on the topic build students background about procedure text	4'
Main Activity	1. Building Knowledge of Field (BKOF)	The teacher monitors students' speaking skills based on students' knowledge which includes the goal of the activity, materials, and steps. Example: The teacher asks students questions based on relevance topics such as (<i>Did you know.....?; Can you name the</i>	10'

		<i>materials used....?; what equipment was used....? etc.)</i>	
	2. Modelling of the Text (MOT)	- The teacher shows the picture of a cup of mango juice to students via PPT - After the text is displayed, the teacher asks students to observe the text that has been displayed and then write new vocabulary and interpret it. - The teacher focuses the students' attention on each generic structure by explaining grammar and vocabulary. - Then, the teacher explains about language features of procedure text.	15'
	3. Joint Construction of the Text (JCOT)	- The teacher divides students into several groups consisting of 5 or 6 people in one group, then the teacher gives LK. 1 to the students - After the groups are formed the teacher asks students to analyze the structure of the text in the pictures that have been given.	15'
	4. Independent Construction of Text (ICOT)	- The teacher demonstrate how to make a cup of mango juice. - Some students are asked to explain again to the front of the class how to make a cup of mango juice with the demonstration technique.	20'
Post-Teaching Activity	1. Evaluation	- Teacher concludes the material with the students while telling them about the next material - Teacher and students reflect on learning and its benefits.	10'
	2. Closing	- Teacher gives independent assignments as homework. - Teacher closes the class with saying <i>hamdallah</i>	3'
Total JP			80'

Based on the table 3.5 above, one class is the experimental group and the other class is the control group. After three meetings, the researcher gave a post-test to the experimental and control groups and the students are given one-two minutes to speak about how to make a cup of coffee., this was given to get the final results of this research, then to find out the students' abilities after treatment whether the students' speaking abilities could be improved through the demonstration technique.

F. Data analysis technique

To find out whether Demonstration Technique had positive impact on students' speaking skill in procedure text at Islamic Junior High School 3 Pariaman, the researcher used the following steps to analysis the data:

1. Data Description

Descriptive research, according to Sugiyono, is research that is done to ascertain the value of one or more independent variables without linking them to other variables or doing comparisons. On the other hand, Sukardi asserts that the primary goal of descriptive research is to accurately and methodically characterize the facts and features of the object or subject under study. The steps for descriptive research are as follows, according Sukardi:

- a. Identifying significant problems to be solved through descriptive methods.
- b. Limit and formulate the problem clearly.
- c. Determine the objectives and benefits of the research.

- d. Conduct literature studies related to the problem.
- e. Determine the framework of thinking, and research questions and/or research hypotheses.
- f. Design the research method to be used, including determining the population, sample, sampling technique, determining data collection instruments, and analyzing the data.
- g. Collect, organize and analyze data using relevant statistical techniques.
- h. Create research reports.

No further inferences or even future predictions will be made based on the data collected for this study; it will be provided just as it is. The researcher then intends to characterize the symptoms that arise from the collected data and examine them in order to gain a sense of how the influence of Demonstration Technique on the speaking skills at Islamic Junior High School 3 Pariaman.

2. Descriptive Data Analysis

Descriptive analysis is a statistical analysis used to describe the data that will be used in research to make conclusions that apply generally. The results of this descriptive data analysis are a summary of the samples to be processed, such as average, middle value, mode, etc.

a. Mean

The mean, which is thought to be the value that most closely resembles the actual measurement findings, is a representative of a data set or an average value. By adding together all of the data values and

dividing that total by the number of data points, the mean can be found.

The following formula can be used to find the mean in greater detail:

$$\bar{x}_1 = \frac{\sum F_1 x_1}{\sum n_1}$$

(Experimental Class)

$$\bar{x}_2 = \frac{\sum F_2 x_2}{\sum n_2}$$

(Control Class)

b. Standard Deviation

The distribution of data in a sample to determine how near or how distant the data values are from the average is called the standard deviation. An assessment of the data distribution in relation to the average is one of the purposes of the standard deviation formula. The following formula can be used to find the mean in greater detail:

$$SD = \sqrt{\frac{\sum x^2}{N}}$$

(Gay, 2006:321)

c. Max

To show the greatest (biggest) value or number in a data cell or range, utilize the Max function.

d. Min

The MIN function is the reverse of MAX and is used to show the smallest value or number that is present in a range or cell.

e. Range

The range, which is usually given the symbol R , is a statistical measure that shows the distance between the lowest score and the highest score. Briefly it can be formulated:

$$R = H - L$$

(Sudijono, 2009:144)

Notes:

R : The range we are looking for

H : The highest score

L : The lowest score

f. Variance

$$s^2 = \frac{\sum (x_1 - \bar{x})^2}{(n - 1)}$$

Where:

t : The value of t calculated/ obtained

$\bar{x}_1$: Mean score of experimental class

$\bar{x}_2$: Mean score of control class

s_1^2 : Variance of experimental class

s_2^2 : Variance of control class

n_1 : Number of samples in experimental class

n_2 : Number of samples in control class

3. Prerequisite Data Analysis

a. Normality Testing

This test is used to determine whether the distribution of each variable is normal or not. Normality test analysis using SPSS (Statistical

Product and Service Solution) with exploration of Kolmogorov-Smirnov and Shapiro Wilk test data. The normality test criterion is significance, if the analysis score is greater than the significance standard of 5 percent (0.05) then the data distribution is normal.

b. Homogeneity Testing

This test is used to see whether a sample from a population has the same characteristics as the population or not. The formula that will be used in this test is embankment statistics using SPSS (Statistical Product and Service Solution).

4. Hypothesis Testing

A statistical technique called hypothesis testing is used to assess whether a sample of data contains sufficient evidence to support inferences about the population. This entails developing a hypothesis that the researcher has determined, where the hypothesis is Students who receive instruction utilizing the demonstration technique have better speaking abilities than those who receive instruction using traditional methods and subsequently gather data to evaluate the evidence.

a. T-test

To evaluate the stated hypothesis, researchers in this study employed the T-test. The purpose of the t-test is to determine whether the speaking abilities of students who get instruction using the Demonstration Technique and those who receive instruction using traditional techniques differ significantly in terms of learning success. The

Independent Sample T-test is the particular T-test that was employed in this study. The following criteria and SPSS version 26 software will be used to analyze the T-test:

When T-test result Positive (+)

- 1) If $\text{sig } \alpha = 0.05$ (5%) is less than the ρ -value, the alternative hypothesis is accepted.
- 2) The null hypothesis is accepted if the result shows a ρ -value or sig (2-tailed) below the significance level of $\text{sig } \alpha = 0.05$ (5%).

When T-test result negative (-)

- 1) When the ρ -value or sig (2-tailed) is less than the significance level of $\text{sig } \alpha = 0.05$ (5%), the alternative hypothesis is accepted
- 2) The null hypothesis is accepted if the result shows a ρ -value or sig (2-tailed) greater than the significance level of $\text{sig } \alpha = 0.05$ (5%)

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