

CHAPTER III

METHODOLOGY OF THE RESEARCH

A. Research Design

This research is experimental research. According to Gay and Peter Airaisian, experimental research is “research that can test hypotheses to establish cause and effect relationship.¹ It means that experimental research dealing with different contexts and participants in which it can produce cause-effect result.² Moreover, the type of design that will be used is quasi-experiment. Creswell states that quasi-experiment is experimental situations in which the research assigns, but not randomly, participants to groups because the experimenter cannot artificially create groups for the experiment.³

Furthermore, the researcher will apply the pre-and posttest design to this quasi-experimental design. Creswell explains that pre-test provides a measure on some attributes or characteristics that will be assessed for participants in an experiment before they receive a treatment.⁴ Meanwhile, a posttest is a measure on some attributes or characteristics that will be assessed for participants in an experiment after a treatment.⁵

There are two variables in this research. The first are an independent variable and the second one is a dependent variable. The use of controlling the teacher is the independent variable symbolized by “X” and the students listening comprehension is the dependent variable symbolized by “Y”. This research uses two groups that for comparison. The first is the experimental group that is treated by controlling the teacher technique. The second one is

¹L.R. Gay and Peter Airaisian, *Et* 26 *Research Competences for Analysis and Application*. Six Ed. (New Jersey: Prentice-Hall, Inc., 2000)

²*Ibid*

³ John W Creswell, *Educational researchn: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, New Jersey: Pearson Education Ltd., 2008, p.313

⁴*Ibid*, p. 301

⁵*ibid*

the control group that is treated by conventional strategy or not treated by controlling the teacher technique. In brief, the research is designed by the following table:

Table III.1

Research Design

Class	Pre-Test	Treatment	Post-test
X (Experiment)	T1	X	T2
Y(Control)	T1		T2

Note:

T1 : Pre-test to experiment and control class

T2 : post-test to experiment and control class

X : receiving treatment, that is using controlling the teacher technique

: No treatment

B. The Location and Time of the Research

This research was conducted from August to October 2013 of the first year students at Senior High School Al-Huda Pekanbaru. This research was conducted at the first semester of the first year students of Senior High School Al-Huda Pekanbaru.

C. The Subject and Object of the Research

Subject of the research is the first year students of Senior High School Al-Huda Pekanbaru. The object of this research is the effect of controlling the teacher technique toward students' listening comprehension.

D. Population and Sample of the Research

The population of this research is the first year students of Senior High school Al-Huda Pekanbaru. The total of the first year students are 104 students. The number of students includes in the following table:

Table III.2
Population of the research

No	Classes	Population		Total
		Male	Female	
1	X.1	8	17	25
2	X.2	6	19	25
3	X.3	11	18	29
4	X.4	9	16	25
Total		34	70	104

Based on the design of the research above, the population is large enough to be all taken as sample of the research. The writer uses Cluster sampling to choose the classes taking as sample. According to Gay, Cluster sampling randomly selects group, not individuals. All the members of selected groups have similar characteristics.⁶ It means that the subject of this research have the same material, the same grade, and the same teacher in teaching these classes. As the result, the writer took X 1 as an experimental class and X 2 as a control class.

Table III.3
Sample of the research

No	Classes	Population	Total
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⁶L.R. Gay and Peter Airasian, *Op Cit*, p.129

		Male	Female	
1	Experiment Class (X.1)	8	17	25
2	Control Class(X.2)	6	19	25
Total				50

E. Technique of Collecting Data

To obtain the data needed in this research, the writer used multiple choice techniques. This technique was used to measure the students' listening comprehension as objective as possible. There were two kinds of tests in this research; they were pre-test and post-test; each of test consisted of 20 items. The test was done twice, before and after treatment intended to obtain students' listening comprehension. The classification of the students' score is shown below.⁷

Table III.4

The Classification of Students' Score

Score	Categories
80 – 100	Very good
66 – 79	Good
56 – 65	Enough
40 – 55	Less
30 – 39	Fail

F. Technique of Data Analysis

1. Normality Test

⁷Suharsimi Arikunto. *Dasar-Dasar Evaluasi Pendidikan*. (Jakarta: Bumi Aksara. 2009). p. 245

Before analyzed the data by using t-test formula, the researcher has to find out the normality test of the data. The normality test of the data was analyzed by using Kolmogorov Smirnov technique with SPSS.

Analysis:

H_0 : population with normal distribution

H_a : population with not normal distribution

If the probability $> 0,05$ H_0 was accepted

If the probability $\leq 0,05$ H_0 was rejected

2. Analysis Data

In analyzing the data in this research, the researcher used t-test formula. According to Hartono, t-test is one of the statistic tests that is used to know whether there is or not a significant effect of two samples of mean in two variables⁸. T-test was used in order to find out whether there is a significant effect of students' listening comprehension taught by using Controlling the Teacher Technique and students' listening comprehension taught without using Controlling the Teacher Technique. The data were statistically analyzed by using SPSS 16.0 version.

The t-table was employed to see whether or not there was a significant effect of gain score both experimental and control class.

Statistically hypothesis:

H_0 : variance population identic

H_a : variance population not identic

H_a : $t_o > t\text{-table}$

H_0 : $t_o < t\text{-table}$

⁸ Hartono. *Statistik Untuk Penelitian*. (Yogyakarta: Pustaka Pelajar, 2008). P. 171

H_0 is accepted if $t_0 < t\text{-table}$ or there is no significant effect of using Controlling The Teacher technique toward listening comprehension.

H_a is accepted if $t_0 > t\text{-table}$ or there is significant effect of Using Controlling The Teacher technique toward listening comprehension.

G. Item difficulties, Validity and Reliability of Instrument Test

a. Item difficulties

Before getting the data, the writer used all of items in try out. The test was tried out to 25 students of the first year students on the other class out of the samples. Try out was intended to determine the value of the test. The value itself was used to find out the level of difficulties of each item. The standard of value used was 0.30 and 0.70⁹.

The items that could not fulfil the standard value were replaced. The facility value under 0.30 is considered difficult and above 0.70 is considered easy. The level of difficulty was used to show how easy and difficult an item was. It was calculated by using the formula:¹⁰

$$P = \frac{B}{JS}$$

Where:

P = Difficulty level

B = The number of correct answer

JS = The number of students

Then, the proportion correct was represented by “p”, whereas the proportion incorrect was represented by “q”.

Table III.5

The Students' are able to identify the topic in narrative text that they heard

⁹*Ibid*, p .208

¹⁰*Ibid*

Indicator	The Students' are able to identify the topic in narrative text that they heard					N
Item no.	1	5	9	13	17	25
Correct	11	16	15	15	17	
P	0.44	0.64	0.6	0.6	0.68	
Q	0.56	0.36	0.4	0.4	0.32	

Based on the table above, the proportion of correct answer for item number 1 shows the proportion of correct 0.44, item number 5 shows the proportion of correct 0.64, item number 9 shows the proportion of correct 0.6, item number 13 shows the proportion of correct 0.6, item number 17 shows the proportion of correct 0.68. Based on the standard level of difficulty “p” <0.30 and >0.70, it is pointed out that item difficulties in average of each item number for finding factual information are accepted.

Table III.6

The Students' are able to identify the main idea in narrative text that they heard

Indicator	The Students' are able to identify the main idea in narrative text that they heard					N
Item no.	2	6	10	14	18	25
Correct	13	10	14	16	12	
P	0.52	0.4	0.56	0.64	0.48	
Q	0.48	0.6	0.44	0.36	0.52	

Based on the table above, the proportion of correct answer for item number 2 shows the proportion of correct 0.52, item number 6 shows the proportion of correct 0.4, item number 10 shows the proportion of correct 0.56, item number 14 shows the proportion of correct 0.64 and item number 18 shows the proportion of correct 0.48. Based on the standard level of difficulty “p” <0.30 and >0.70, it is pointed out that item difficulties in average of each item number for finding factual information are accepted.

Table III.7

The Students' are able to identify the figure in narrative text that they heard

Indicator	The Students' are able to identify the figure in narrative text that they heard					N
Item no.	3	7	11	15	19	25
Correct	9	14	12	12	13	
P	0.36	0.56	0.48	0.48	0.52	
Q	0.64	0.44	0.52	0.52	0.48	

Based on the table above, the proportion of correct answer for item number 3 shows the proportion of correct 0.36, item number 7 shows the proportion of correct 0.56, item number 11 shows the proportion of correct 0.48, item number 15 show the proportion of correct 0.48, and item number 19 show the proportion of correct 0.52. Based on the standard level of difficulty “p” <0.30 and >0.70 , it is pointed out that item difficulties in average of each item number for finding factual information are accepted.

Table III.8

The Students' are able to identify the certain information in narrative text that they heard

Indicator	The Students' are able to identify the certain information in narrative text that they heard					N
Item no.	4	8	12	16	20	25
Correct	13	16	10	13	11	
P	0.52	0.64	0.4	0.52	0.44	
Q	0.48	0.36	0.6	0.48	0.56	

Based on the table above, the proportion of correct answer for item number 4 shows the proportion of correct 0.52, item number 8 shows the proportion of correct 0.64, item number 12 shows the proportion of correct 0.4, item number 16 show the proportion of correct 0.52, item number 20 show the proportion of correct 0.44. Based on the standard level of difficulty “p” <0.30 and >0.70 , it is pointed out that item difficulties in average of each items number for finding factual information are accepted.

b. Validity

Every test, whether it is a short, informal classroom test, or a public examination should be as valid as the test constructor that can make it. The instrument of the test must aim at providing a true measure of the participation skill in which it is intended to measure. The instrument of the test is valid if the instrument used can measure the thing that will be measured¹¹.

The writer did try out twice. The purpose of try out was to obtain validity and reliability of the test. It was determined by finding the difficulty level of each item.

To find validity, the writer uses correlation product moment the formula as follows:

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

Where:

r_{xy} = correlation product moment x and y

$\sum xy$ = total x and y

$\sum X^2$ = X quadrant

$\sum Y^2$ = Y quadrant

$$r_{xy} = \frac{1453}{\sqrt{2313.88 \cdot 2400.24}}$$

$$r_{xy} = \frac{1453}{\sqrt{5553867.33}}$$

$$r_{xy} = \frac{1453}{2356.66} = 0.61$$

According to Suharsimi Arikunto state the ranges of validity are¹²

Table III.9

The Standard of Validity and Reliability of the Test

¹¹P L.R., Gay, & Peter Airasian. *Op. Cit.*, p.23

¹²Suharsimi Arikunto, *Op. Cit.*, p.75

No	The standard	Score
1	Excellent	0,800-1,00
2	Good	0,600-0,800
3	Fair	0,400-0,600
4	Poor	0,200-0,400
5	Very Poor	0,00-0,200

The writer concludes if the validity tests in 0.61, so the validity is Good.

c. Reliability

Arikunto states that it is possible for the test is reliable but is not valid, whereas the test is valid automatically, it is reliable. To obtain the reliability of the test given, the writer used Sperman Brown formula as follows:¹³

Reliability Analysis

$$r_{11} = \frac{2r_{1/21/2}}{1 + r_{1/21/2}}$$

In which:

R_{11} : instrument of reliability

$r_{1/21/2}$: Rxy that mean as correlation of index

$$r_{11} = \frac{2 \times 0.61}{1 + 0.61}$$

$$r_{11} = \frac{1.22}{1.61}$$

$$r_{11} = 0.75$$

¹³Suharsimiarikunto, *Ibid*,p. 223