

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

This research is experimental research. Experimental research is the only type of the research that can test hypotheses to establish cause-and-effect relationship.¹ Moreover, the type of design that used is quasi-experiment. Creswell states that quasi-experiment is experimental situations in which the researcher assigns, but not randomly, participants to groups because the experimenter cannot artificially create groups for the experiment.² Furthermore, the researcher will apply The Pre- and Posttest design.³ Creswell explains that a pre-test provides a measure on some attributes or characteristics that will be assessed for participants in an experiment before they receive a treatment. Meanwhile, a posttest is a measure on some attributes or characteristic that will be assessed for participants in an experiment after a treatment.⁴ Quasi-Experimental Design has many designs.

In this research, the reseacher applied The Nonequivalent Control Group Design. Gay explains that the non equivalent control group design involves random assignment of intact groups to treatments, not random assignmnet of individuals.⁵

¹L.R. Gay and Peter Airasian, *Educational Research Competencies for Analysis and application Sixth Edition*, New Jersey: Prentice Hall Inc., 2000, p. 36

²John W. Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, New Jersey: Pearson Education Ltd., 2008, p. 313

³*Ibid*, p. 301

⁴*Ibid*, p. 301

⁵L.R. Gay and Peter Airasian , *Op. Cit* p. 395

There are two variables in this research. The first is independent variable and the second one is dependent variable. The use of imagery strategy is independent variabel symbolized by “X” and the students’ speaking ability is dependent variable symbolized by “Y”. This research used two groups for comparison. The first is experimental group that was treated by imagery strategy. The second one is control group that was treated by conventional strategy or not treated by imagery strategy. In brief, the research is designed by the following table:

Table III.1
Research Design

Class	Pre-test	Treatment	Post-test
Experimental	T1	X	T2
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 imagery strategy

: No treatment

B. Location and Time of the Research

This research conducted at Senior High School 1 Bangkinang Seberang which is located in Bendungan uwai Street in Bangkinang seberang District, Kampar Regency. It was held in August to September 2013 and this research included in the implementation of curriculum.

C. Subject and Object of the Research

This research subject was the second year students at Senior High School 1 Bangkinang seberang. Whereas , the object was the effect of using imagery strategy toward students' speaking ability.

D. Population and Sample of the Research

This research population is the second year students at Senior High School 1 Bangkinang Seberang. The total of the second year students are 98 students there were divided into 4 classes. There were 1 class of science program and 3 classes of social program. Otherwise, the researcher took two classes for sample; those were XI social 1 as experimental group and XI social 3 as control group. Taking the sample, the researcher used cluster random sampling because the students had been already formed into classes. According to Gay, cluster random sampling is the most useful when the population is very large or spread out over a wide geographic area.⁶ It means that sampling in which intact groups, not individuals, are randomly selected. Therefore, the researcher used test to measure the students' ability.

Table III.2
The Population of the research

	Male	Female	Total
XI science 1	12	13	25
XI social 1	10	14	24
XI social 2	12	13	25
XI social 3	11	13	24
Total	45	53	98

⁶ *Ibid*, p.129

Table III.3
The Sample of the Research

No.	Class	Male	Female	Total
1	XI social 1 (Experimental class)	10	14	24
2	XI social 3 (Control class)	11	13	24
Total of Sample				48

E. Technique of Collecting Data

In this research, the researcher used a test as an instrument to collect data. Test was used to collect the data about the effect of using imagery strategy and the teacher technique toward the student's speaking ability. In this case, there were two tests; pre-test which was given before the treatment and post-test was given after the treatment. The researcher took the total score from the result of the speaking ability test. 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. Validity and Reliability of Instrument Test

a. Validity of the Test

According to Hughes, a test is said to be valid if it measures accurately what it is intended to measure.⁸ According to Gay,⁹ validity is

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

⁸Arthur Hughes. *Testing for Language Teacher*. Cambridge: Cambridge University. 2003 p. 26

the appropriate interpretation is made from the test score, furthermore, Gay says that¹⁰ there are three kinds of validity. They are content validity, criterion related validity, and construct validity. All of them have different use and function.

Content validity is used to compare content of the test to the domain being measured. Gay also states that there is no formula used in this kind of validity and there is no way how to express it quantitatively.¹¹ Content validity just focused on how well the items represent the intended area. To determine the validity was referring to the material given to the students.

Based on the explanation above, the writer used the content validity to measure whether the test was valid or not in this research. In other words, the test given to the students were based on the material that they had learned.

b. Reliability of the test

According to Gay, reliability is the degree to which a test consistently measures whatever it is measuring.¹² It is reflected in the obtaining how far the test or instrument test is able to measure the same subject on different occasions indicating the similar result. It is clear that reliability is used to measure the quality of the test scores and consistency of the test.

⁹L.R. Gay and Peter airissian, *Loc, Cit*, p. 163

¹⁰*Ibid*, p. 164

¹¹*Ibid*, p. 164

¹²*Ibid*.,p. 169

In this research the writer used interjudge (interatter) reliability. It means that the score of the test was evaluated by more than one person. In this research, the students' speaking scores were evaluated by two raters.

G. Technique of Data Analysis

According to Creswell, Descriptive statistics involve representing data as means, mode, and median. The spread of scores as variance, standard deviation, and range, or comparison of how one score relates to all others as z scores, percentile rank. We might seek to describe any of our variables: independent, dependent, control, or mediating.¹³

Inferential statistics is comparing two or more groups on the independent variable in terms of the dependent variable. To answer the question, we need inferential statistics in which we analyze data from a sample to draw conclusions about an unknown population. We assess whether the differences of groups (their means) or the relationship among variables is much greater or less than what we would expect for the total population, if we could study the entire population.¹⁴ So, inferential statistics is statistics designed to enable the researcher to make generalizations about a population from data derived from a sample.

In this research, the data were analyzed by using statistical method. The writer used SPSS 16.00 Version to score pre-test and post-test of the experimental group and control group. The data were analyzed by using

¹³ John W Creswell, *Op.cit.* p. 190

¹⁴ *Ibid.* p.190.

independent sample t-test formula to know whether the result of this research was statistically significant in hypothesis one and two. The formula is in below.¹⁵

$$t_0 = \frac{M_x - M_y}{\frac{SD_x}{\sqrt{N-1}} + \frac{SD_y}{\sqrt{N-1}}}$$

Where:

- t_0 = Table Observation
- SD = Standard Deviation
- M_x = Mean of variable x and
- M_y = Mean of variable y
- SD_x = Standard deviation of experimental group
- SD_y = Standard deviation of control group
- N = The Number of respondent

The t-table has the function to see if there is a significant difference among the mean of the score of both experimental and control group. The t-obtained value is consulted with the value of t-table at the degree of freedom (df) = (N1+N2)-2 which is statistically hypothesis:

Ha: $t_0 > t$ -table

Ho: $t_0 < t$ -table

Ha is accepted if $t_0 > t$ -table or there is effect after using imagery strategy toward students' speaking ability. Ho is accepted if $t_0 < t$ -table or there is no effect after using imagery strategy toward students' speaking ability.

The researcher also used nonindependent sample t_{test} or Paired-Sample t_{test} to analyzed hypothesis three. The researcher used this formula to answer

¹⁵ Hartono. 2009. *Statistik untuk Penelitian*. Yogyakarta : Pustaka Belajar. p.208.

the third formulation of the problem because L.R Gay states that t test for non independent samples is used to compare groups that are formed by some type of matching or to compare a single group's performance on a pre- and posttest or on two different treatments¹⁶. In this time, the writer used to find out whether there is significant effect before and after using imagery strategy toward students' speaking ability by using the pretest and posttest score of experimental class. To obtain the data, the writer used SPSS 16. The formula of paired-sample t_{test} :

$$t = \frac{\bar{D}}{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

D : Gain Score ($D=X_2-X_1$)

The t-table has the function to see if there is a significant difference among the mean of the score of both pretest and posttest. The t-obtained value is consulted with the value of t-table at the degree of freedom (df) = $N-1$ which is statistically hypothesis:

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

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

Ha is accepted if $t_o > t\text{-table}$ or there is significant effect after using imagery strategy toward students' speaking ability. Ho is accepted if $t_o < t\text{-table}$ or there is no effect after using imagery strategy toward students' speaking ability.

¹⁶L.R Gay, Op.cit, p. 488.

In this research, researcher used a test as the technique of collecting data the students were tested orally before and after being given the treatment which was called pre-test and post-test. The first was a pre-test given before treatment and the second was pos-test given after treatment intended to obtain students' speaking ability at the second year of SMA N 1 Bangkinang Seberang. The students' oral production was recorded, analyzed, and scored. According to Brown there are some components that should be considered in giving students' score: they are pronunciation, grammatical, vocabulary, fluency and comprehension.¹⁷ The scoring process had been administrated by two raters by using the indicators of speaking ability.

The result has been evaluated by concerning five components in which each component has score or level. The highest score for each component is 20 and the total of all components is 100.

¹⁷Douglas Brown. *Language Assessment Principles and Classroom Practices*. (Sanfrancisco state University 2003),p.172-173