

CHAPTER 3

RESEARCH METHODOLOGY

In this chapter, the researcher discusses the procedures used to conduct this study. The researcher describes the Research Design, Population and Sample, Instrument, Data Collection, and Data Analysis.

3.1 Research Design

Research methodology is one of important plan for researchers to know about the research has many design. According to Burgin (2005:84) that research design is all the process includes planning and doing the research. The design begins with a general statement of research problem or topic. In this study, the research will use quantitative approach. It is because the researcher measured the students' speaking ability by tests; pretest and post-test. According to Dornyei, "Quantitative research involves data collection procedures that result primarily in numerical data which is then analyzed primarily by statistical method".

The design of the study is experiment research. Experimental is the best of the quantitative designs which is used to decide probable cause and effect (Creswell, John W.2012). The researcher chooses it because this design had a purpose to know the effect of using Whatsapp group discussion toward students speaking ability. Experimental research is the way to find a causal relationship in determining cause and effect. Experiments are always done with the intent to see a treatment. Based on Sugiyono (2014), there are four kinds of experimental research; there are pre-experimental, true experimental, factorial experimental and quasi experimental. In this research, there were two variable. So, the researcher used quasi experimental design; In quasi-experimental design, which is described as the best research design to explain cause-effect relationships, the treatment is performed after the pretest and finally, posttest is given to determine the effect on dependent variable (Fraenkel & Wallen, 2006). Quasi experiment is used to find out the treatment which one is given by the researcher.

In this research consist of two groups there are experiment group and control group. Both of them are given pre-test and post-test, the treatment is given to the experimental group will be given treatment by using Whatsapp group discussion in outside the class, for control group

without giving treatment just they will be taught by the researcher using discussion in pair in the classroom. However, both of experimental groups and control group were given same material pre-test and post-test. One of the most commonly used quasi-experimental designs in educational research could be represented as:

Group	Pre-test	Treatment	Post-test
Experimental group	Y1	X	Y2
Control Group	Y1		Y2

Table 3.1 Table the scheme of Quasi Experimental Design

Explanation:

X : treatment, it means the researcher would give treatment to the research's subject using Whatsapp group discussion.

Y1 : pre-test score (before given treatment), it means pre-test was held by the researcher in order to measure students' speaking ability before giving treatment

Y2 : post-test (after given treatment), it means the researcher would give post-test to the students in order to know the influences of giving treatment and measure score after using Whatsapp group discussion as a treatment

In this case, the researcher conduct six meeting, one meeting for pre-test both experiment and control group to know the different speaking ability of two groups, and the researcher will conduct the treatment to experimental group there are four meeting. The students' can discuss about the material using Whatsapp group discussion. And for the Control Group was not giving any treatment as like experimental group, the teacher give same topic but teaching as usual non using Whatsapp group discussion. And the last meeting for giving posttest both of group experimental and control group.

3.2 Population and Sample

This study is conducted in SMK YPI Darussalam 1 Cerme in academic 2018-2019. The population and sample will be discussed as follow;

3.2.1 Population

In this research, the researcher chooses the students of SMK YPI Darussalam 1 Cerme in the second academic year 2018/2019. The reason why researchers takes this school because the teacher never use Whatsapp group discussion to provide alternative teaching of IT-based but the teacher usually use traditional method in teaching learning process. The population of this research is 10th grade male and female students at SMK YPI Darussalam 1 Cerme 2018/2019 academic year which consist of forty two students.

No.	Class	Number
1.	X TKJ 1	23
2.	X TKJ 2	23
	Total	46

Table 3.2 Table the number of student 10th grade of SMK YPI Darussalam 1 Cerme

3.2.2 Sample

According to Donald Ari (2010) the small group that is observed is called a sample. A sample is a portion of group of a population. The researcher determined the two classes into two groups. In 10th grade of SMK YPI Darussalam 1 Cerme, the number of students 23 students of TKJ 1 as control group and 23 students of TKJ 2 as an experiment group so the total number of students is 46 students, they are male and female students as participant.

3.3 Data Collection

In this study, the data was collected from these students. The data are very important in the study. The data were needed to prove and support this study. The researcher collect the data by using speaking test; before treatment was pre-test to experimental group and control group to know the level of their speaking ability before the treatment. And test after treatment; post-test to know the effect of using Whatsapp group discussion towards students speaking ability. The result of the test presented the individual response to the treatment. After that the researcher analyzed the result of pre-test and post-test of two groups by using sample test in SPSS 15.0 version.

3.4 Research instrument

The data of this study take from 10th grade of SMK YPI Darussalam 1 Cerme. In the collecting the data instrument that the researcher use students' speaking test. The researcher use speaking test to measure students speaking ability, to know the different effect of using Whatsapp group discussion towards students speaking ability and to know the result of using Whatsapp group discussion towards students speaking ability.

3.4.1 Test

In gaining the test, the researcher should use the test to measure the students' ability. Brown states a test, in plain words, is a method of measuring a person's ability or knowledge in a given domain. In this study to measure the students' speaking ability the researcher used experimental group and control group to know the significant influence on the use of Whatsapp group discussion towards students speaking ability at SMK YPI Darussalam 1 Cerme. Before giving the test, the researcher measure the validity of the test to know the test are proper to give to the students or not.

The researcher used 2 (two) kinds of the test those are pre-test and post for both experimental group and control group. The test given before the treatment using Whatsapp group discussion applies. The test use is speaking test. The speaking test is adaption from syllabus of SMK YPI Darussalam 1 Cerme in the second semester. Pre-test given to get the first data of measured students speaking ability. The test given before the treatment, the test that use is speaking test. After pre-test the researcher give the treatment of using Whatsapp group discussion to know the effect of using Whatsapp group discussion its influence or not. The speaking tests are two items. The selection test is adaptation from syllabus of 10th grade in second semester was asking and giving suggestion and offer.

3.4.1.1 Pre-test

Pre-test will be given before the students get the treatment of using speaking Whatsapp group discussion apply. Pre-test was arranged in both of experimental group and control group. Pre-test was used to know the basic students speaking ability. Pre-test was utilized to know the students speaking ability before giving treatment for the students.

3.4.1.2 Post-test

Post-test will be given after the students get the treatment; the post-test has same procedures with the pre-test. Post-test was used to know the effect of using Whatsapp group discussion towards students speaking ability. The test in this research is speaking test, especially asking and giving suggestions and asking for offering help.

3.4.2 Validity

Validity is the extent to which any measuring instrument measures what it is intended to measure (Thatcher, 2010, p.125). Checking the validity of the item is needed to check whether the item already valid or not. It will be done before the pre and post-test delivered to the students. Based on Yaghmaie (2003) content validity is a measure tool to know the significant of the variable. According to Ary (1990) that the content of validity is not always in numeric form, but it can be shown by the test item. For testing the content of validity the researcher compares the instrument content to the subject basic on Curriculum and Syllabus. If the test content is appropriate with the curriculum guides, syllabus, and course book, the tests have content validity and the test can give to the students. The validity is based on the standard competence and basic competence from the government also helped by the teacher.

Basic Competence	Sub Basic Competence	Test	
		Pre-test	Post-test
3.13. Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait saran dan tawaran,	3.13.2 Membedakan fungsi sosial, struktur teks dan unsur bahasa dari berbagai ungkapan mengenai memberi dan meminta informasi tentang saran dan tawaran sesuai dengan konteks	What will you say, when you want to ask your friend to help something?	Please make a role play based on the situation below; Group 1: between doctor and patient in the hospital Group 2: between receptionist and visitor in the hotel Group 3: between

sesuai dengan konteks	penggunaannya		seller and buyer in the market
4.13Menyusun teks interaksi transaksional, lisan dan tulis, pendek dan sederhana, yang melibatkan tindakan memberi dan meminta informasi terkait saran dan tawaran, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan yang benar dan sesuai konteks	4.13.1 Menyusun teks lisan mengenai saran dan tawaran sesuai dengan konteks penggunaannya.	What's your suggestion when your friends come late?	Group 4: between information center and visitor in the school

Table 3.3 Analyzing Content Validity

4.5 Procedures of Collecting Data

To collect the data, the researcher should make a procedure. There are some procedures of collecting data. In the study, the researcher uses several procedures in collecting the data, as follows;

- a. The researcher asking permission to the school first where the study will be conducted.
- b. The researcher asks the class with the English teacher who taught English in the class that become the class of research: The number of the class and the number of the students.
- c. The researcher chooses the subject that will be divide into two group experimental group and control group. Experimental group here is the group who get the treatment of using

Whatsapp group discussion and control group is the group non-using Whatsapp group discussion, they will be taught by the researcher using discussion in pair.

- d. The researcher prepares to give pre-test for two groups and the result is the first data.
- e. The researcher will give the treatment of using speaking group discussion by Whatsapp to the experiment group for one month in six meeting.
- f. The researcher given post-test after the treatment; the researcher gives the post-test for both of two groups. And then the researcher can know is the influence of using speaking group discussion by Whatsapp towards students speaking ability.
- g. And the last, the researcher will analyze the data from the pre-test and post-test using SPSS 15.0 program.

3.5.1 Scoring Guide

To measure the test for students speaking ability, the researcher use some criteria's such as; pronunciation, grammar, fluency and comprehension, some criteria's they have each score. The way to calculate the score using score conversion. The example of rating scale showed in table below. (<https://www.rcampus.com>)

Table 3.4 Scoring Rubric

Aspect	Score	Item
Pronunciation	4	Excellent Pronunciation was very clear and easy to understand.
	3	Good Pronunciation was good and did not interfere with communication
	2	Satisfactory Student was slightly unclear with pronunciation at times, but generally is fair.
	1	Needs Improvement Student was difficult to understand, quiet in speaking, unclear in pronunciation.

Grammar	4	<p>Excellent</p> <p>Sometimes make grammar mistake but it doesn't influence the meaning</p>
	3	<p>Satisfactory</p> <p>There are often make grammar mistake that influence the meaning</p>
	2	<p>Good</p> <p>A lot of grammar mistake that block the meaning and often re arrange the sentences</p>
	1	<p>Needs Improvement</p> <p>Badly grammar mistake, it's become so hard to understand</p>
Vocabulary	4	<p>Excellent</p> <p>Rich, precise and impressive usage of vocabulary words learned in and beyond of class.</p>
	3	<p>Satisfactory</p> <p>Student utilized the words learned in class, in an accurate manner for the situation given.</p>
	2	<p>Good</p> <p>Using vocabulary in wrong way and limited vocabulary so its cannot be understand</p>
	1	<p>Needs Improvement</p> <p>Very limited vocabulary so the dialogue is impossible to happen</p>
Comprehension	4	<p>Excellent</p> <p>Student was able to comprehend and respond to all of the questions and the topics that were being discussed with ease.</p>
	3	<p>Satisfactory</p> <p>Student was able to comprehend and respond to</p>

		<p>most of the questions and topics that were being discussed.</p> <p>Good Student fairly grasped some of the questions and topics that were being discussed.</p> <p>Needs Improvement Student had difficulty understanding the questions and topics that were being discussed.</p>
	2	
	1	
Fluency	4	<p>Excellent Speech is effortless and smooth with speed that comes close to that of a native speaker</p> <p>Satisfactory Speech is mostly smooth but with some hesitation and unevenness caused primarily by rephrasing and groping for words.</p> <p>Good Speech is slow and often hesitant and irregular. Sentences may be left uncompleted, but the student is able to continue.</p> <p>Needs Improvement Speech is very slow, stumbling, nervous, and uncertain with response, except for short or memorized expressions. Difficult for a listener to understand</p>
	3	
	2	
	1	

Totally students answered

$$\text{Score conversion} = \frac{\text{Totally students answered}}{\text{Maximum score}} \times 100$$

In this scoring rubric, it seems to contrast with analytic rubric scoring methods; the researcher refers to the speaking scoring rubric. It is because the composition covers the five aspects or categories (Grammar, pronunciation, vocabulary, comprehension, fluency). In addition, the level for each category is different because each category has certain points with certain ranges.

3.6 Technique of Analyzing Data

After collecting the data, pre-test and post-test from the experimental group and control group, then the researcher measured the score differences from pre-test and post-test of experimental group and control group by the statistical calculation. The researcher will be analyzing the data for getting answer from the problem. Analyzing the data is very important in a research because is to answer the statement of problem with the data taken from pre-test and post-test. The researchers analyze the data using independent sample t-test from SPSS IBM Version 15.0.

4.6.1 Homogeneity Test

For homogeneity test, the researcher used one Levene's test of homogeneity test in SPSS 15.0 version. The purpose of this test was to analysis the variance of the observation in control group and experimental group. Homogeneity test was necessary to make sure the students in both of the class. Homogeneity test is testing about the same or not the variances of two or more distributions.

Homogeneity test is to find out whether the data in variables X and Y are homogeneous or not. The test of Levene's defined as follow;

If we let O_i represent the observed counts for the i^{th} cell, and E_i represent the expected counts, then

$$W = \frac{(n - k) \sum_{i=1}^k n_i (\bar{Z}_{i.} - \bar{Z}_{..})^2}{(k - 1) \sum_{i=1}^k \sum_{j=1}^{n_i} (Z_{ij} - \bar{Z}_{i.})^2}$$

The symbols defined as follow:

- W : The result of the test
- K : The number of different groups which the sample belong
- N : The total number of sample in all groups
- N_i : The number of sample in i group
- Y_{ij} : The value of j^{th} sample from i^{th} group

$$Z_i = \begin{cases} \left. \begin{matrix} Y_{ij} & \bar{Y}_i \end{matrix} \right\} \bar{Y}_i & \text{is a mean of } i^{\text{th}} \text{ group} \\ \left. \begin{matrix} Y_{ij} & \bar{Y}_i \end{matrix} \right\} \bar{Y}_i & \text{is a median of } i^{\text{th}} \text{ group} \end{cases}$$

To facilitate the calculation of researchers using SPSS 15.0 program for windows. Homogeneity test steps are as follows: click *Analyze*, compare means then *one way Anova* enter the Post Test value in the Dependent column and class on next factor on the check option *Homogeneity of variance* test press continues to continue the command and end the command by click OK. According to Joko Widiyanto (2010: 51) the guidelines for decision making in the homogeneity test are as follows;

1. If the significance value is sig. <0.05, it is said that the variance of two or more population groups of data is not the same (not homogeneous)
2. If the significance value is > 0.05, then it is said that the variance of two or more data population groups is the same (homogeneous).

4.6.2 Hypothesis testing using an Independent sample T-test

The use of Independent sample T-test is to find out the significant differences between experimental group and control group. The steps of sample T-test calculation is the test hypothesis of the research and setting the α (alpha) level at 0.05 (two tailed test) the hypothesis can be formulated as:

Ho = there is no significant effect in students' speaking skills after using Whats app group discussion between control group and experiment group.

Hi = there is a significant effect in students' speaking skills after using Whatsapp group discussion between control group and experiment group.

Finding t-value using Independent sample T-test and compare probability with the level of significant for testing the hypothesis. After the score compute in SPSS version, and see the output of Independent sample T-test and intrepete the output that if sig.(2-tailed) > (0.05), the researcher should accepted the Ho but if sig.(2-tailed) < (0.05) so the researcher can reject Ho, it means His accepted T-test is calculate to find the comparison of Control group and Experiment group. The researcher can be used hypothesis test that is T-test test by using SPSS IBM 15Version calculation tool. Here is T-test test formula:

$$t = \frac{r \sqrt{n-2}}{\sqrt{1-r^2}}$$

Information:

T = Hypothesis test

R = Correlation coefficient

N = Number of samples / data

Hypothesis test criteria:

a. Ho is rejected: if test $t > 0.05$, means Ha accepted.

Ho accepted: if test $t < 0.05$, Ha means rejected