

## **CHAPTER III**

### **RESEARCH METHOD**

In this chapter, the researcher wants to present about research design, population and sample, research instrument, variable, validity and reliability testing, data collecting method, and data analysis.

#### **A. Research Design**

According to John (2012:3) research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue. It means that research needs to know about the new information by getting a fact, investigating an event, social phenomenon by doing a test or observation. To get a good and absolute research, the researcher must believe that this research has not been done or resolved, so there is no solution in those problem before. In this research, the researcher must follow the research design if her want to be successful. John (2012) argued that in the general level, research consist of three steps, that is:

1. Pose a question.
2. Collect data to answer the question.
3. Present an answer to the question.

In the research here, the researcher wants to conduct an experimental research. Experimental research is a study that is intended to determine the existence of the action of something emphasized on the subject inquiry. John (2012:295) describes that we use an experiment when we want to establish possible cause and effect between independent and dependent variables. It

means that attempts to control all variables that influence the outcome except for the independent variable. Then, when the independent variable influences the dependent variable, we can say the independent variable “caused” or “probably caused” the dependent variable. Because experiments are controlled, they are the best of the quantitative designs to use to establish probable cause and effect.

There are many kinds of the experimental research design, such as pre-experimental design, true experimental and quasi-experimental. In this research, the researcher conducted in a pre-experimental design. The reason why the researcher used pre-experimental reserach design is because limited of time and limited sample class that given from the school so it is not possible to create another research group. This design was classified as pre-experimental design by using quantitative approach with One-Group Pretest-Posttest design because it was little or no control of extraneous variables. That’s why, in this study the researcher just put one group and used pre-test and post-test to see the result of the treatment also this design does not have random assignment of subject to group or other strategy to control extraneous variable and there was no pre-treatment. Experimental research can be done in the field, in the laboratory and in the classroom. But, in this study the researcher conduct her research in the classroom with the samples obtained from a population. The effectiveness of the instructional treatment is measured by comparing the average score of the pre-test and the post test. When it turns out that the post-test average score is significantly higher than

the average score of the pre-test, then it is concluded that the instructional treatment is effective to achieve students in speaking.

In one-group Pretest-Posttest design, a single group is measured or observed not only after being exposed to a treatment of same sort, but also before. The one group pretest-posttest design usually involves three steps, they are:

1. Administering a pre-test with a purpose of measuring speaking ability of the tenth grade of SMK NU Tulungagung
2. Applying the experimental treatment, namely teaching speaking by using Socratic Method of the tenth grade of SMK NU Tulungagung.
3. Administering a post-test with a purpose of measuring speaking ability of tenth grade of SMK NU Tulungagung.

**Table 3.1 A Diagram One Group Pretest-Posttest Design:**

<b>Y1</b>	<b>X</b>	<b>Y2</b>
Pre-test	Treatment (Independent Variable)	Post-test (Dependent Variable)

Applying one group pre-test and post-test, the researcher wanted to find out whether there is any significant different of student's speaking achievement before and after being taught by using Socratic Method at tenth grade of SMK NU Tulungagung in academic year 2017/2018.

## **B. Population, Sampling and Sample**

### **1. Population**

According to Arikunto (2006:108) population is a set or collection of all elements possessing one or more attributes of interest. The population is the whole object, it can be individual persons, objects, or items from which samples are taken for measurement to be examined which will be generalized to be drawn conclusion based on the data obtained. The population in this research is all of students at the tenth grade of SMK NU Tulungagung in academic year 2017/2018 that consist of 110 students that include of 5 classes.

### **2. Sampling and Sample**

Sampling is the act, process, or technique of selecting a suitable sample, or a representative part of a population for the purpose of determining parameters or characteristics of the whole population. Sample is a part of a population. How to take a sample in the research is very important, especially if the researcher wants the results of research apply to entire population. So the samples taken should be able to represent all the characteristics of population. If not the conclusion of the research will be biased. In this research, the researcher used purposive sampling technique. It is kind of a technique that used to determine sample with a particular consideration. The tenth grade Farmasi class was taken purposively as the sample of this research because based on the English teacher recommendation that this class had average proficiency among the other class of tenth grade. The researcher conducted practice teaching

in the school and she taught the class, therefore she knew the students' speaking level in the class. The total population were are only a class of tenth Farmasi and the class consisted of 31 students.

### **C. Research Instrument**

The most important in the taking research is collecting data that can determine the result of the research. Some techniques can be used in conducting this research, but here the researcher take a test as the instrument of research. An instrument is needed to collect the data collection. The instruments were used to achieve the accuracy of the data and can indicate that researcher was successful in his research. Before conducting the research, the researcher list some procedures to make her research are better. There are procedures of conducted the researcher:

#### **1. Introduction step**

- Consultation with the curriculum deputy of SMK NU Tulungagung and the English teacher about alocation time in conducted research, population also sample which will be the subject of research.
- Arrangement of lesson plan and the scenario of learning.
- Making of research test as perform to measure the effect of Socratic method
- Analyzing the result of test to know the validity and reliabilty of instrument to use as research instrument.

2. The implementation steps of research

- Conducted the pretest to measure the students speaking ability before they were given treatment
- Conducted the treatment that was by applied the Socratic method to the students. The treatment was conducted in two times.
- Conducted posttest to measure how the students speaking ability increased after the treatment applied.

3. The last step of research

- Processing the data of pretest and posttest
- Analyzed the result of data
- Gave a conclusion of the research based on the data tabulation.

In assessing the speaking skill, the researcher scored student speaking skills in four components, they are Pronunciation, Vocabulary, Fluency and Grammar. To assess the four components above, the researcher used scoring rubric that follows:

**Table 3.2 Analytic Oral Language Speaking Scoring Rubric**

Aspects	Need improvement (1-8)	Enough (9-17)	Good (18-25)	Excellent (26-35)
Pronunciation	Major pronunciation errors	Frequent errors, little or no communication	Occasional pronunciation problems with communication	No or almost no pronunciation errors
Aspects	Need improvement (1-7)	Enough (8-15)	Good (16-23)	Excellent (24-30)

<b>Fluency</b>	Speak was very slow, stumbling, nervous, and difficult for a listener to understand	Speak was slow and often hesitant and irregular sentences may be left uncompleted, but the students was able to continue	Speak was mostly smooth, but with some hesitation and unevenness caused primarily by rephrasing and groping for words.	Speak was effortless and smooth with speed that comes close to that of a native speaker
<b>Aspects</b>	<b>Need improvement (1-5)</b>	<b>Enough (6-10)</b>	<b>Good (11-15)</b>	<b>Excellent (16-20)</b>
<b>Vocabulary</b>	Student had inadequate vocabulary to express their idea properly	Students was able to use a few vocabulary but was lacking, and can't expand his or her idea	Student was able to use a lot of vocabulary and he or she can expand their idea	Student was able to use rich precise vocabulary in a good manner, and they can expand their idea.
<b>Aspects</b>	<b>Need improvement (1-3)</b>	<b>Enough (4-7)</b>	<b>Good (8-11)</b>	<b>Excellent (12-15)</b>
<b>Grammar</b>	Grammar almost entirely inaccurate phrases	Frequent errors showing some major patterns uncontrolled and causing occasional misunderstanding	Few errors with no patterns of failure	No more than three errors during telling the students' daily journal

**Table 3.3. Standard Performance**

<b>Score</b>	<b>Criteria</b>
80-100	Excellent
70-79	Good
59-69	Average
1-58	Need improvement

In this section, the researcher presents the students' speaking skill before and after being taught by using Socratic method. In the process of collecting data, the researcher used test as an instrument. The test was given to all students tenth grade of Farmasi class. The researcher presented and analyzed the data through two kinds of test, they were pre-test and post-test. Those test were conducted to the one-group pre-test and post-test where the researcher take Tenth Farmasi class that consist of 31 students where 28 students are female and 3 students are male. The pre-test was given before being taught by using Socratic method and post-test was given after being taught by using Socratic method. The activity based the research as follows:

1) Pre-Test

The researcher gives the pre-test to the students. A pretest provides a measure on some attribute or characteristic that you assess for participants in an experiment before they receive a treatment (John, 2012:297). The pre-test gives to the student to know the students speaking ability before being taught by using Socratic Method. The pre-test is in the oral speaking. The pre-test was held on March 8<sup>th</sup> 2018 at 13.20-14-20 p.m. The test contained an oral speaking test where the



researcher ask to the students to come forward in front of the class one by one. Then the researcher ask to the student to make an opinion about their class condition. Before performing the students speaking orally, the researcher gave 5 minutes to prepare first. After that, the researcher called the students one by one to come in front of the class and performing their speaking skill orally. While the students practicing their speaking skill, the researcher try to assess their speaking score by using scoring rubric. After delivering the pre-test, the researcher also did the treatment in two times in another time.

**Table 3.4. Assessment of Activity in the Pre-test**

<b>Language Function</b>	<b>Activity</b>	<b>Individual/ Pair/Group</b>	<b>Type of Rating scale/Rubrics</b>
Giving information	Oral speaking by making an opinion about student's class	Individual	Analytic oral language by using scoring rubric

2) Treatment

The first treatment gave on March 15<sup>th</sup> 2018 at 13.20-14-20 p.m. in the classroom. The researcher told to the students about what they are going to learn that day. The researcher gave the material about “Asking and giving opinion”. The researcher give them the material first to make sure that they are understood about what going to do. After that, the researcher divided the students into two groups where consist of 15 students in group A and 16 students in group B. The researcher choose a topic that suitable with the material of learning. The topic here is about the Advantages and disadvantages bring mobile phone to the school. Then, the researcher stand in front of the class and try to deliver

the question to each group based on what the researcher prepared. The researcher must can make students want to speak up and must be active during learning. During delivering the question, the researcher observed at the students speaking skill one by one and try to analyze their skill. Here, the researcher taken the score from each group to make encouraged their adrenalin.

The second treatment was held on March 22<sup>nd</sup> 2018 at 13.20-14-20 p.m. in the classroom. In this treatment, the researcher still use same topic of material but with different way. Here, the researcher took them to make pair work where each them are being debate. So, here there will be pros and contra students. Pro students means, the students are delivering the advantages about bring mobile phone to the school. Otherwise, contra student here means that the students who delivering the disadvantages by bring mobile phone to the school. They did debate in front of the class. While they are debated, the researcher delivering some question according to Socratic question to them.

### 3) Post-Test

The last steps, the researcher gave the post-test after the treatment had been done in teaching speaking using Socratic Method. A posttest is a measure on some attribute or characteristic that is assessed for participants in an experiment after a treatment. The post-test was held on March 29<sup>th</sup> 2018. In the post-test here, the test contained of an oral speaking test where the researcher ask to the students to come forward in front of the class one by one. Then the researcher ask to the

student to make an opinion about full day school. Before performing the students speaking orally, the researcher gave 5 minutes to prepare first. After that, the researcher called the students one by one to come in front of the class and performing their speaking skill orally. While the students practicing their speaking skill, the researcher try to take their score by using scoring rubric.

The student's speaking achievement was scored by using oral language scoring rubric. In the scoring rubric here, the researcher try to assess their skill in some aspects, they are pronunciation, vocabulary, fluency and grammar. The researcher also determined the standard students performance into four categories they are excellent, good, average and need improvement.

**Table 3.5. Assessment Activity In the Post-test**

<b>Language Function</b>	<b>Activity</b>	<b>Individual/Pair/Group</b>	<b>Type of Rating scale/Rubrics</b>
Giving information	Socratic Method (making an opinion about full day school) and practice speaking orally in front of the class)	Individual	Analytic oral language by using scoring rubric

#### **D. Variable**

Variable refers to factors or conditions that can change during the research of an experiment. Variable is everything that expect to find the answer from the problem conditions. According to Ary (1985:30) stated that variables can be classified in several ways, those are:

### **1. Independents Variable**

Independent variable is variable that consequence of or upon attendance variables. One independent variable must be the treatment variable. Independent variable is often called stimulus, predictor, and antecedent. Independent variables can be regarded as free independent because these variables can affect against to the other variable. It means independent cannot stand by itself without dependent variable. This variable was selected, manipulated and measured by the researcher. In this study the speaking by using Socratic Method was independent variables.

### **2. Dependent Variable**

Dependent variable is the response or the criterion variable which is presumed to be caused by or influenced by the independent treatment conditions and any other independents variables. This variable observed and measured in order to know the effect of independent variable. In this study, the dependent variable is the students speaking by using Socratic method which is seen from their score.

### **E. Validity and Reliability Testing**

The purpose of classroom testing in a physical, virtual, or blended classroom is to measure the scale and classify students' knowledge or skills. To measure students skill or knowledge in the research to collect the data, there are some instrument to make valid and reliable the data, those are validity and reliability. In order to judge the effectiveness of any test, it is

sensible to lay down criteria against which the test can be measured, as follow:

### **1. Validity Testing**

According to Brown (2004:22) stated that validity is the most complex criterion of an effective test and arguably also the most important in principle in testing. The validity is the extent to which inferences made from assessment results are appropriate, meaningful and useful in terms of the purpose of the testing. In the testing of validity there is no final, absolute measure of validity, but several different kinds of evidence may be invoked in support. Other concerns about a test validity may focus on the consequences beyond measuring the criteria themselves of a test, or even on the test –taker’s perception of validity.

Harmer (2007:381) stated that a test is valid if it is produces similar results to some other measure that is if we can show that test A give us the same kind of results as test B (or some other test). According to Brown (2004) there are four types of validity, they are content validity, construct validity, face validity. In this study, the researcher checked content validity and face validity to research about the students speaking achievement in SMK NU Tulungagung in tenth grade of Farmasi class.

The researcher used content validity to attain students the evidence of valid instrument. Content Validity is kind of validity depends on careful analysis of the language being tested and the particular treatment activity. Content validity is the process of how the test establishes the representativeness of the items in a certain domain of skills, tasks,

knowledge, and other aspects that are being measured. The content validity in this research can be showed as follows:

**Table 3.6. Content Validity**

Standard Competence	The researcher used <i>content validity</i> to attain students the evidence of valid instrument.
Basic Competence	3.2 Memahami fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan asking and giving opinion terkait pendapat dan pikiran, sesuai dengan konteks penggunaannya. (Perhatikan unsur kebahasaan I think, I suppose, in my opinion, dst). 4.2 Menyusun teks lisan dan tulis untuk menyatakan dan merespons ungkapan menyatakan asking and giving opinion dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan yang benar dan sesuai konteks.
Indicator	1. Menggunakan dan mempraktikkan tindak tutur menyampaikan pendapat 2. Merespon dan mempraktikkan tindak tutur meminta pendapat 3. Mengidentifikasi berbagai macam ekspresi untuk mengungkapkan atau meminta pendapat
Material	Asking and giving opinion
Technique	Speaking test
Instrument	Pretest Posttest

## 2. Reliability

A reliable test is consistent and dependable. The reliability test must be valid and reliable at all to measure the data. According to Brown (2004:20) states that a test is considered reliable if the same test is given to the same subjects or matched subjects in two different occasions, the test should yield similar result. In another hand, the assessment measure

refers to the degree of consistency of the assessment in producing the same result with the same student in different testing setting or at different points in time or when being evaluated by different teachers or raters. The high levels of reliability can be established through the use of objective test, multiple measure, multiple raters, and clearly specified scoring criteria.

In this tryout, the researcher used inter-rater reliability. Inter-rater reliability means when two or more scorers yield inconsistent scores for the same test, possibly for lack of attention to scoring criteria, inexperience, inattention even preconceived biases (Brown, 2004:21). In the reliability test if the instrument has a consistent result in the second chances or more, the instrument is reliable. The instrument reliability was estimated by using Cronbach's Alpha reliability test.

According to Sujianto (2009:97) there are some criteria of reliability instrument by using Cronbrach's Alpha and divided into 5 classes as follow:

**Table 3.7. Cronbrach's Alpha**

<b>Cronbrach's Alpha</b>	<b>Interpretation</b>
0.00-0.20	Less reliable
0.21-0.40	Rather reliable
0.41-0.60	Enough reliable
0.61-0.80	Reliable
0.81-1.00	Very reliable

In this research, the used Alpha Cronbrach's Alpha Reliability Coefficient in SPSS 16.0 to analyze the data.

**Table 3.8 Reliability by Using Cronbrach's Alpha in Tryout Test**

Case Processing Summary			
		N	%
Cases	Valid	35	100,0
	Excluded <sup>a</sup>	0	,0
	Total	35	100,0

a. Listwise deletion based on all variables in the procedure.

**Table 3.9 Reliability Statistics**

Cronbach's Alpha	N of Items
,812	2

Related with the categories of reliability testing stated by Sujianto, the result of computation was categorized into reliable test. It can be concluded that the instrument of this test was reliable.

#### **F. Normality Testing**

Normality test are used to determine whether a data set is well modeled by a normal distribution or not, or to compute how likely an underlying random variable is to be normally distributed. This test was conducted the researcher before she is analyzing the data. This test intended to show that the sample data some from a normally distributed population. More precisely, the tests are a form of model selection, and can be interpreted several ways, depending on one's interpretations of probability. Test for normality calculate the probability that the sample was drawn from a normal population. To know the normality of testing, the researcher used *Kolmogorov-smirnov* test with SPSS 16.0. This test has been shown to be less powerful than the other tests in most situation. It is included because of it's historical popularity. While the hypotheses for normality testing as follow:



- a.  $H_0$  : Data is normal distribution  
 b.  $H_a$  : Data is not in normal distribution

The data is not in normal distribution if  $H_a$  is accepted. In another hand,  $H_0$  is accepted when the significance value is higher than 0.05 ( $\alpha = 5\%$ ), but  $H_0$  is rejected when the significance value is lower than 0.05 ( $\alpha = 5\%$ ), the analysis is as follows:

**Table 3.10 One-Sample Kolmogorov-Smirnov Test**

		Pre_test	Post_test
N		31	31
Normal Parameters <sup>a,b</sup>	Mean	59,71	66,48
	Std. Deviation	3,985	3,395
Most Extreme Differences	Absolute	,147	,149
	Positive	,147	,149
	Negative	-,142	-,140
Kolmogorov-Smirnov Z		,147	,149
Asymp. Sig. (2-tailed)		,088	,076

- a. Test distribution is Normal.  
 b. Calculated from data

Based on the output from SPSS 16.00, it revealed that the significance value from pretest was 0.088 and from the posttest was 0.076. Both value from the pre-test and post-test were bigger than 0.05. The significant value on pre-test was 0.088 and it was bigger than 0.05 ( $0.088 > 0.05$ ). It means that  $H_0$  was accepted and  $H_a$  was rejected and the data were in normal distribution. Then, for the post-test score the value of significant was 0.076 and it was bigger than 0.05 ( $0.076 > 0.05$ ). it means that  $H_0$  was accepted and  $H_a$  was rejected and data were in normal distribution. So, it can be interpreted that both of data (pre-test and post-test) are normal distribution.

## **G. Data Analysis**

In the research here, the researcher used analyzed quantitatively by using statistical calculation. The data were analyzed by using paired sample t- test. Paired sample t-test is used to test two variable that pairs. Pairs here means a sample with the same subject research but has experienced two different treatments in the pre-test and post-test process. Therefore, the researcher used the paired sample t-test to test that there are or no differences between the two variables. To calculate the data, the researcher used paired sample t-test at SPSS 16.00.