

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter is present the research design, the population and sample of the research, research instrument, validity and reliability testing, normality and homogeneity testing, data collecting, method and data analysis.

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

This study will be conducted in an experimental design using quantitative approach with One-Group Pretest-Posttest design. Experimental research is a study of the effect of the systematic manipulation of one variable on another variable (Ary, 2006:28). So, the Experimental research is design which used the quantitative approach, it is controlled one or more independent variables and dependent variables. Experimental research can be done in the laboratory, in the class and in the field. In this study, the experimental research will be done in the class by taking students as population.

Experimental research is unique in two very important respects: It is the only type of research that directly attempts to influence a particular variable, and when properly applied, it can apply one or more dependent variables. An experimental usually involves two groups of subjects, an experimental group and a comparison group, although it is possible to conduct an experiment with one group (by providing all treatments to the same subjects) or with

three or more groups. (Ary et al, 1985:26). So, Experimental research contributes more to be conducted to the groups in experimental research. It also provides all treatments to influence a particular variable. Experimental research has been given treatment by using one or more dependent variables.

This study is classified as pre-experimental design because it is little or no control of extraneous variables. In the One-Group pretest-posttest design, a single group is measured or observed not only after being exposed to a treatment of some sort, but also before conducting pre-task. According to (Ary, 2006: 328), a diagram of One-Group Pretest-Posttest design:

**Table 3.1 The Illustration of Research Design**

<b>Y<sub>1</sub></b>	<b>Treatment</b>	<b>Y<sub>2</sub></b>
<b>Pretest</b>	<b>X</b>	<b>Posttest</b>
	<b>(Independent variable)</b>	<b>(Dependent variable)</b>

1. Students' speaking achievement before being taught by using inquiry method.
2. Applying the experimental treatment teaching speaking by using inquiry method.
3. Students' speaking achievement after being taught by using inquiry method.

In this study, the researcher uses experimental research with quantitative approach. The researcher wants to know the effectiveness of using inquiry

method in teaching speaking to the students' speaking achievement by experimental research.

## **B. Description of Treatment**

In this research, the researcher used inquiry method in teaching speaking as the treatment. The procedures of pre-experimental research that use one group of pre-test and post-test design are:

### **1 Pre-test**

As the first meeting, the researcher gave a pre-test on 30<sup>th</sup> April 2019 to the students. It was conducted to know the students score in speaking before being taught the treatment. This test is given in order to know how far the students speaking achievement. The test of pre-test was about describing based on picture (classroom, school sport yard, mosque, laboratory, and library). In this test, the students practiced speaking individually and gave time allotment 5-7 minutes after they did discussion in group with the topic that given by the researcher. After administering the test, the researcher scored the students' speaking based on the scoring rubric of speaking skill.

### **2. Treatment**

After doing the pre-test, the researcher gave the treatment to the students by teaching speaking using Inquiry method. The researcher was conducted on two meetings. It was administered on 2<sup>nd</sup> May 2019, and 3<sup>rd</sup> May 2019. In the beginning of the study, the researcher introduced about inquiry method to the students and explained the material about descriptive

text. Then the researcher explained the steps of inquiry method because they have to know before. When the researcher asked the students to apply this method, they were very enthusiastic.

### **3. Post-Test**

After the treatment, the post-test was given to the students. The researcher administered post-test on 3<sup>rd</sup> May 2019. Similarly to pre-test but in post-test the researcher gave different topic to be discussed by the students. The test was given to know the final score and the students' difference achievement in speaking ability before and after they got the treatment. The post-test is given to the students after conducting the treatment of using inquiry method toward students' speaking achievement.

## **C. Population and Sample**

### **1. Population**

Population is all subjects where the data will be gathered. According to Sukandarrumidi (2004:47) as cited in Rahayuningsih (2013) states population is all members of the research subjects. In other word, population is all individuals from whom the data are collected. The population of this research is the students at the first grade of MTsN 2 Tulungagung in the academic year of 2018/2019. They are 352 students and grouped into class VII A to VII L.

### **2. Sample**

Sampling is the small group observed. According to Ary (2006: 167). Sampling is also as a way the researcher selects number of individuals as a sample which represents the population. In this research, the researcher used purposive sampling technique. Sample of this research is the students of the class VII-f MTsN 2 Tulungagung, in which the total of them are 36 students and this research was just conducted in one class. It is which a group uses experimental with one group pretest – posttest design.

In this study, the researcher used purposive sampling technique. Ary et al (2006: 167) stated that sampling is technique taking sample which give opportunity for every element or population member to be chosen as sample. The researcher used purposive sampling because the students of the F class have homogeneity (high, middle and low achievement) than other classes.

#### **D. Research instrument**

Research instrument is the tool of collecting data that must be valid and reliable, research instrument can be valid if the instrument can be measured what will be measured. Instrument is tool or facilitates that are used by researcher. (Arikunto, 2010: 160). The instrument in this study is standardized test. According to Ary (2006, 218), standardized tests are published tests that have resulted from careful and skillful preparation by experts and cover boards academic objectives common to the majority of

school systems. These are tests for which comparative norms have been derived, their validity, and reliability established, and directions for administering and scoring prescribed.

In this study the researcher uses standardized test as instrument, therefore, the researcher applied pre-test and post-test. The researcher used speaking test in order to collect data needed. The test is used to measure the differences of students' achievement in speaking before and after being taught by using inquiry method. The test was administered twice, first before treatment called pre-test and after treatment called post-test. The researcher tested students' speaking ability used speaking tests as the level of students in their grade and by considering with core competence and basic competence. Pre-test was given before conducting an experimental research study or before teaching by using inquiry method.

a. Pre-test

In assessing students' speaking skill the researcher used scoring rubric as follow:

**Table 3.2 Scoring Rubric of Speaking Test**

<b>Speaking Rubric</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
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<b>Vocabulary</b>	Uses varied Vocabulary	Uses adequate vocabulary; some word usage irregularities	Uses limited Vocabulary	Uses less vocabulary and it's not express anything
<b>Content /Idea</b>	Content was not clear and do not stays on the topic: so it was not details fit with the video.	Content was clear, stays on topic: a few details fit with the video.	Content was clear, stays on topic: most of details fit with the video.	Content was very clear, stays on the topic: all details fit with the video.
<b>Fluency</b>	Speaks fluently, any hesitations do not interfere with communication	Speaks with occasional hesitation	Speaks hesitantly because of rephrasing and searching for words	speaks in single word utterances and short patterns
<b>Pronunciation</b>	In pronouncing the words are perfect, there is no any wrong in pronouncing the words	In pronouncing the words are mostly very good, there is little wrong in pronouncing the words	In pronouncing the words are incorrectly, but just some of the word	In pronouncing the words are incorrectly, still has many wrong to pronounce the word
<b>Grammar</b>	Uses simple past tense and adverb of time in telling the story, Limited mistake acceptable	Uses simple past tense and adverb of time in telling the story but there are several mistakes	Uses simple past tense and adverb of time in telling the story, many significant mistake	The student doesn't use simple past tense and adverb of time, it totally wrong

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

Validity and reliability are important concepts in research. The data correct or not are depend the instrument of collecting method, the instrument that used in this research is the test.

### **1. Validity**

An instrument is valid if it is able to measure what is desirable and it can reveal the data of the variables appropriately (Arikunto, 2006:158). Validity is used to determine how much the instruments have reflected the results. In addition, validity is applied to a specific purpose or use and therefore is not valid for all purposes. In this research, the researcher utilized three kinds of validity as follow:

#### **a) Content Validity**

Content validity is a kind of validity which depends on careful analysis of the language being tested and of particular test. In the content validity, the coverage of task becomes the evidence. A test will have content validity if it represents sample of language skills.

The instrument of study had content validity because the items were materials used to teach speaking at the first grade of MTsN 2 Tulungagung. The content validity was designed based on main competence and basic competence in syllabus Curriculum of 2013 since the school implements the Curriculum of 2013 in the time the researcher conducted this research.



**Table 3.3 Content Validity**

<b>Core Competence</b>	<b>Basic Competence</b>	<b>Indicator</b>	<b>Test Format</b>	<b>Item Test</b>
3. Understand and apply (factual conceptual, and procedural) knowledge based on their curiosity about science, technology, art, culture, and events.	3.7 Comparing the social function, structure of the text, and language features from oral and written descriptive texts about people, animals, object, very short and simple, according to context of its use.	3.7.1 Students are able to describe in oral about description of the object based on the picture (classroom, school sport yard, mosque, laboratory, and the library).	Speaking test	<p>The procedures of activity are:</p> <ol style="list-style-type: none"> <li>1. The researcher show some pictures (classroom, school sport yard, mosque, laboratory, and the library).</li> <li>2. The researcher gives time to the students to prepare before performing in front of the class.</li> <li>3. The researcher asked students to describe based on picture (classroom, school sport yard, mosque, laboratory, and the library) given by the teacher using their own words.</li> </ol>

**b) Construct Validity**

Construct validity is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perception (Brown, 2004: 25). It is used to examine whether the test has consistent

representation with theories underlying the presented material or not. The test can be said to have construct validity if it can be demonstrated that it measured what it is supposed to measure. In this study, the researcher created the test based on the material that is suitable for the students at the first grade of MTsN 2 Tulungagung. To measure the students' achievement in speaking, the researcher tested students' speaking ability used speaking tests orally for the students at the first grade of MTsN 2 Tulungagung. This topic of the research used descriptive text. The researcher will asked the students to describe and discuss based on the picture (classroom, school sport yard, mosque, laboratory, and library) given by the teacher using their own word in group. This test is appropriate to test the students' speaking achievement.

### **c) Face Validity**

A test is said to have face validity if it measures what is supposed to measure. Face validity is hardly a scientific concept that is very important. A test which wasn't has face validity may not be accepted by test takers, teachers, education, authorities or employers. In this test, there are some aspects that were considered from this test to make a good test based on the validity.

- 1) The instruction must be clear for the students, what they should do in the test.

- 2) In this test, the students of second grade are instructed to tell and describe the picture with their group. Thus, the degree of difficulty of the test must be suitable with their level.
- 3) The consideration of time allocation must be clearly. The researcher given limited time about three minutes for each student.

## **2. Reliability**

Reliability is concerned with the effect of such random errors of measurement on the consistency of scores (Ary et al, 2002: 250). Reliability (in testing) is a measure of the degree to which a test is consistence. According to Brown (2000: 386) stated a reliable test is consistent and dependable. A test is called reliable if the result of the test is similar with the test is tested in the same subject but in the different time.

To make sure instruments (test) are reliable, the researcher analyze the tryout's result used internal consistency reliability, it used to assess the consistency of results across items within a test. Internal consistency is usually measured with Cronbach's Alpha, a statistic calculated from the pair wise correlations between items. It is to know whether the instrument suitable or not. In this research, the researcher used SPSS 18.0 for windows to know the reliability of test instruments. According to Arumasari (2014: 56) the value of Cronbach's alpha can be interpreted as follow:

**Table 3.4 Cronbach's Alpha interpretation based on Arumasari**

<b>Cronbach's Alpha</b>	<b>Interpretation</b>
0,00 – 0,20	Less Reliable
0,21 – 0,40	Rather Reliable
0,41 – 0,60	Quite Reliable
0,61 – 0,80	Reliable
0,81 – 1,00	Very Reliable

From the answer of students' response in tryout test, the researcher then analyze using reliability test based on Cronbach's Alpha. The result of reliability test was:

**Table 3.5 Reliability Testing**

<b>Case Processing Summary</b>			
		N	%
Cases	Valid	31	100,0
	Excluded <sup>a</sup>	0	,0
	Total	31	100,0
a. Listwise deletion based on all variables in the procedure.			

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
,604	6

In this research, the researcher tried to check the empirical reliability by using SPSS 25.0 after trying out. In trying out the Cronbach's Alpha

score was 0,604. Related with the categories of reliability testing stated by Arumasari was categorized into very reliable level.

## **F. Normality and Homoginity Testing**

### **1. Normality**

Normality testing is used to make sure whether the data was in a normal distribution or not. Normality test is intended to show that sample data come from a normally distributed population. To know the normality, the researcher used One- Sample Kolmogrov–Smirnov Test in IBM SPSS Statistic 18.0 by significant level (0.05). Basic decisions making in normality testing are as follows:

- a) If the significant value  $> 0.05$ , it means that the data distribution is normal.
- b) If the significant value  $< 0.05$ , it means that the data distribution is not normal.

### **2. Homogeneity**

Homogeneity testing is intended to know whether the variance data is in homogeneous or not. The aim is to determine whether the sample taken from the population shows any significant differences from each other or not. The computation of homogeneity testing using SPSS 25.0 for windows is test of *Homogeneity of Variances* by value of significance 0.05.

## **G. Data Collecting Method**

Data collection method is the method to obtain the data in the research. In this research the data collection method is administering test that consist of pretest and posttest. The researcher collected the data from students' score of pre-test and post-test. The researcher gave students pre-test to know students' speaking achievement before teaching by using inquiry and gave post-test after teaching by using inquiry method. The procedure of collecting data in this research as follows:

The procedure of administering test was clarified as follow:

### **1. Pre-test**

As the first meeting, the researcher gave a pre-test on 30<sup>th</sup> April 2019 to the students. It was conducted to know the students score in speaking before being taught the treatment. This test is given in order to know how far the students speaking achievement. The test of pre-test was about describing based on picture (classroom, school sport yard, mosque, laboratory, and library). In this test, the students practiced speaking individually and gave time allotment 5-7 minutes after they did discussion in group with the topic that given by the researcher. After administering the test, the researcher scored the students' speaking based on the scoring rubric of speaking skill.

### **2. Post test**

After the treatment, the post-test was given to the students. The researcher administered post-test on 3<sup>rd</sup> May 2019. Similarly to pre-test but in post-test the researcher gave different topic to be discussed by the students. The test was given to know the final score and the students' difference achievement in speaking ability before and after they got the treatment. The post-test is given to the students after conducting the treatment of using inquiry method toward students' speaking achievement.

#### **H. Data Analysis**

Data analysis is a process of analyze the collected data from research. The data is taken from students' score in pre-test and post-test. In this research, the researcher used a quantitative data analysis. Quantitative data is served in numeral form. Then, the score of pre-test and post-test will be analyzed quantitatively by using *paired sample T-Test* in IBM SPSS statistic 25.0. This technique is to find out the significant difference on students speaking achievement after being taught by using inquiry method.

In this research, the researcher used statistical analysis because the result of the data was numerical form. The researcher used T-test to analyze the data by comparing with the first data with the first data (pre-test) and the second data (posttest) to know whether there was significant different score of the students before being taught by using inquiry method and after being taught by using inquiry method toward students' speaking achievement to the first grade students in MTsN 2 Tulungagung. If the result of post-test is

higher than score of pretest, it means that teaching speaking by using inquiry method is effective. To get the achievement of speaking test, the researcher gave the student a test after got treatment by using inquiry. The researcher used Paired sample T-test since the data were normal. In this research, the researcher used analysis compare means-paired sample T-test by SPSS 25.0 because the researcher use one group experiment using two test, there are pre-test (without treatment) and post-test (using treatment). After that, the researcher compared the mean from the result of pretest and post-test. All the data collected were accounted by using SPSS 25.0 for windows, in this case was paired sample T-test.