# CHAPTER III

# RESEARCH METHOD

In this chapter, the researcher presents about research design, population and sample, source of data, variable, research instrument, validity and reliability testing, normality and homogeneity testing, and data analysis.

## A. Research Design

Research design is defined as the strategy or the way how the researcher gets valid data, analyze them, and finally come to the answers of the research problems. The research design should be suitable with the research and the condition of researcher. There are two approach in educational research, those are Quantitative approach and Qualitative approach.

In this research, researcher focused on quantitative approach which determined the relationship between two variables (independent variable) those are STAD and CIRC methods in a population. In achieving the goal of research, it was better to take the certain design of the research. The design in this research classified into comparative study because the purpose of this research is to know which one is more effective to improve the students' ability in reading analytical exposition text of the eleventh grade students taught by using CIRC method or by using STAD method. Gay (1992: 284) states that "comparative study is the researcher attempt to determine the cause, or reason, for existing differences in the behavior or status of groups of individuals".

Experimental research design involves a study of the effect of the systematic manipulation of one variable on another variable (Ary, 2002). The researcher used experimental research because the design has a purpose to know the effectiveness of using CIRC and STAD method toward students' reading ability in analytical exposition text of second grade at Islamic senior high school 2 Tulungagung. In this research, researcher focused on Quasi-experimental design. Quasi-experimental designs are similar to randomized experimental designs in that they involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment groups (Ary, 2002).

The researcher used two classes and two methods. One class was taught by using CIRC method and the other class was taught by using STAD method. Before implementing the method in the class, the researcher provided lesson plan to be guide in teaching process. The researcher taught the students by giving the treatment. After giving treatment, the researcher gave test. Test was given in order to get scores that will be compared. It was compared to investigate the difference score between teaching reading by using CIRC and STAD method. Moreover, it was to know whether there is significant difference scores on the students' ability in reading analytical exposition text after they are taught by using CIRC and STAD method.

## B. Population and Sample

In the research population, and sample are very important for research to collect information. In this research the researcher use population and sample to collect data through students' score.

### 1. Population

Population is the wider group of individuals about which the researcher wants to make statement (Lodico, et al, 2006:140). It means population is the larger group to which the researcher would like the result of a study to be generalizable. Therefore, the population of the research can all of the subject

In this research, the researcher was interested in finding out which method is more effective between CIRC and STAD to improve reading ability of 2nd grade students in MAN 2 Tulungagung especially in materials for analytical exposition text. Thus, the population of this research was the second grade students of MAN 2 Tulungagung which consists of eleven classes. Each class consists around 38 students and the total of population is 418 students.

**2. Sample**

In determining the sample, there are several sampling techniques which can be applied. Sampling technique is needed to take a representative sample of whole population in conducting this research. Sampling is process of selecting a number of individuals for a study in such a way that the individual represent the larger group from which they are selected (Gay, 1992 : 123). It means that sampling is the process of the researcher taking a sample. According to Ary (2002: 150) The first step in sampling is the identification of the target population, the large group to which the researcher wishes to generalize the results of the study.

The researcher used non probability sampling deals with purposive sampling technique to choose the sample. Sugiyono (2010) Non probability sampling includes methods of selection in which elements are not chosen by chance procedures. Its success depends on the knowledge, expertise, and judgment of the researcher. Non probability

sampling is used when the application of probability sampling is not feasible. Purposive sampling technique is the way to choose the sample with a certain criteria or reason. Sugiyono (2015:124) purposive sampling is technique in taking sample by specific consideration In this research, the researcher choosen two classes XI-MIA 4 and XI-MIA 5 because the researcher has reason and consideration that those classes typically have average and normal students which is the class have measure different students that can develop.

After defining the population, the researcher must determine the sample of this study in reference to the population. Sample is a part of the total number and the characteristic belong to population. According to Sugiyono (2010 as cited in Darmawan, 2015) sample is a representative of number and characteristics of the population.

In this research, the researcher used two classes as a sample, they were XI-MIA 4 and XI-MIA 5. Basically, all the XI class had the similar achievement but the school gave the researcher class XI-MIA 4 and XI-MIA 5. The researcher took the sample from MIA 4 and MIA 5 class of second grade students of MAN 2 Tulungagung. The two of classes were the experimental group.

## C. Source of Data

Data is an information that has been translated into a form that is more convenient to move or process. Data also is any information that can answer any research questions and problems. The data in this research was collected by researcher. The data was taken from students' score after they are taught by using Cooperative Integrated Reading and Composition (CIRC) and Student Teams Achievement Division (STAD) methods.

## D. Variable

Variable is a construct or a characteristic that can take on different values or scores (Ary, 2002: 37). Variable can be defined as any aspect of a theory that can vary or change as part of interaction within the theory. Thus, variable is anything can effect or change the result of a study. In this research, the researcher uses two kinds of variables namely independent variable (X) and dependent variable (Y).

### 1. Independent variable

Independent is variable selected by the researcher to determine their effect on or relationship with the dependent variable (Brown, 2005). The independent variable is the variable that refers to how participants are treated. The independent variable of this research (X) those were Cooperative Integrated Reading and Composition (CIRC) and Student Teams Achievement Division (STAD) method.

### 2. Dependent variable

Brown (2005) stated that dependent variable is observed to determine what effect, if any, the other types of variables may have on it. Thus, a dependent variable cannot be identified in isolation. Dependent variable is the variable which is observed and measured to determine the effect of the independent variable.

The dependent variable of this research (Y) was the students' ability (achievement) which is indicated by students' scores of reading analytical exposition in the post-test.

## E. Research Instrument

Research instrument are all tools that are used by researchers to collect the data. It is also used to measure the variables, characteristics, and information that are needed to support the research. A research instrument is a survey, questionnaire, test, scale, rating, or tool

designed to measure the variable(s), characteristic(s), or information of interest, often a behavioral or psychological characteristic. To collect the data research, the researcher can use instrument which is made by them self or the instrument that available or standard instrument.

The research instrument that used in this research was test. Researcher used an objective test in this research. The objective test that used by researcher in this research was give long-answer questions in reading test. Before giving a reading test, the researcher gave different treatment in each class. Class XI-MIA 4 was given CIRC method and Class XI-MIA 5 was given STAD method.

1. **Treatment**

   The researcher gave the treatment to the students about two weeks. The treatment applied in 270 minutes for 3 meetings for each class. Each meeting the researcher gave treatment during 90 minutes. Because of the treatment was a kind of method in teaching learning, the researcher applied the treatment based on the lesson plan that the researcher made. In the lesson plan, the researcher provided the steps of doing the treatment in the class.

2. **Test**

   Test is one way to measure the students' ability. Test is a tool that is used to measure knowledge or object mastery in a set of content or certain material (Djaali as cited in Ismawati, 2003: 82). The researcher used test to get the score and collect information on students' reading ability after giving a different treatment. The purpose of treatment was to compare which strategy is more effective between CIRC and STAD methods. The researcher applied the treatment in different group.

After the treatment was given to students in different group, they were given a test in form of reading test. The test administered after the treatment had been given. After that, the result of the test in the form of score was compared to get the differences.

## F. Validity and Reliability Testing

Validity and reliability testing in this research are very important since the test must be valid and reliable before using the test to collect the data. The researcher ensured that the instrument (test) was valid and reliable by doing validity and reliability testing as follows:

### 1. Validity

According to Ary (2010: 225) Validity is the most important consideration in developing and evaluating measuring instruments. It means that the instrument has been valid if the test actually involves the tested in a simple of the behavior that is being measured. Validity is the most complex criterion of an effective test and the most important principle of language testing. The focus of recent views of validity is not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument.

There are many ways to know the validity of instrument used to collect the data. They content validity, construct validity, and face validity.

#### a. Content Validity

Content validity is composed of two items of validity those are sampling validity and item validity. Both of them involves having expert examine items that make up the instrument. The content of test must appropriate with the material that exist in the curriculum. Moreover, the instrument in this research achieved

content validity since the test was designed based on standard and basic competence in K13 since the school implements K13 curriculum in eleventh grades.

In this test, the researcher ask students to answer questions consisting of 19 long-answer questions in testing used analytical exposition text. It is suitable for students of second grade in senior high school since the analytical exposition text is one of the text that must be mastered by students based on the K13 curriculum.

In this case, the researcher made three indicators of test. They were (a) Identify the generic structure of analytical exposition text. (b) Identify the detail information from the text related to the theme in analytical exposition text. (c) Identify the main idea of reading comprehension in analytical exposition text.

The indicators stated above tested as follow:

40% x ∑ question = generic structure

20% x ∑ question = detail information

40% x ∑ question = main idea

So, based on explanation above, the number of test items can be measured as follows:

40% x 5 = 2

20% x 5 = 1

40% x 5 = 2

The first indicator was identify the generic structure of analytical exposition text which is tested in the item numbers 1 and 2. The second indicator was

identify the detail information from the text related to the theme in analytical exposition text which is tested in the item number 3. The third indicator was identify the main idea of reading comprehension in analytical exposition text which is tested in the item numbers 4 and 5.

**b. Construct Validity**

Isnawati (2012) construct validity a test said to has construct validity if it can be demonstrated that it measures just the ability which is supposed to measure. The construct validity involves a search for evidence that an instrument accurately measuring an abstract trait or ability. The process of determining the extent to which test performance can be interpret in term of one or more construct. The validity of this instrument has been validated by the reading expert. Here, the researcher used construct validity in administering reading test and the technique of scoring students' reading ability based on form of long-answer questions test. This scoring rubric is made by the researcher herself and has been checked and approved by the reading expert. This scoring rubric was made by the validator of the instrument of the test that is Mam Renita Donasari, M. Pd. the lecturer of subject reading in IAIN Tulungagung.

**Table 3.1: Scoring Rubric**

| Question Number | Aspects | Score |
|---|---|---|
| 1 | The student answers correctly by using complete sentence. | 10 |
| | The student answers correctly. | 5 |

| | | |
|---|---|---|
| | The student's answer is wrong. | 2 |
| 2 | The student answers correctly by using complete sentence. | 15 |
| | The student can identify the generic structure even though it is not written in a complete sentence. | 10 |
| | The student try to answer even though the answer is not really correct. | 5 |
| | The student's answer is wrong. | 2 |
| 3 | The student answers 3 effects correctly by using complete sentence. | 30 |
| | The student answers the idea of 3 effects correctly. | 25 |
| | The student answers 2 effects correctly by using complete sentence. | 20 |
| | The student answers the idea of 2 effects correctly. | 15 |
| | The student answers 1 effect correctly by using complete sentence. | 10 |
| | The student's answers the idea of 1 effect correctly. | 5 |
| | The student answer is wrong. | 2 |
| 4 | The student answers correctly the purpose of the writer by using complete sentence. | 10 |
| | The student answers correctly the purpose of the writer. | 5 |
| | The student's answer is wrong. | 2 |
| 5 | The student can identify the main idea of each paragraph correctly. | 35 |
| | The student can identify 6 of all main idea correctly. | 30 |
| | The student can identify 5 of all main idea correctly. | 25 |
| | The student can identify 4 of all main idea correctly. | 20 |
| | The student can identify 3 of all main idea correctly. | 15 |
| | The student can identify 2 of all main idea correctly. | 10 |

| | | |
|---|---|---|
| | The student can identify 1 of all main idea correctly. | 5 |
| | The student's answer is wrong. | 2 |

**ASSESSMENT GUIDELINES**

- Maximal Score = 100
- Score = Earning from each number are summed
- Example:

- Answer number 1

  The student answers correctly by using complete sentence = 10

- Answer number 2

  The student can identify thesis even though it is not written in a complete sentence = 10

- Answer number 3

  The student answers the idea of 3 effects correctly = 25

- Answer number 4

  The student answers correctly the purpose of the writer by using complete sentence = 10

- Answer number 5

  The student can identify 6 of all main idea correctly = 30

  Score = 10 + 10 + 25 + 10 + 30

  = 85

**c. Face validity**

Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure (Ary, 2010: 228). It means that face validity should appropriate with the indicators of the test. The test in this study was designed to measure students' reading ability in analytical exposition text. In

this test, there were some aspects that are considered from this test to make a good test based on the face validity.

They were:

- The questions should be clear and do not cause ambiguity for the students, so the students are able to understand the answer to what is right they think.
- In this test, the students of eleventh grades were instructed to answer 19 questions in term of long-answer question of analytical exposition text. Thus, the topic which gave by the researcher must be suitable with their level. In this test, the researcher used topic that happened around them.
- The consideration of time allocation must be suitable so that the students can finish the test well. In this test, the researcher gave the time limitation about 60 minutes.

**2. Reliability**

The next step to know whether the test is good or not is by reliability. Lodico, et al (2006: 87) states that Reliability refers to the consistency of scores that is an instruments' ability to produce "approximately" the same score for an individual over repeated testing or across different raters. It means that reliability is a measurement of accuracy, consistency, dependability or fairness of score resulting from administering of particular test.

In this case, before the researcher conduct research in the class, the researcher made a test consist of 5 questions in term of long-answer question, and then the researcher asked two experts to give correction about this test, such as the indicators of the test, form of the test, scoring rubric and the key answer of the

test. After that, the researcher revises the test. Then, the researcher conducted a try-out for the test to the different subject before it be the post-test for the subject of research, to know how far the reliability of the instrument. The try-out was tested in 38 students of XI-MIA 3 class. It was done on 18rd of October. The try-out was held to know how far the reliable of the test. So, after the researcher got the score from the try-out, the researcher analyzed each item of the test and computed it by using SPSS 20.0 version. So, the researcher know whether the instrument of the test have reliability or not. The result of computing can be seen below:

**Table 3.2: Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| -.985 | 5 |

Based on the table above showed the reliability of Cronbach's Alpha is 0,985. According to Triton (as cited in Azizah: 2015) the value of the Cronbach's Alpha can be interpreted as follow:

**Table 3.3: Cronbach's Alpha Interpretation based on Triton**

| Cronbach's Alpha | Interpretation |
|---|---|
| 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 |

The table can be conclude that the instrument of this research was in the category of reliable because 0,81< 0,985< 1,00.

## G. Normality and Homogeneity Testing

### 1. Normality Testing

The function of normality testing is used to know whether the instrument has normality or not. To find the normality of the instrument, the researcher used one sample Kolmogrov Smirnov. Sujianto (2009) the instrument called as have normality if Asymp sig > 0.05 so that Ho (null hypothesis) is accepted and Ha (alternative hypothesis) is rejected. So that, it can be concluded as follow:

a. Ho : The data is in normal distribution

b. Ha: The data is not in normal distribution

Here, the result of normality instrument computed by using SPSS 20.0 version. It can be seen below:

**Table 3.4: Table Normality Using One-Sample Kolmogorov-Smirnov Test**

| **One-Sample Kolmogorov-Smirnov Test** | | | |
|---|---|---|---|
| | | CIRC | STAD |
| N | | 38 | 36 |
| Normal Parameters[a,b] | Mean | 84,66 | 79,53 |
| | Std. Deviation | 6,135 | 7,331 |
| Most Extreme Differences | Absolute | ,148 | ,190 |
| | Positive | ,088 | ,190 |
| | Negative | -,148 | -,097 |
| Kolmogorov-Smirnov Z | | ,914 | 1,143 |
| Asymp. Sig. (2-tailed) | | ,374 | ,147 |
| a. Test distribution is Normal. | | | |
| b. Calculated from data. | | | |

The table showed that the value of Asymp. Sig (2-tailed) in CIRC was 0,374 and the value of Asymp. Sig. (2-tailed) in STAD was 0,147 which are both of them higher than 0.05 (0,374 > 0.05 and 0,147 > 0.05). So that it can be resulted as Ho (null hypothesis) was accepted and Ha (alternative hypothesis) was rejected and also it can be interpreted that both of them have normal distribution.

**2. Homogeneity Testing**

Homogeneity test intended to show that two or more groups of data samples come from population having the same variance. To know the homogeneity, the researcher used One Way Anova with SPSS 20.0 version. The result can be seen in the table below:

**Table 3.5: Test of Homogeneity of Variances**

**Test of Homogeneity of Variances**
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| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 1,196 | 9 | 23 | ,344 |

**ANOVA**
NILAI

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 605,333 | 12 | 50,444 | 1,475 | ,204 |
| Within Groups | 786,667 | 23 | 34,203 | | |
| Total | 1392,000 | 35 | | | |

The result based on the table showed that the significance (Sig) was 0,344. It showed that the groups or samples have the same variance, because the Sig was 0,344 > 0.05.

## H. Data Analysis

The purpose of this research was to compare the score of teaching reading by using Cooperative Integrated Reading and Composition (CIRC) and Student Teams Achievement Division (STAD) methods at a second year of students MAN 2 Tulungagung. The data were gained from the test, and then the researcher analyzed the data by using SPSS 20.0 version. It was counted to find out the mean, median, and standard deviation of variable X1 and X2. The procedure of analysis the data both used descriptive and inferential statistic.

### 1. Descriptive Statistic

The function of descriptive statistic is to describe the condition of research such as mean, median, mode, and standard deviation.

### 2. Range and Inferential Statistic

Range is the number of points between the highest score on a measure and the lowest score. After got the description of the scores, the researcher used T-test formula. The researcher used T-test to know significant differences of teaching reading by using CIRC and STAD method at second year of MAN 2 Tulungagung. After collecting the data, the researcher analyzed by using independent sample T-test.