

CHAPTER III

METHODOLOGY OF THE RESEARCH

This chapter consists of several parts, such as setting of the research, population and sample, research design, procedures of collecting data, try-out of the instrument, method of data collection, method of data analysis, and research framework.

3.1 Setting of The Research

The study was conducted in MA Al- Faizin Bangsri Jepara. That is located on Jl. East of Perempatan Sukun Guyangan Bangsri Jepara. This study was conducted on odd semester.

3.2 Population and Sample

The population is all the subject of the research. According to Mubarok (2015:31), population is a unit of object that has certain qualities and characteristics which are studied by the researchers then by deduced.

The population of the research was the whole students of eleventh class of MA Al-Faizin which consists two classes. They were class XI-A has 22 students and XI-B has 20 students.

Alston and Bowles (2003:80) state that a sample in a research is sampling is about choosing who or what we wish to study in order to answer our research question. The specific definition of sample is parts of the population that will be the object of the research.

The writer took the class XI-A and XI-B as a sample. The students of XI-A class as the experimental group and XI-B as the control group, so the total of the sample was 42 students.

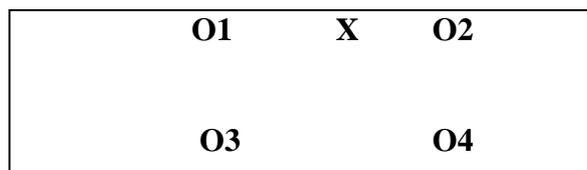
3.3 Research Design

In this research, the writer conducted a quantitative research. The method in this research that the writer used was a quasi experimental. According to Mubarok (2015:78), experimental research is one of the most powerful research methodologies that researchers can use. He also said that experimental research is a research method used to find a specific treatment effect against the other in uncontrolled conditions.

The experiment research was conducted in two classes and it was taught by different methods. Jigsaw technique was used in the experimental group while conventional method was used in the control group. The experimental class was the group who received the treatment that was jigsaw technique, while the control group was a group who not be exposed to the experimental treatment.

Before applying the treatment, the students in experimental and control group were given a pre-test and post-test. Pre-test was given before teaching learning process. It aimed to know that two classes had the same knowledge. After taught in learning process, a post-test was taken by student in two classes and the achievement of the students was compared.

The schema of this model is follows:



(Mubarok, 2015:91)

In which :

X : Treatment given experiment group

O1 : Pretest for the experimental group

O2 : Posttest for the experimental group

O3 : Pretest for the control group

O4 : Posttest for the control group

There are two observations. The first observation is done before experiment (O1), called pre-test, and the second is done after experiment (O2), called post-test.

3.4 Procedures of Collecting Data

In collecting data, the writer followed some procedures, such as, doing try-out, giving pre-test and post-test.

Table 3.1
The Activities

No	Activity	Week							
		1	2	3	4	5	6	7	8
1	Preparation								
2	Try-out test								
3	Pre-test								
4	Treatment								
5	Post-test								
6	Data processing								
7	Report								

3.5 Try-Out of The Instrument

The instrument used in this research was a test (pre-test and post-test). Before a test was given to the students, tryout test applied first to know the test was good instrument. The result of the test was to find out the validity and reliability.

The instrument that was firstly used for pre-test and post-test in the form of multiple choice. The test was given to the eleventh grade students, the researcher only took XI-A class. There were twenty two students as the respondents of the try-out of the test. They have to answer the questions of multiple choices consisting of 35 items. The aim of this test was to see the validity and the reliability of each questions made.

a. Validity

Brown (2000:387) said that test validity is the degree to which the test actually measure. Every has to be valid. To calculate the validity, the writer used the Product Moment formula:

$$r_{xy} = \frac{(N \cdot \sum XY) - (\sum X \sum Y)}{\sqrt{\{N \cdot \sum X^2 - (\sum X)^2\} \{N \cdot \sum Y^2 - (\sum Y)^2\}}}$$

In which:

r_{xy} : the item of test reliability

N : the number of respondent

X : total score of each item

Y : individual total score

X^2 : total for the square for each item

Y^2 : total of the square of individual total score

$(X)^2$: the square of the total score for each item

$(Y)^2$: the square of the individual total score

(Arikunto,2010:213)

The validity computation is consulted to the r-table of Product Moment by determining the significances level 5% and n wich is according to the data. The instrument is valid if the $r_{xy} > r$ -table for $\alpha = 5\%$ and $N = 22$

b. Reliability

Brown (2000:386) states that the reliability a test is defined as the extent to which the result can be consistent and dependable. If you give the same test to the same student or matched students on two

different occasions, the test should yield similar results (Brown,2000:386). To measure the reliability of the test, the writer used the following Spearman-Brown formula:

$$r_{11} = \frac{2 \cdot r_{hh}}{(1 + r_{hh})}$$

In which:

r_{11} : coefficient of reliability

r_{hh} : reliability of half test

(Sudijono,2013:216).

3.6 Method of Data Collection

3.6.1 Test (pre-test, treatment, and post-test)

a. Pre-test

Pre-test was given before the treatments or experiment (teaching learning process) in both of class. The purpose of pre-test was to know the ability of the students in reading comprehension. The test, the questions were multiple choices. The students should answer the questions that were given to them by themselves without discussing with their friends.

b. Treatment

After given the test to the students, the treatment was given twice to the students who taught using jigsaw as a technique in experiment class. In this session, the writer as a teacher. Firstly, teacher explain the material to the students. After that, teacher explain what is the jigsaw technique and how to apply this technique in learning. In the end of learning, teacher gave a treatment, and the form of this treatment was test form of multiple choices.

c. Post-Test

Post-test would be held in the end of the teaching learning process. This test would be used to measure students' achievement after they get the to both experimental and control group. The question in this post-test was same as the questions test in pre-test.

3.7 Method of Data Analysis

The important data would be collected through administering pre-test and post-test. After getting the data, the writer processes statistically and analyzed them. The writer compared the scores between experimental and control group.

To find out the differences of students' scores by different technique. The quantitative data in the forms of raw scores are analyzed by the writer.

There are several steps to be taken, they are as follows :

1. Scoring technique

In scoring technique, students who answered correctly will get score 1 and who answered incorrectly will get score 0. The formula below is used:

$$S = \frac{R}{n} \times 100$$

in which:

S : score

R : total number of right answer

N : total number of item.

2. Consulting the mean to the level achievement

Table 3.1

Table of Level Achievement

Mark	Score	Level Achievement
A	90-100	Excellent
B	80-89	Very Good
C	70-79	Adequate
D	60-69	Inadequate
E	Below 60	Fail

(Brown,2004:287)

3. Determining Mean of variable X:

$$M_1 = \frac{\sum X}{N_1}$$

4. Determining Mean of variable Y:

$$M_2 = \frac{\sum Y}{N_2}$$

5. Determining Standars of Deviation Score of Variable X:

$$SD_1 = \sqrt{\frac{\sum X^2}{N_1}}$$

6. Determining Standars of Deviation Score of Variable Y:

$$SD_2 = \sqrt{\frac{\sum Y^2}{N_2}}$$

7. Determining Standard Error Mean of Variable X:

$$SE_{M1} = \frac{SD_1}{N_1-1}$$

8. Determining Standard Error Mean of Variable Y:

$$SE_{M2} = \frac{SD_2}{N_2-1}$$

9. Determining Standard Error of different Mean of Variable X and Mean of Variable Y:

$$SE_{M1-M2} = \sqrt{SE_{M1}^2 + SE_{M2}^2}$$

10. Determining t_o with formula:

$$t_o = \frac{M_1 - M_2}{SE_{M1-M2}}$$

11. determining Degrees of Freedom (df):

$$df = (N_1 + N_2) - 2$$

The technique used to analyze the differentiation between the result of teaching reading before and after using jigsaw technique, as method in teaching reading to improve students' reading comprehension is t-test technique. The writer will calculate t-test as follows:

$$t_o = \frac{M_1 - M_2}{SE_{M1-M2}}$$

Where:

M1 = mean of variable X (experimental class)

M2 = mean of variable Y (control class)

SE = standard error

(Sudijono,2006:314)

After finding out the *t-test*, the writer used *t-table* to compare the *t-test* result. If the value of *t-test* more than the value of *t-table*, it means that there is any significant improvement of the student's reading comprehension who taught using jigsaw technique. However, if the value of *t-test* is lower than *t-table*, it means that there is no significant improvement of the student's reading comprehension who taught using jigsaw technique.

3.8 Research Framework

The Effectiveness of Jigsaw Technique in Improving Students' Reading Comprehension (An Experimental Research at the Eleventh Grade Students of MA Al- Faizin Guyangan Bangsri Jepara in the Academic Year of 2017/2018)

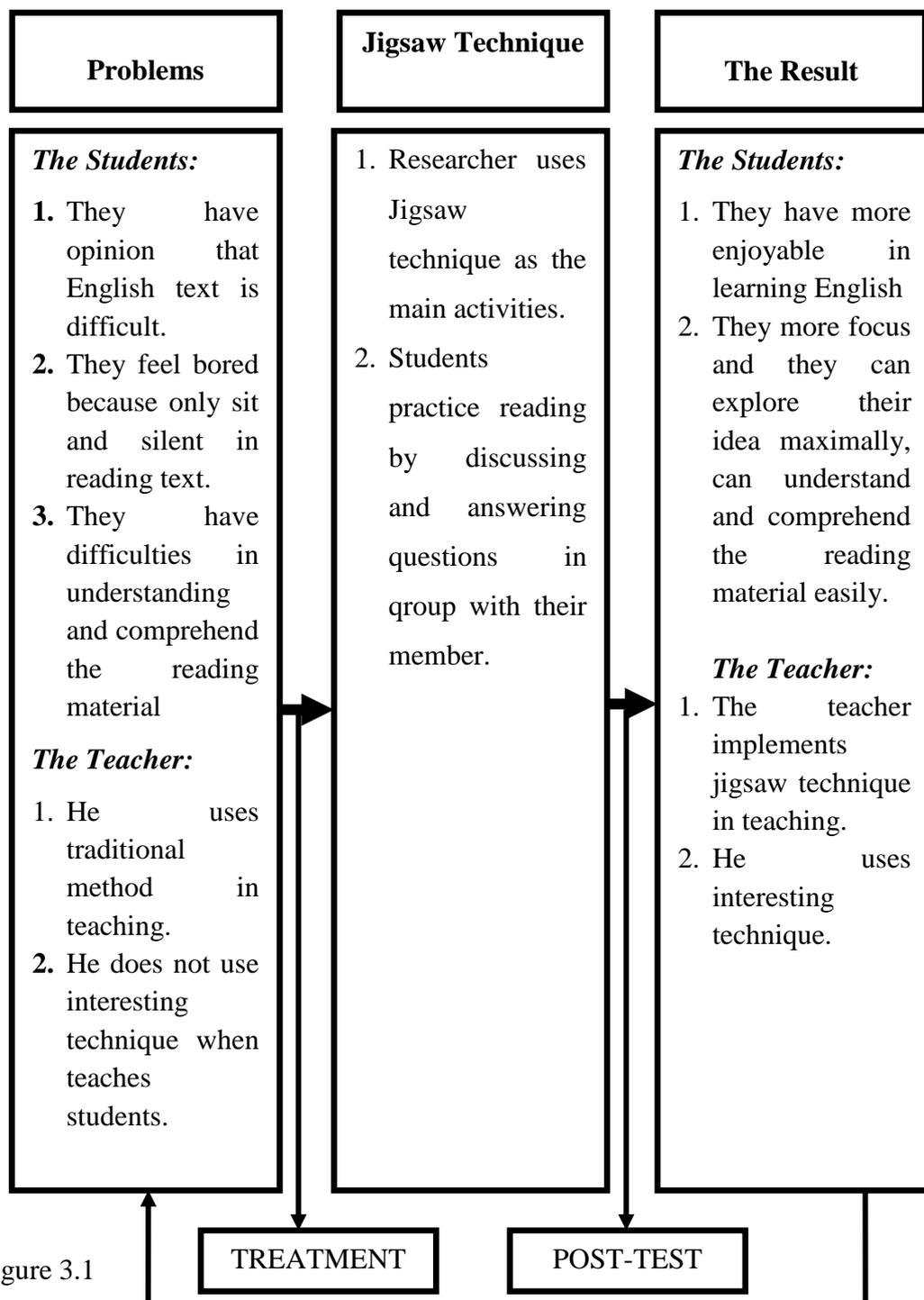


Figure 3.1