CHAPTER III

RESEARCH METHOD

This chapter discusses: (a) research method , (b) variables of the study, (c) operational definition, (d) population and sample, (e) technique for collecting data, and (f) technique for analyzing data.

3.1 Research Design

According to Creswell (2009) quantitative research is a means for testing objective theories by examining the relationship among variables. These variablesin turn, can be measured. Typically on instruments, so that numbered data can be analyzed using statistical procedures. This study is conducted by using an experiment research. According to Fraenkel, Wallen, and Hyun (2012), experimental research is one of the most powerful research mythology that researcher can use.Considering the research of the problems and the purposes of the research, research design that was used in this study is the pretest-post-test two treatment designs. In addition, Cohen, Manion& Morrison (2007) states that:

> Participants are randomly allocated to each of two experimental groups. First experimental group receives intervention 1 and second experimental group receives intervention 2. Pre-tests and post-tests are conducted to measure changes in individuals in the two groups. The true experiment can also be conducted with one control group and two or more experimental groups (p. 278).

Cohen, Manion& Morrison(2007) defines the figure of the pretest-post-test two treatment designs as follows:

Experimental1	**$RO_1X_1O_2$**
Experimental2	**$RO_3X_2O_4$**

Where:

RO_1 : Pretest in first experimental group

RO_3 : Pretest in second experimental group

X_1 : Treatment in first experimental group using STAD technique

X_2 : Treatment in second experimental group using jigsaw technique

O_2 : Posttest in first experimental group

O_4 : Posttest in second experimental group

3.2 Research Variables

According to Cohen,Manion& Morrison (2007), avariable can be considered as a construct, operational construct or particular property in which the researcher is interested.There are two kinds of variable. They are independent and dependent variables. Creswell (2012)argues that, dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable. An independent variable is an attribute or characteristic that influences or affects an outcome or dependent variable.Therefore the independent variable in this study is jigsaw techniqueandstudents team achievement division (STAD) technique. And the dependent variable is the students' narrative reading comprehension.

3.3. Operational Definition

The title of this study is “Comparing the Effectiveness of using Jigsaw technique and Students Team Achievement Division (STAD) technique in Enhancing Students’Narrative Reading Comprehension in MA YPGS Gunung Batu”. In order to avoid misunderstanding about the terms used in this study, it is necessary for the writer to define them as follows:

1.3.1 Reading Comprehension

Reading comprehension is a process of understanding the reading text, it means that reading by comprehending the meaning of passage. One who reads something by understanding it can be said he does a reading comprehension.

1.3.2 Narrative text

A narrative text is a piece of writing that chronicles a series of events or actions in climate sequence.

1.3.3 Jigsaw Technique

Jigsaw technique helps solve the problem of classes that are too large to offer many opportunities for students speak.

1.3.4 Students’ Team Achievement Divisions (STAD) Technique

STAD technique can help the students in solving the problem when they have difficulty in identifying the supporting details of text because they work and share ideas with their friends.

3.4 Population and Sample

3.4.1 Population

Creswell (2012) states thatpopulation is a group of individuals who have the same characteristic. Population in this study is the tenth grade students of MA YPGS Gunung Batu. The distribution of population of the study can be seen below.

Table 1Distribution of Population

Class	**Number of Students**
X.1	30
X.2	30
X.3	30
Total	**90**

Source: MA YPGS Gunung Batu in academic year (2017/2018)

3.4.2 Sample

Sample is a part of population that the researcher is concerned. According to Fraenkel, Wallen, & Hyun, sample in a research study is the group on which information is obtained (as cited in Saputra and Marzulina, 2015, p. 7). In this study I used convenience sampling because after I had an interview and discussed with one of the teacher of English at MA YPGS Gunung Batu, I was asked to use two classes as the sample for experimental 1 and experimental 2 groups. Then the teacher recommended class X.1 and X.2 since they have the same criteria, and have the same abilities, both experimental 1 and experimental 2 groups sample are taught by the

same teacher and the same number of students. The number of sample from two classes was sixty students.

Table 2Distribution of Sample

Class	**Number of Students**
X.1	30
X.2	30
Total	**60**

Source: MA YPGS Gunung Batu in academic (2017/2018)

35. Data Collection

1.5.1 Test

In this study, test of reading comprehension of narrative text was used. Brown (2000) argues that,a test is an instrument or procedure designed to elicit performance from learners with the purpose of measuring their attainment of specified criteria. The purpose of the test is to measure students' narrative reading achievement before and after the treatments in the experimental 1 and experimental 2.

The test wasin the form multiple choice test. The test was given in first meeting and the last meeting as pre-test and post-test to both group. The total number of the questions are sixty questions and each question has four options. Before the test is given to the sample, the test were tried out to non-sample students. After the test was administered, the validity and realiability of test items was estimated first before being given to the sample.

1.5.1.1 Pre-test

The pretest is the test that was given before giving some treatments. According to Creswell (2012), pretest provides a measure on some attribute or characteristic that you assess for participants in an experiment before they receive a treatment. The pretest was given to the both of sample, experimental 1 and experimental 2 groups. It measured the students' reading comprehension before treatment. In collecting the data, I used reading comprehension test in the form of multiple choice questions. The numbers of question items were forty, in the form of multiple choice which cover five questions, namely (a, b, c, d, e). All of the questions were about reading comprehension. The purpose of giving pretest to the students was to know the students' reading comprehension before implementing Jigsaw and (STAD) technique.

1.5.1.2 Post-test

Posttest was given after conducting treatment to the experimental 1 and experimental 2 groups. Creswell (2012) states that post-test a measure on some attribute or characteristic that is assessed for participants in an experimental 1 and experimental 2 after a treatment. This test was given to the both of sample, experimental 1 and experimental 2 groups. In collecting the data, I used reading comprehension test in the form of multiple choice questions. The numbers of question items are forty, in the form of multiple choice which cover five options, namely (a, b, c, d, e). All of the questions were about reading comprehension. The purpose of giving posttest to the students was to know the students' reading

achievement after implementing Jigsaw and (STAD) technique. The type of posttest was the same as the pretest. The same as pretest, the researcher checked and scored to the students' work. The result of this test was compared with the result of pretest in order to measure the students' progress by using Jigsaw and (STAD) technique.

4.5 Research Instruments Analysis

Before implementing research treatments in experimental 1 and experimental 2 groups, a tryout on research instrument should be administrated to estimate the validity and reliability of research instrument for students' pretest and posttest activities. The following were steps to analyze the validity and reliability test of the obtained scores based on the result of a tryout analysis.

4.5.1 Validity Test

Fraenkel, Wallen & Hyun (2012)argue that validity is the most important idea to consider when preparing or selecting an instrument for use. Validity test is carried out to measure whether the instruments for pretest or post-test activities are valid or not. In this research, construct validity, validity of each question, and content validity item was used.

4.5.2 Construct Validity

According to Cohen, Manion & Marrison (2007), a construct is an abstract, this separates it from the previous types of validity which dealt in actualities – defined content. Construct validity of the instrument is consulted with some experts to evaluate whether the components of the instrument are valid or not to be applied in research activities. In this part, the construct validity of the research instruments

involves two types. They are question items for pretest and posttest activities, and lesson plans for both experimental groups.

Three lectures of UIN Raden Fatah Palembang were asked as validators. There are some characteristics for expert judgments or validators, such as: (1) they have English educational background, (2) they are English lecturers, and (3) they have scored at least 550 of TOEFL, and (4) their teaching more than 5 years. They measured including such thing as the clarity of orienting, size of type, adequacy of work space (if needed), appropriateness the language, clarity of directions, and so on regardless of the adequacy of the question in an instrument what must be measured by giving test or tryout to students later on. The result of construct validity the test of instrument can be used.

4.5.3 Validity of Each Question Items

Validity of each question item test is used to indicate whether the test items of each questions are valid or not. To find out the validity of each item, tryout was conducted to non sample students. They was one of the tenth grade classes of MA YPGS Gunung Batu. The result of the test were analyzed by using Pearson Product Moment Correlation Coefficient in SPSS 23 (Statistical Package for the Social Science) program. To know whether the instruments of each question are valid or not, the score of significance (r-output) compared with the score of r-table product moment. According to Basrowi and Soenyono, if the result of the test shows that r_{output} is higher than r_{tabel}, it means that the item is valid (as cited in Herlina & Holandyah, 2015, p. 46).There are 20 question items that are lower than 2.042.

theyare questions number8, 15, 16, 18, 26, 27, 29, 30, 35, 36, 43, 46, 52, 53, 54, 56, 57, 58, 59, and 60. Then they are 40 question itemshigher than 2.042. They are questions number1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 17, 19, 20, 21, 22, 23, 24, 25, 28, 31, 32, 33, 34, 37, 38, 39, 40, 41, 42, 44, 45, 47, 48, 49, 50, 51, and 55.Since there were 40 questions are considered valid, the researcher took 40 valid questions.

4.5.4 Content Validity

According to Fraenkel, Wallen & Hyun (2012), content validity refers to the content and format the instrument, how a appropriate is the content, how comprehensive does it logically get at the intended variable. A content validity is very important, since it is an accurate measure of what it is supposed to measure. In order to judge the test whether or not a test has content validity, the researcher was check the syllabus from school and then match them into test specification.

Then, the result of the analysis in constructing the content validity was presented in the test speciation table including, objectives of the test, text materials, test indicators, total of test, types of test, and answer key.

Table 3 Table of Test Specification

	Test Material	Indicators	Item Number	Total Item Number	Types of Test	Answer Key
	Beauty and the beast	The students are able: -To identify main idea	1, 7, 46, 48	4	Multiple choice	A, C, B, B
11.2 Responding	Stone	-To find the meaning of	6, 26, 38,	5		B, C, A,

the meaning and rhetorical steps in essay functional accurately, fluently and acceptable in the context of daily life and access knowledge in the text from: narrative, descriptive, and news item	flower	word	5,50		E,E
	Cinderella	-To find meaning of sentence	13, 14, 18, 22, 27, 28, 35,36,37, 47, 51,58, 60	13	A, E, E, B, A, A, C, A, E, B, B, A, A
	The Rats and the Elephants	-To find a character	2, 8, 22, 23, 28, 33, 34, 42, 49, 56	10	C, E, B, C, A, A, E, C, C, C
	The White Butterfly	-To find some event in the text	9, 4, 41	3	A, A, A
	Sangkurian g and Tangkupan Perahu	-To identify the rhetorical step in narrative	10, 11, 12, 16, 19, 24, 25, 29, 31, 39, 32, 45, 52, 53	14	D, A, C, E, A, C, C,C,A,C , D, D, A, C,
	CalonAran g	-To identify the communicati ve purpose of the text	3,15,17, 20,21,23 ,30, 40, 43, 44, 54, 57, 59	13	A, D, A, D, E, C, C, B, A, B, E, B, B

4.6 Reliability Test

In order to measure whether research instrument used for pretest and posttest activities was reliable or not test on reliability was used. Fraenkel, Wallen & Hyun

(2012) argue that,reliability refers to the consistency of the scores obtained how consistence they are for each individual from one administration of an instrument to another and from one set of items to another. In addition, Fraenkel(2012) states that, a useful rule of thumb is that reliability should be at least 0.70 and preferably higher.

To know the test used is reliable or not, the writer gave try out firstly to the students and then the score of reliability test was calculated by SPSS 23 software (Statistical Package for The Social Sciences) using split-half method with spearman-brown formula in internal consistency reliability, because this method is suitable for multiple choice items.

4.7 Readability Test

Readability test was done to know whether or not the levels of reading texts are appropriate for students' class level in comprehending the reading texts. The name of application is Readability Formulas. Readability Formulas test can be measured by using online readability test which can be accessed from: **http//www.readabilityformula.com**.

Table 4Flesh Reading Ease Score

Score	School level	Notes
100-90	5th grade	Very easy to read. Easily understood by an average 11-year-old Students.
90-80	6th grade	Easy to read. Conversational English for consumers.
80-70	7th grade	Fairly easy to read.
70-60	8th& 9th grade	Plain English. Easily understood by 13-to 15-year-old students.
60-50	10th to 12th grade	Fairly difficult to read.

50-30	College	Difficult to read.
30-0,0	College graduate	Very difficult to read. Best understood by university graduates

There were two readability tests in this study. They were readability test for research instruments and readability test for research treatment. The explanation as follows:

a. Readability of Research Treatment

For readability test for research treatments, the researcher used some books: the book was entitled: English for Junior High School Students X Published by Bumi Aksara, English Focus for grade X Junior High School Published by Pusat Perbukuan Departemen Pendidikan Nasional written by Artono Wardiman, Masduki B. Jahur and M. Sukirman Djusama, Practice Your English Competence Published by Erlangga written by Zaida. It can be seen on the following table:

Table 5 The Result Analysis of Readability Test for Research Treatment

No	Text Title	Text Type	Test Statistic			Flesh-Kincaid Reading Ease Score	Text Category
			Number of Sentence	Words per Sentence	Character per Word		
1	Lake Toba	**Narrative**	18	12	4.1	60	Fairly difficult to read
2	Malin Kundang		36	11	4.1	5,9	Fairly difficult to read
3	The legend of rice		36	11	4.3	5.3	Fairly difficult to read

	paddy					
4	Loro Jonggrang	16	19	4.6	53.3	Fairly difficult to read
5	Jaya Baya	11	18	4.2	60	Fairly difficult to read
6	Nyi Roro Kidul	19	18	4.3	60	Fairly difficult to read
7	How Surabaya was Named	21	11	4.3	5.1	Fairly difficult to read
8	Tangkupan Perahu	29	13	3.8	60	Fairly difficult to read

b. Research Instrument

For readability test for research instrument, I used some books. The first book was entitled scaffolding: English for Junior High School Students X Published by Pusat Perbukuan Departement Pendidikan Nasional and the author are Joko Priyana, Arnys R Irjayanti and Virga Renitasari. The second book was entitled English in Focus for grade X Junior High School written by Artono Wardiman, Masduki B. Jahur and M. Sukirman Djusama. It can be seen on the following table:

Table 6The Result Analysis of Readability Test for Research Instrument

No	Text Title	Text Type	Test Statistic			Flesh-Kincaid Reading Ease Score	Text Category
			Number of Sentence	Words per Sentence	Character per Word		
1	Beauty and the Best	**Narrative**	23	11	4,2	50	Fairly difficult to read
2	Stone Flower		36	11	4,4	5,9	Fairly difficult to read
3	Cinderella		20	14	4,3	60	Fairly difficult to read
4	The Rats and the Elephants		20	14	4,3	60	Fairly difficult to read
5	Charles		17	14	4,4	5,8	Fairly difficult to read
6	The White Butterfly		21	19	4,3	60	Fairly difficult to read
7	Sangkuriang and Tangkuban perahu		25	12	4,3	5,3	Fairly difficult to read
8	Blind Listening		15	16	4	50	Fairly difficult to read

9	Calon Arang	31	13	4,4	60	Fairly difficult to read

4.8 Data Analysis

In analyzing the data, the writer described some techniques as follow:

3.8.1 Data Description

In data description, there was two analyses to be done. They are; (1) distribution of frequency data and (2) descriptive statistic:

3.8.1.1 Distribution of Frequency Statistics

In distribution of frequency statistic the students' score, frequency, percentage was achieved. The distribution of frequency data was got from students' pretest-posttest in experimental 1 and students' pretest-posttest in experimental 2.

3.8.1.2 Descriptive Statistic

In descriptive statistics, the number of sample, score of minimal, maximal, mean, standard deviation, and standard error of mean got from students' pretest-posttest in experimental 1 and the students pretest-posttest in experimental 2.

3.8.2 Pre-requisite Analysis

Before analyzing the data, prerequisite analysis was done to see whether the data obtained is normal and homogenous. The following was the procedures in pre-requisite analysis.

3.8.1.1 Normality Test

Normality test was used to measure whether the obtained data is normal or not. According to Flyn (2003) states that, a value less than 0.05 indicate that the data are non-normal. In measuring normality test, the writer used*1-Sample Kolmogorov Smirnov* in SPSS program. The normality test is used to measure students' pretest and posttest score in experimental 1 and experimental 2 groups. Then, the result analysis in measuring the normality test of the students pretest score in experimental group.

3.8.1.2 Homogeneity Test

Homogeneity test was used to measure whether the obtained data are homogenous or not. According to Flyn (2003) the data can be categorized homogenous whenever it is higher than 0.05. The homogeneity test used to measure students' pretest and posttest score in the experimental 1 and experimental 2 groups. In measuring homogeneity test, *Levene Statistics*in SPSS program software was used.

3.8.3 Hypotheses Testing

In measuring mean difference and significant improvement on students' narrative reading comprehension by using Jigsaw and STAD Technique, as follows:

1. In measuring significant improvement, paired sample t-test was used for testing the students pre-test to post-test scores in narrative reading comprehension by using Jigsaw technique in experimental 2. Significant improvement is found whenever the p-output is lower than 0.05 and t-table obtained is higher than t-table 2.045 (with df=30-1:29)

2. In measuring significant improvement, paired sample t-test was used for testing the students pre-test to post-test scores in narrative reading comprehension by using STAD technique in experimental 1.Significant improvement is found whenever the p-output is lower than 0.05 and t-table obtained is higher than t-table 2.045 (with df=30-1:29)
3. In measuring significant difference, Independence sample t-test was used for testing the students post-test to post-test scores in narrative reading comprehension by using Jigsaw technique and STAD technique in experimental 1 and Experimental 2.Significant difference is found whenever the p-output is lower than 0.05 and t-table obtained is higher than t-table 2.009 (with df=60-1:59).