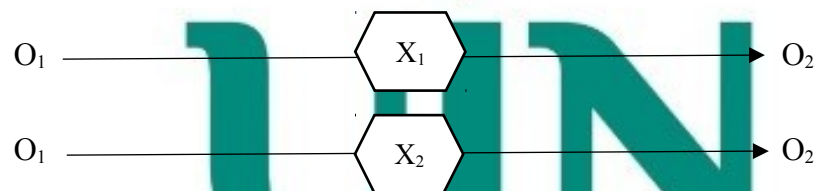


CHAPTER III RESEARCH METHOD

A. Research Design

This study was using an experiment research by using quantitative approach. Sugiyono (2012: 109) states “there are some designs of experiment which can be used in the reseach, such as: pre-experimental design, factorial design, and quasi experimental design”. In this study, the researcher use quasi experimental where there are two classes, first class is for experiment and another class is for control.

Based on the kinds of experimental design above, this study was using quasi experimental (Nanoquivalent control group design). This design is similar with pre-test-post-test control group design. But in this design, both experimental group and control group were not choosen by random. Here is the design of this research.



Picture specification:

O1 :pre-test is given before the learning and teaching activity for both groups, experimental group and control group

O2 : post-test is given after the learning and teaching activity for both groups, experimental group and control group

X1 :giving cooperative learning treatment method (Jigsaw strategy) for experimental group

X2 :giving konvensional learning treatment for control group

Variable research is everything which defined by the research to be studied in order to retrieved the information about it, then drawing the conclusion. According to Hatch and Faraday (Sugiyono, 2012:60) ' theoretical research variable can be defined as an attribute of a person or another object '. Sugiyono (2012:61) "variables whis is used in research, there are two kinds of variable X (independent variable) and variable Y (dependent variable)".

Variable X (independent) is a variable that affect or be a cause or onset of variable Y (dependent). While the variable Y (dependent) variable is affected or which become due to the variable X.

In this research has two variables that are Jigsaw strategy and students' reading comprehension. So, this research will find out how the Jigsaw strategy can give effect for the student's reading comprehension ability as another variable.

B. Research Setting

For this study, the researcher had taken place at MA Darul Imad Banjarmasin Jl. Qubah Sari Desa Thaibah Raya Kec. Tatah Makmur Kab. Banjar, South Kalimantan 70654. The reseach was done from 14 November 2017 to 13 January 2018.

C. Population and Sample of The Research

1. Population of The Research

"The population is the entire subject of research" (Arikunto, 2010:173).

The population which was used in this study is the eleventh grade of students class of accountancy at MA Darul Imad Banjarmasin academic year 2017/2018 as the following table below;

Table 3.1 Student's Population of Eleventh Grade

No	Class	Total
1	XI A	34 students
2	XI B	34 students
3	XI C	34 students
4	XI D	34 students
Total		136

2. Sample of The Research

The sample was a part of the population that has the same characteristics of the population. The sample can be also the population itself. According to Sugiyono (2012:118) "sample is part of the number and characteristics of which are owned by the population". Suharsimi Arikunto (2012:174) states briefly that "the sample is just partly or totally from the whole population".

The consideration of taking the sample in this study using a purposive sampling technique. "purposive sampling is a technique of determining the sample with a certain consideration", (Sugiyono, 2012:183). This type of withdrawal sample by considering the type of research used in this study requires the control class and experiment class.

The researcher took two classes consisting of 34 students of each class. In choosing the class, the researcher had a discussion with the English teacher as a collaborator in this research. After the discussion, the researcher and the teacher agreed to choose class XI A for the control class and XI B for the experiment class as the subject of the research because XI B had the most complicated problem to be solved and those classes were easier to be taught because of the class and students condition could be controlled than the other.

Then it could be concluded that both class XI A and XI B will be the two samples selected from all population classes.

D. Reseach Instrument

Research instruments are tools or facilities used by researchers to collect data in order to make the job is easier and the result is better, which mean are much more accurate, complete and systematic, and thus more easily to processed. (Arikunto, 2010:203).

In any kind of science research, instrument is a very important tool in collecting data. Because of that reason, instrument has to be prepared well to measure the accuracy of the instrument itself.

The instrument used in this study was test. Before doing the test, the researcher did an observation to collect the information about the school, condition of the classes, the teachers and also the students that the researcher will do research.

The main instrument in this research was test which the aim of giving test is to obtain the data at knowing whether this study is effective or not. But before drawing

the instrument, the researcher has to analyze and measure whether it was valid and reliable or not by using SPSS 23.0 program.

1. Validity

Validity is given to measure whether the instrument is valid or not before giving the test to the students by using Pearson Product Moment, Arikunto (2008: 76).

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

Explanations:

Rxy :Correlation coefficient between X variable with Y variable

N :Total of test participant

X :Score for each item

Y :Total Score

2. Reliability

According to Fraenkel and Wallen (2009), reliability refers to the consistency of the scores obtained—how consistent they are for each individual from one administration of an instrument to another and from one set of items

to another. Reliability pointed a sense that an instrument pretty trustworthy. A test is said to have high confidence levels if the tests can provide the results anyway. Then the sense of reliability test, connect with the issue of the provision of test results. According to Arikunto (2008: 86), the resaercher uses Cronbach Alfa formula with SPSS 23.0 program.

$$r_{11} = \left(\frac{n}{n-1} \right) \left(1 - \frac{\sum \sigma_i^2}{\sigma^2} \right)$$

Explanations:

r_{11} : reliability

$\sum \sigma_i^2$: total of score variant for each item
 n : total of item

Table 3.2 Criteria of Reliability

$0,00 < r_{xy} \leq 0,20$	very low
$0,20 < r_{xy} \leq 0,40$	low
$0,40 < r_{xy} \leq 0,60$	enough
$0,60 < r_{xy} \leq 0,80$	high
$0,80 < r_{xy} \leq 1,00$	very high

E. Technique of Data Collection

The techniques of collecting data are as follows;

1. Test

According to Brown (2001: 384) “Test is a method of measuring a person’s ability or knowledge in a given domain”. The researcher will give two kinds of test about the material (reading comprehension), pre-test is given for the classes of research before giving the treatment for detecting the students’ ability of reading comprehension then after the treatment, students will be given a post-test to be compared the result both of them.

In collecting data, the researcher gave reading comprehension test to the students. The tests were given to get the objective data of students’ achievement in reading comprehension skill by using jigsaw strategy in experimental class and by using monotonous strategy like the teacher mostly used to the students in control class. There are two kinds of test that will be given by researcher which is pre-test and post test. Pre-test is given before the students get treatment but it also given for the students are not getting the treatment to know the student’s basic reading skill and post-test is given after the students get the treatment but also given for the students that did not get the treatment. The test consists of twenty questions, all questions are multiple choice. Each correct number of question will get one (1) point of score and the total of correct number will be multiplied by five (5).

After giving the post test -to find out the students’ increasing reading comprehension was given- the researcher analyzes the data had been collected by using SPSS 23.0 program to know the normality and homogeneity before

calculating the t-test as the last data analysis procedure then draw out the final conclusion.

In analyzing data, the researcher does some steps, such as: the researcher calculates the validity and reliability of the test. Then, give pre-test and post-test. After that, scores the students' achievement.

After scoring the data, the researcher interprets the students' score for pre-test and post-test. The researcher uses category which is submitted by David Harris (1969) as follows:

Table 3.3 The score interpretation

Score	Interpretation
80-100	Excellent
70-79	Good
60-69	Fair
50-59	Low
0-40	Poor

Then, the researcher evaluates the average score from the frequency distribution above. The formula as below:

$$M = \frac{\sum x}{n}$$

M : mean

$\sum x$: total number of score

n : total number of sample

2. Pre-test

Pre-test is a test which was given to know the students' basic ability of the lesson before giving the treatment. Pre-test in this study was given for both of classes, experimental and control class for detecting the students' ability of reading comprehension.

3. Treatment

Treatment in this study is a lesson that was given to reach the aim of the study for experimental class to know either their ability is improved or not. The treatment was given only for experimental class by using jigsaw strategy in teaching reading comprehension and control class was taught as usual.

4. Post-test

Then the last test is called post-test. It is very important part because it was given for both of classes, experimental and control class after giving the treatment to find out whether there is a change or not in their reading comprehension by using jigsaw strategy.

F. Data Analysis

This research was using quantitative approach to analyze the data. The Quantitative data includes closed-ended information such as that found on attitude, behaviour or performance instruments, Cresweel and Clark (2003) states that this research is to describe the improvement of the students' reading comprehension between those were taught by using jigsaw strategy and those were not. After getting the data, the researcher needs is to process and analyze them. This data can be

processed by SPSS 23,0. Before the collected data is proceed, the researcher will analyze the data clearly, accurately, and specifically, Anas sudijono (Anas Sudijono, 1995 : 297-299).

In answering research question and also the hypothesis, the researcher needed to determine the statistics based on some criteria. To make the generalisation about the population from the sample, statistical tests were used. A statistical test is a formal technique that relies on the probability distribution, for reaching the conclusion concerning the reasonableness of the hypothesis. This research was using inferensial statistic which is used to analyze the sample of data and the result was applied for a population. These hypothetical testing related to differences were classified as parametric and nonparametric tests. The parametric test is one which has information about the population parameter and also the hypothesis test which provides generalisations for making statements about the mean of the parent population. A t-test based on Student's t-statistic, which is often used in this regard. The t-statistic rests on the underlying assumption that there is the normal distribution of variable. On the other hand, the nonparametric test is one where the researcher has no idea regarding the population parameter and also is defined as the hypothesis test which is not based on underlying assumptions, i.e. it does not require population's distribution to be denoted by specific parameters. In short, the parametric test uses if the test has normal distribution whereas the nonparametric test has not, for example, the parametric test is use independent sample t-test because of normal distribution and nonparametric test is use Mann-Whitney test.

1. Normality test

Normality test is used to determine whether the sample obtained normal distribution or not by using SPSS 23.0, in this normality test the researcher makes two assumptions of the data:

- a. If the data obtained normal distribution, the data will be tested by using T-test.

The significance level used $\alpha = 5\% (0,05)$

$$t = \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2} - 2r\left(\frac{s_1}{\sqrt{N_1}}\right)\left(\frac{s_2}{\sqrt{N_2}}\right)}}$$

- b. If the data obtained abnormal distribution, the data will be tested by using Chi-Square test by Sudjana (2005:273).

The significance level used $\alpha = 5\% (0,05)$

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

Explanations:

O_i: Frequency of hope

E_i: the expected Frequency

K: the number of observations

2. Homogeneity test (Sugioyono, 2012:275)

Homogeneity test sample to determine a homogeneous whether or not the variance of samples taken from the same population. Homogeneity test was

conducted to obtain the assumption that sample departs from the same condition. The researcher used Levene test by computing the data by using One Way Anova SPSS 23.0.

$$F_{hitung} = \frac{s^2_b}{s^2_k}$$

S^2_b =varian terbesar

S^2_k =varian terkecil

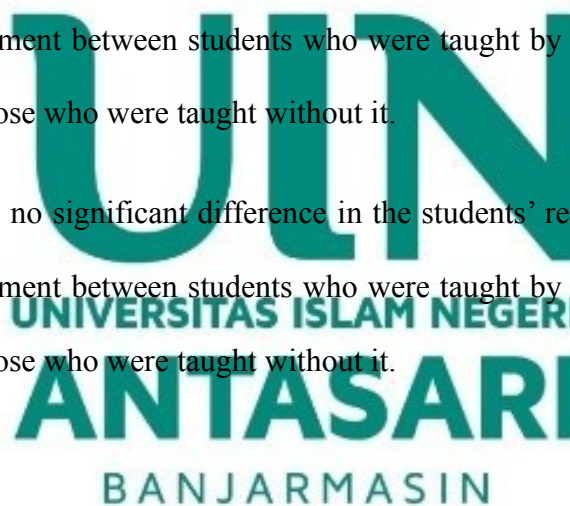
3. Hypothesis

The research was held to answer the question “Is Jigsaw strategy is working effectively to improve student’s reading comprehension at MA Darul Imad Kab. Banjar?”

After that, to get the answer from the question above, the researcher proposed Alternative Hypothesis (H_a) and Null Hypothesis (H_o) as follows:

H_a : There is significant difference in the students’ reading comprehension achievement between students who were taught by using jigsaw strategy and those who were taught without it.

H_o : There is no significant difference in the students’ reading comprehension achievement between students who were taught by using jigsaw strategy and those who were taught without it.



The provisions of decision making is if the value of the probability of significance 0.05. Therefore, after all the data were calculated, the last procedure is determining df (degree of freedom) with formula:

$$df \text{ or } db = (N_x + N_y) - k$$

If $t_{\text{count}} \geq t_{\text{table}}$, the H_a is accepted and H_o is rejected. It means there is significant difference in the students' reading comprehension achievement between students who were taught by using jigsaw strategy and those who were taught without it.

If $t_{\text{count}} \leq t_{\text{table}}$, H_a is rejected and H_o is accepted. It means there is no significant difference in the students' reading comprehension achievement between students who were taught by using jigsaw strategy and those who were taught without it.

The last is t-test. T-test will be used in testing hypothesis. The formula of ttest can be seen as below:

$$t = \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2} - 2r\left(\frac{s_1}{\sqrt{N_1}}\right)\left(\frac{s_2}{\sqrt{N_2}}\right)}}$$

$\bar{x}_1$ = Rata-rata sampel 1

$\bar{x}_2$ = Rata-rata sampel 2

S_1 = Simpangan baku sampel 1

S_2 = Simpangan baku sampel 2

S_1^2 = Varians sampel 1

S_2^2 = Varians sampel 2

r = Korelasi antara dua sampel

N_1 = Total partisipan kelas eksperiment

N_2 = Total partisipan kelas kontrol

