CHAPTER III

RESEARCH METHOD

In this part, the methodology of the research technique was established. The methodology includes the researched location, sample, population, operational definition of variables, data collection instrument, research design, data collection technique, data analysis approach, and statistics of hypothesis.

3.1 Place and Time of the Research

This researcher will conduct at SMP IT Nurul Ilmi, which is location at Jl. Kolam No.1 Kompleks Universitas Medan Area, Medan Estate, Kecamatan Percut Sei Tuan,Deli Serdang. This research will held on March 10th until finish in academic year 2022/2023.

3.2 Population and Sample

3.2.1 Population

Population is a group of elements process by one or more interesting elements(Suharsim, 2002). The populations in this research will from all of students SMP IT Nurul 'Ilmi Percut Sei Tuan, there are six classes: VII-1, VII-2, VIII-1, VIII-2, IX-1 and IX-2. All of students in this school are 136 students.

Table 3.1

Population of the research

No	Class	Total
1	VII -1	20
2	VII-2	20
3	VIII-1	24
4	VIII-2	25
5	IX- 1	22
6	IX-2	23
Total		136

3.2.2 Sample

The sample is part of the total population (Sudjana, 1997). The researcher will usepurposive sampling when choosing the sample. Purposive sampling is a non-random sampling strategy in which the researcher chooses the sample by identifying particular qualities that are consistent with the study aims and are predicted to be able to answer research questions.According to(Sugiyono, 2016), purposivel sampling is a sampling strategy with consideration. Purposive sampling methods are employed because, according to Sugiyono (2016: 85), they are appropriate for use in quantitative research or non-generalizable investigations. There are 49 students in total, with 24 from VIII-1 and 25 from VIII-2. This study's group consists of VIII-2 as an experimental class and VIII-1 as a controll class.

Table 3.2

Sample of the research

No	Class	Total
1	VIII-1	24
2	VIII-2	25
Total		49

3.3 Method and Procedure of the Research

3.3.1 Method of Research

In this study, the researcher will use a quantitative technique with a quasi-experimental methodology. The researcher uses quantitative research because it is a method for examining the relationship between two variables. The quantity of data can be evaluated using a statistical generator, and these factors may be measure using instruments. Additionally, the researcher in this study wants to find

out whether the Jeopardy game was successful in teaching simple present tense, which the writer compared between two variables.

This result in the researcher is using a quantitative approach with a quasi-experimental design. A quasi-experimental approach will be used for the research's technique. According to Thyer, a study design that uses a quasi-experimental approach compares the outcomes of one group that receives treatment and serves as the subject of assessment to one or more other groups that do not. How successfully the Jeopardy game teaches the basic present tense is the basic question.The experimental class and the controlled class are both used in this study method (Bruce A. Thyer, 2012).

The pre-test, experimentation treatment, and post-test steps of this study are all related. Using a Jeopardy Game method, the researcher teaches the experimental class's students. Additionally, the teacher will use the Jeopardy game to teach the simple present tense to the control group. A pre-test is given before to the treatment for measuring their simple present tense comprehension. Additionally, the post-test is given following the researcher's treatment of the study group. Both pre-test and post-test results from both groups are compared.

Based on the quasi-experimental methodology described above, the researcher divided the population into two classes: controlled and experimental. In the experimental class, the researcher uses the Jeopardy game to teach simple present tense; however, in the control group, no such game uses. In the school year 2022/2023, this study try to evaluate the impact of the Jeopardy game on teaching simple present tense of students in SMP IT Nurul Ilmi’s eighth grade.

3.3.2 Procedure of Research

Measurement technique is the method used in this study to gathering the data.The research's gathering of data method was simple present tense. Tests are the method used to collect data. There are 20 multiple choise questions on the test. In addition, the students have 60 minutes to answer to each question. There were three tests for the simple present tense: a pre-test, a treatment, and a post-test.

1) Pre-test

The pre-tests are taken by both the experimental class and the controlled class. Students take a pre-test to assess their proficiency in the simple present tense before beginning treatment. The researcher gave the multiple-choice test to the students.

2) Treatment

Following the pre-test for both classes, the experimental group's students received treatment in which they understand simple present tense through the Jeopardy game, whereas the controlled group's students received conventional instruction or used materials from their textbooks.

3) Post-test

After completing the treatment, a post-test was given to both groups. The post-test will be used to determine whether there has been any progress between the teaching and learning activities using the Jeopardy game and those without it. Simple present tense tests were used as the multiple-choice instruments in this study. The simple present tense test, which is given as a pre- and post-test, has 20 items.

Table 3.3

Quasi Experiment Design

Group	Pre-test	Treatment	Post-test
Experiment (Class	O	X (Jeopardy	O

VIII-2)		Game)	
Control (Class VIII-1)	0	- (Conventional Learning/ Discussion Method)	O

In Term:

O: Pre-test = Post-test

X: Treatment

3.4 Research Instrument

According to (Margono, 2014)defines a research instrument as a data collection tool that must be well planned and designed in many forms in order to obtain empirical data as it is in reality. A research instrument is anything used to collect data. A grammar test is the research technique in this research. Multiple-choice tests were given by the researcher, including a try-out, pre-test, and post-test. The trial test's objective was to evaluate the test's potential for uses as an instrument for research. The pre-test try-out test had a total of 20 questions, and the post-test try-out test had a total of 20 questions with four possible responses (a, b, c, and d). Pre- and post-tests were given to the controlled group as well as the experimental group. A pretest will be given before to the start treatment for the purpose to assess the students' comprehension of the simple present tense. A post-test will be given after the treatment. Before the tests were conducted, item analyses for validity and reliability were conducted in order to validate the instrument's quality.

3.4.1 Validity

The test's validity and reliability are important aspects when performing the research. It aims to identify both the accuracy of the text and the measurement

consistency. First, the other student's instruments should be used before giving the test. It is better to understand whether the test is reliable and accurate for the sample. If the test gives the expected results, it is considered valid. The research concentrated on how accurately the test captured the knowledge and learning objectives conveyed during treatment. Subject validity was used as the standard for validity in this research. Content validity refers to how well the sample matched the substance that the test had been created to assess.

$$r_{hitung} = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\left[n(\sum_X 2) - (\sum X)^2\right]\left[n\,(\sum_Y 2) - (\sum Y)^2\right]}}$$

In term:

r_{xy} = Product moment correlation coeffiecent

N = The number of student

X= Question item in the score

Y= Student question score

The rxy calculation result is compared to the rtable of product moment with a 5% level of significance. If rxy is higher than rtable, a question item is valid.

1. **The Reliability of the Test**

The level to which the study instrument is evaluated is considered reliability. In other words, the degree to which a study instrument constantly has the same levels when used in the same situation on repeatedly. Reliability is typically defined in terms of the consistency and stability of data or results. As a result, one of a successful test's qualities is reliability. Reliability is a term used to describe measurement accuracy. It means a test produces the same results when given to different people in order to assess the same object. The researcher was able to assess the test's reliability using SPSS 16 for Windows.

$$r_{11} = \left[\frac{k}{k-1}\right]\left[1 - \frac{\sum \sigma_t^2}{\sigma_T^2}\right]$$

In term:

r_{11} = The reliability coefficient of items

k = The number of items in the test

$\sum\sigma_t^2$ = Total variance score of each test

σ_t^2 = Total variane

σ_T^2 = Number of test

The calculation result of r11 is compared to the rtable of product moment with a 5% level of significance. If r11 is higher than ttable, the item of question is reliable.

3.5 Technique of Data Analyzing

Following the collection of all students' scores, data analysis was the next step. It is used to understand the differences between pre-test and post-test results before and after the treatment.When assessing the data, the researcher used a t-test to find out how the Jeopardy game affected students' understanding of the simple present tense. The researcher conducts a basic study of the data to determine normality and homogeneity before conducting the t-test. Using SPSS version 16, the normalcy test and homogeneity test are conducted.

1. **Techniques of Scoring Data**

The student's achievement and performance on the pre-test, treatment and post-test are compared in this analysis. Researchers converted the students' grammar comprehension score using the method below in order to determine the students' understanding of grammar in the simple present tense (Sudijono, 2011):

Correct Answer : 5

Wrong Answer : 0

Multiple-choice test scoring:

$$\frac{Correct\ Answer}{number\ of\ questions} \times 100$$

Using statistical analysis in SPSS, find out the mean score, standard deviation, frequency table, and t-test results to identify differences between the pre-test and post-test.

2. Test of Normality

The experimental class and controlled class data are compared using the normality test to see if they come from a population with a normal distribution. Data that are ordinal, interval, or ratio can be measured using this test. To find out whether or not the collected data have a normal distribution, use the normality test.To ascertain whether the statistics are normal or not, normality tests are used. If the test's result was higher than 0.05, the statistics were considered to be normal. According to (Sudjana 2005), testing the normality of the data obtained in the study used the test step using the Lielifors test, namely:

a. Sort valuesx_i, sorted from the smallest value to the targets value.
b. Observation $x_1, x_2, x_3 \ldots\ldots x_n$ used as a standard number $z_1, z_2, z_3, \ldots\ldots z_n$ by using a formula Zi $= \frac{X_i - \overline{X}}{S}$ (x and s are the mean and standard deviation for the sample, respectively).
c. From each os these standard values can be search for critical values z (Z_{table}) by using the standard normal distribution list, then the probability is calculated F(z_1) = P (z >z_1) provided that z_1 negative, so F(z_1) = 0,5 – Z_{table}, whereas if z_1 positive,so F(z_1) = 0,5 + Z_{table}.
d. Next calculated proportions $z_1, z_2, z_3, \ldots\ldots z_n$, which is smaller or equal to z, if this proportion is expressed by, S(z_i) = $\frac{much\ z_1, z_2, z_3, \ldots\ldots z_n\ wich \leq z_1}{n}$
e. Calculated the difference F(z_i) - S(z_i), then determine the absolute price.
f. Take the biggest price between the absolute price of the difference, this price is referred to as L_{mutlak}.

In making decisions, compare L_{hitung} with L_{table} by using a table of critical values of the Lielifors test with a significant level ȧ = 5%. If $L_{hitung} < L_{table}$ then the sample is normally distributes, and if $L_{hitung} > L_{table}$ then the sample is not normal distributed.

3. Test of Homogeneity

The homogeneity test is a statistical test method that shows the homogeneity of two or more groups. Sample statistics are drawn from populations with similar variance. The homogeneity test is used in this study to assess how similar the two populations the experimental class and the controlled class are. To determine whether a group is similar or not, a homogeneity test is conducted. Using SPSS version 16, the similarity test was also tested in this research. Data homogeneity is determined by homogeneity tests. If the test result was higher than 0.05, then the results were homogeneous.

$$F = \frac{Vb}{Vk}$$

In term:

Vb= Bigger varian

Vk= Smaller varian

The criteria of the homogeneity tes describe as follow:

a. If $F_{value} < F_{table}$: Ho is accepted
b. If $F_{value} > F_{table}$: Ho is rejected

In this research, the data indicates that the Pre-test and Post-test variant data in experimental and controlled classes are homogenous. It because coeficient of F_{count} is smaller than F_{table} and the value of the F_{table} at the level of ȧ = 0,05.

4. T-Test

In order to analyze the data, the researcher first analysis normalcy and homogeneity tests before conducting a t-test. To determine whether there are any statistically significant variations between the two factors in this study, the researcher used a t-test. The test, however, is used to determine whether or not the Jeopardy effective to teaching simple present tense. To evaluate the data using a T-test to see how the results of the experimental class and the control class differed from one another, the researcher used SPSS version 16.

$$t_{hitung} = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where: *S* is the combined variance calculated by the formula:

$$S^2 = \frac{(n_1 - 1)\, S_1{}^2 + (n_2 - 1)\, S_2{}^2}{n_1 + n_2 - 2}$$

In terms:

$x_{1,}$= the mean score of the experimental class

x_2 = the mean score of the controlled class

n_1 = the number of experimental class

$n_{2,}$ = the number of controlled class

S_{1^2} = variance of experimental class

S_{2^2} = variance of cotrolled class

S_1 = standard deviation of experimental class

S_2 = standard deviation of controlled clas

In this research, t_{table} was calcukated with the degree of freedom 59 (df = N1 + N2 -2) at a significant level of 0,05. It indicates that t_{table} critical value was 1,671. It can be concluded that $t_{observed}$ was higher than t_{table} .

3.6 Statistical Hypothesis

The statistical hypotheses of this research are:

1. Ho: The Jeopardy game had no influence on students' understanding of the simple present tense (mean post-test scores for the experimental class are lower than mean post-test scores for the control class, or p > ; sig. 2 tailed was higher than alpha; there were no changes in the scores between the classes).
2. Ha: There is a result of using the Jeopardy game to teach simple present tense (the mean post-test score of the experimental class is higher than the mean post-test score of the controlled class, or p sig. 2 tailed was lower than alpha; there were differences from the score of the classes).