CHAPTER III
RESEARCH METHOD

A. Research Design

In this research, the researcher used the quasi-experimental research. According to Gay (2000:394), the quasi-experimental research is non-randomised. The researcher used two classes, they were: experimental class by using game based learning methode and control class by using conventional methode. Both classes got the same material, length of time, and the same teacher.

R_1	$O_{1.1}$	X	$O_{1.2}$
R_2	$O_{2.1}$	-	$O_{2.2}$

Notes

R_1	: Experiment class
R_2	: Control class
$O_{1.1}$	: Pre-test to experiment class
$O_{1.2}$	: Post-test to experiment class
$O_{2.1}$	: Pre-test to control class
$O_{2.2}$	: Post-test to control class
X	: treatment toward experimental class

Meanwhile, the researcher employed two variables, independent and dependent variables. Independent variables (X) were two methode, Game Based Learning and

conventional methode. Meanwhile, dependent variable (Y) was grammar proficiency.

B. Population and Sample

1. Population

This research was conducted at SMP Negeri Maur, Rupit District, Musi Rawas Utara Regency, focusing on seventh-grade students. The research population includes all seventh-grade students, consisting of four classes: 7-1, 7-2, 7-3, and 7-4. The total number of students in this population is 139, comprising 72 male students and 67 female students. Further details regarding the research population are presented in the following table.

Gay (2000.122) suggests that the population is the group of interest to the researcher, the group to which she/he would like the results of the study to be generalizable. Generalizability is the extent to which the results of one study can he applied to other population or situation.

The population of this research was the seven grade students of SMP Negeri Maur. The total population were 139 students, consist of four classes (VII. 1 until VII.4) Look at the table below:

Table 3.1
Research Population

No.	Class	Male Students	Female Students	Total
1	VII.1	16	19	35
2	VII.2	21	14	35
3	VII.3	18	16	34
4	VII.4	17	18	35
Total	4 classes	72	67	139

2. Sample

According to Gay (2000:121), sampling is the process of selecting a number of individuals or a study in such a way that they represented the larger group from which they were selected.

In this research, the researcher used purposive sampling Gay (2000:138-139) explains that purposive sampling referred to as judgement sampling, the researcher selected a sample based on the students' knowledge of the group to be sample.

The total sample of this research was 69 students (two classes). There were 35 students in experimental class (class VII. 4), and 34 students in control class (VI1. 3). In choosing the sample, the researcher found that there were similarities, such as: the mean score of class, number of the students, and the genre in each class, which presented as follows:

Table 3.2
Research Sample

No.	Class	Male Students	Female Students	Total
1	VII.3	18	16	34
2	VII.4	17	18	35
Total	2 classes	35	34	69

C. Research Instrument

This study employs various instruments to collect data in order to obtain comprehensive results. Quantitative data, the study utilizes **grammar tests** as the primary measurement tools, aiming to gain a deeper understanding of the learning process and students' responses to the game-based learning method.

Quantitative Data Instrument

Grammar Test

The grammar test instrument in this study consists of 40 multiple-choice questions designed to assess students' grammar proficiency. The test blueprint is systematically structured to ensure that each measured aspect aligns with the research objectives.

The grammar test used in this study was developed based on the previously designed test blueprint. This instrument was created to objectively assess students' grammar competence, particularly in relation to the application of game-based learning in English language learning. Each question is

designed with varying levels of difficulty to ensure that the test results provide an accurate representation of students' grammar proficiency. Additionally, this grammar test instrument has been tested in previous studies and has proven to reliably measure grammatical aspects.

D. Data Collecting Techniquue

This study aims to examine the effectiveness of game-based learning in improving students' grammar proficiency. Various data collection techniques are applied, including grammar tests, to obtain in-depth and comprehensive information, as follows:

1. Grammar Test (Pre-Test) – At the initial stage of the study, the researcher will conduct a pre-test to assess students' grammar proficiency before the implementation of Game-Based Learning (GBL). This pre-test aims to obtain baseline data on students' grammar skills, which will be used as a comparison to evaluate changes in grammar proficiency after the application of game-based learning. The instrument used is a Grammar Test consisting of multiple-choice questions, and the data collected will be students' scores before the implementation of game-based learning.
2. Grammar Test (Post-Test) – After the implementation of game-based learning, the researcher will conduct a post-test to assess students' improvement in grammar skills. This test

will measure the extent to which students' grammar proficiency has improved after using the GBL method. The instrument used remains the Grammar Test with multiple-choice questions, and the data collected will include changes in students' grammar test scores before and after the application of learning.

The data obtained through these systematic steps and the use of research instruments will be presented in the following table:

Table 3.3
Mapping of Instrument Usage and Collected Data

No.	Type of Data	Instrument	Data Collected
1	Grammar Improvement	Pre-test Grammar	Students' grammar test scores before the game-based grammar learning activity.
2	Grammar Improvement	Post-Test Grammar	Students' grammar test scores after the game-based grammar learning activity.

E. Data Analysis

1. *Prerequisite Analysis*

This research used parametric statistic. The analysis of data used score of pre-test and post-test in experimental and control classes, which were taken from normality and homogeneity tests. In addition, the normality test used Lilliefors test with x = 0.05 of significant level. Besides, the homogeneity test used F-test, the purpose was to know whether sample of population have the same variance or not.

2. *Hypotheses Testing*

Hypotheses testing were caried out with technique analysis that was managed by using t-test.

The formula of t-test is:

$$t = \frac{x_1 - x_2}{\sqrt{\left[\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right]\left[\frac{1}{n_1} + \frac{1}{n_2}\right]}}$$

Notes:

x_1	: mean scores of experimental class
x_2	: mean scores of control class
SS_1	: the sum of the squared deviation score in experimental class
SS_2	: the sum of the squared deviation score in control class
n_1	: number of sample in experimental class
n_2	: number of sample in control class

In this research, by having $\propto = 0.05$. The hypotheses were accepted if $t_{score} > t_{table}$, then H_o was rejected and H_1 was accepted.