

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

This research used experimental research with true-experimental research design. According to (Sugiyono, 2013) A true experiment occurs when individuals were randomly assigned to different groups. So, the characteristics were that there was a control group and the sample was selected randomly. Experiments were always conducted with the intention of seeing the effect of a treatment. For this reason, the method used in this research was an experimental method with the Post-test- only control group design.



This design had two groups, each of which was selected randomly (R). One group (X) was treated, whereas the other group was not. The treated group was referred to as the experimental group, whereas the untreated group was known as the control group. In this design, the effect of treatment was analyzed using a t-test statistic. If there was a significant difference between the experimental and control groups, this indicates that the treatment was effective.

B. Population and Sample

1. Population

The population is the generalization of items or subjects that

researcher analyze and draw conclusions from because they have particular qualities and characteristics (Sugiyono, 2013). The research population consists of 87 eighth-grade students. The experimental class will be taught by a researcher using the Baamboozle platform as a learning medium. In the control class, the researcher provides the same materials but does not use the Baamboozle platform as a learning medium.

Table 3.1 Total of Population

No	Class	Total of Students
1	8.1	29
2	8.2	29
3	8.3	29
Total		87

Source Data: SMP N 4 Batang Anai TA 2024/2025

2. Sampling

Sampling is a method of gathering data for research. Sampling is an appropriate sampling technique to determine the sample to be used in research (Sugiyono, 2013). In this study, probability sampling was used with stratified random sampling. According to (Gay et al., 2012) Stratified sampling is a method for ensuring the desired representation of relevant subgroups within a sample. In other terms, some populations can be divided into subgroups known as strata (one of which is a stratum). In stratified sampling, participants are chosen from each subgroup.

In this study, researcher used proportional stratified random sampling technique, which can be described as follows:

- a. Stratified sampling, is a way of drawing samples for populations

that have heterogeneous characteristics or characteristics possessed by the population that has heterogeneous characteristics or the characteristics possessed by population varies. Besides being used for populations that are not homogeneous, this technique is also used when the population has members or elements that are stratified (level) (Sugiyono, 2013).

- b. Proportional sampling or balanced sampling, namely in determining the sample, the researcher takes representatives from each group in the population, the number of which is adjusted according to the group in the population whose number is adjusted with the number of subject members in each of these groups (Gay et al., 2012).
- c. Random sampling or random sampling. This technique is also called haphazard, indiscriminate or not favouritism, and objective, so that all the population are able to participate in the research (Creswell & Creswell, 2018). The application of this random sampling technique by ordinal means, namely how to take members of the population from top to bottom. This can be done by listing the entire research population, then certain odd numbers are taken, even or by multiplying.

Based on this understanding, it can be concluded that proportional stratified random sampling is a sampling technique in a heterogeneous and stratified population by taking samples from each subpopulation whose

number is adjusted to the number of participants in each subpopulation randomly or haphazardly. The proportional stratified random sampling technique is used with the aim of obtaining a representative sample by looking at the population of class 8 students at SMP N 4 Batang Anai which is stratified, which consists of several heterogeneous classes (not similar). So that researchers took samples from all 8 classes and each class was taken as a representative sample.

3. Sample

Based on these considerations, the sample taken in this study was 30% of the population who had an elementary school (SD) educational background, with each sample for grade levels having to be proportional to the population. Determination of the initial number of stratified sample members is done by sampling by Proportionate stratified random sampling, namely by using the Proportionate Formula (Syahza, 2021):

$$n_i = \frac{N_i}{N} \times n$$

n_i : Number of strata

n : Number of samples

N_i : Number of strata members

N : Total population members

Then the number of sample members:

- a) Class 8.1: 24 Students

$$ni = \frac{24}{87} \times 60$$

$$ni = 16,55 = 17 \text{ Students}$$

b) Class 8.2: 23 Students

$$ni = \frac{23}{87} \times 60$$

$$ni = 15,8 = 16 \text{ Students}$$

c) Class 8.3: 25 Students

$$ni = \frac{25}{87} \times 60$$

$$ni = 17,2 = 17 \text{ Students}$$

$$ni = 17 + 16 + 17 = 50 \text{ Students}$$

Then from the results of the above calculations it was known that the number of samples in this study were 50 students. Then 25 students became the experimental class while the other 25 students became the control group.

C. Variable of the Research

1. Independent Variable

Independent variable is a characteristic or attribute that influences or affects a result or dependent variable (Creswell, 2012). In this study, the independent variable was Baamboozle Platform, which was symbolized by "X". Then from the results of the above calculations it is known that the number of samples in this study were 50 students. Then 25 students became the experimental class while the other 25

students became the control group.

2. Dependent Variable

Dependent variable is a characteristic or attribute that is dependent on or is affected by the independent variable (Creswell, 2012). In this study, the dependent variable was students' mastery grammar, which was symbolized by "Y".

D. Instrument of the Study

According to (Sugiyono, 2013) the research instrument is a test, the instrument is a measuring tool used for data collection. Data was collected using a grammar test for eighth grade students that included a post-test with 20 items. In this research, the test was the most crucial instrument used in this study to obtain data. It was used to determine the effect of Baamboozle Platform toward students' mastery grammar.

E. Procedure of the Study

Table 3.2 The Procedure of Teaching Present Tenses in Active Form

Experiment Class	Control Class
Pre-teaching 1. The teacher greets the learners "Assalamualaikum Wr. Wb" 2. The learners and teacher pray before starting the lesson. 3. Learners are checked for attendance by the teacher.	Pre-teaching 1. The teacher greets the learners "Assalamualaikum Wr. Wb" 2. The learners and teacher pray before starting the lesson. 3. Learners are checked for attendance by the teacher.

4. Give apperception to students by asking, “What do you usually do on Sunday morning?” and give the opportunity to several students to tell it. Whilst-teaching 1. The teacher explains the present tenses, including the rules for when they should use each tense. 2. The teacher gives examples of each tense using bamboozles so that students can understand the form of each tense. 3. Give students the chance to ask questions about the material. 4. The teacher divided the students into several groups. 5. Students are asked to work together in this Baamboozle platform to answer the questions on the projector screen. 6. One of each group must choose a number on the screen and answer it directly. If the answer matches the answer on the screen, then the score will increase; if the answer is wrong, then it does not get a score; and so on. 7. When all the questions have been	4. Give apperception to students by asking, “What do you usually do on Sunday morning?” and give the opportunity to several students to tell it. Whilst-teaching 1. The teacher explains the present tenses, including the rules for when they should use each tense. 2. The teacher gives examples of each tense on the blackboard so that students can understand the form of each tense. 3. Give students the chance to ask questions about the material. The teacher gives exercises about the material given. Post-teaching 1. The teacher gives students the chance to ask again if there is anything that is still unclear. 2. The teacher reviews the essence of the lesson material that has been delivered and summarizes it together with the students, namely “Present
---	---

answered, it will be shown on the screen who the winner is, and the best group will get a reward from the teacher. Post-teaching 1. The teacher gives students the chance to ask again if there is anything that is still unclear. 2. The teacher reviews the essence of the lesson material that has been delivered and summarizes it together with the students, namely “Present Tenses”. 3. Closing greetings.	Tenses”. 3. Closing greetings.
---	---

F. Technique of Data Collection

1. Post-test

The post-test was given by the researcher after both experimental and control groups of students have received treatment. 20 present tense questions in the form of active within 90 minutes. This test aimed to investigate the significant effect of students’ mastery of present tenses in active form after received the treatment. The post-test results were then compared by the researcher to determine whether or not the student’s effect after learning using Baamboozle.

G. Technique of Data Analysis

1. Data Description

The data was analyzed using the frequency distribution, which included the mean, median, mode, and standard deviation.

a. Mean

The mean is the arithmetic average of all scores. It is calculated by adding all of the scores and then dividing the sum by the number of scores. (McMillan & Schumacher, 2014)

b. Median

The median is the point that separates a rank-ordered distribution into two halves, each with an equal number of points. Thus, 50% of the scores are lower than the median, while 50% are higher. The median is unaffected by the scores' actual values. (McMillan & Schumacher, 2014)

c. Standard Deviation

The standard deviation is a numerical measure that represents the average variability in the scores. It tells us, in other words, about the average gap between the scores and the mean. (McMillan & Schumacher, 2014)

2. Pre-requisite Test

a. Normality test

The normality test determines whether experimental and control groups' data follow a normal distribution. The researcher applied the

SPSS program to analyze the normality test with Kolmogorov-Smirnov.

b. Homogeneity test

The homogeneity test indicates that two or more groups of data samples share the same variations. To examine homogeneity, the researcher employed SPSS 25 version and Levels Test.

3. Hypothesis testing

a. T-test

To test the hypothesis stating that there is a difference in mastery of grammar between students taught using Baamboozle Platform and students taught using conventional media. To determine the effect of this study, the researcher used the same t-test formula for experimental and control class respondents. Independent sample t-test is a test used to determine whether two unrelated samples have different means. So, the purpose of this statistical method is to compare the averages of two groups that are not related to each other.

Furthermore, (Singgih Santoso, 2014) provides the following decision-making criteria for the paired sample t-test based on the significance value (Sig. 2-tailed) of the SPSS output findings.

- 2) If the Sig. (2-tailed) is less than 0.05, reject H_0 and accept H_a .
- 3) If the Sig. (2-tailed) is more than 0.05, H_0 is accepted while H_a is rejected.