

## **CHAPTER III**

### **RESEARCH METHOD**

#### **A. Research Design**

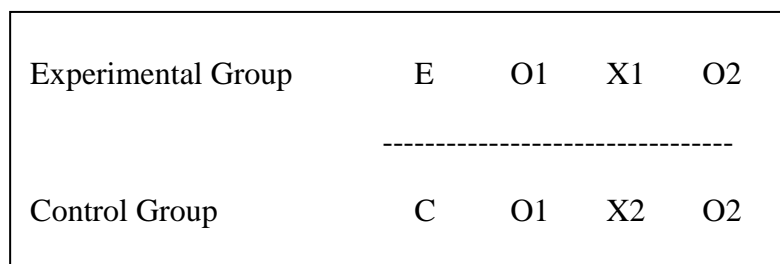
This study compares students in SMAN 1 Gambut's tenth grade who are taught reading using the MALL strategy integrated with Quizalize to those who are not in order to see if there is a significantly greater improvement in the students' reading comprehension achievement. In order to gather empirical data, the researcher uses a quantitative approach, in which statistics and numbers are employed to evaluate the data collection and test the study hypothesis.

The method used for this study is experimental design. Experimental design is the most definitive of scientific methods (Fraenkel, Norman, & Helen, 2006). The researcher established different treatments with the teacher to apply in class and then studied the effect and outcome. The researcher can establish cause-and-effect correlations between variables. Experimental design is one of the most potent research approaches available to researchers.

The experimental design used in the study is a quasi-experiments design. Quasi-experiment includes assignment, but not random assignment of participants to groups (Craswell, Zoeter, Taylor, & Ramsey, 2008). This is because the experimenter cannot artificially create groups for the

experiment. The opinion explains that the characteristic of this quasi-experimental research method is the selection of experimental groups that are not carried out randomly but determined by the researchers themselves based on certain variables. In relation to the selection of research subjects, researchers cannot always make a random selection of subjects. In random determination, researchers do not allow selecting and sorting of subjects according to their design. However, it may be that researchers are forced to accept classes or subject groups that have been determined by the school in accordance with school policy. This experimental research is intended as quasi-experimental research (Campbell & Stanley, 2015).

Regarding the research design related to quasi-experiments, this study used a quasi-experimental design with a non-equivalent group design. The nonequivalent group design is when the subjects for the experimental group and the control group are selected directly from the population non-randomly. The following is a diagram of this design:



Notes:

E = Experimental group

C = Control group

O1 = Pre-test

O2 = Post-test

X1 = Treatments with MALL strategy integrated with Quizalize

X2 = Treatments without MALL strategy integrated with Quizalize

The steps in an experimental study are nearly identical to those in other types of research. Typically, an experiment has two groups: experimental and control groups. The students do the pre-test, treatment, and post-test for the experimental group as part of the experimental design procedure, while for the control group, after completing the pre-test, the students participate in a post-test (at the same time as the experimental group) but without the treatment (Fraenkel, Norman, & Helen, 2006).

#### 1. Stages in Experimental Research

There are several stages in compiling experimental research (Campbell & Stanley, 2015). The several stages of experimental research include:

- a. Determine the ideas to be experimented with from a research problem

This stage is the initial stage, which considers whether an idea in the research problem is appropriate when using

experimental research. Based on the study's research question, the researcher tries to ascertain whether or not students who are taught utilizing the MALL strategy integrated with Quizalize show any appreciable improvement. Since experimental designs are frequently employed while doing research in educational settings to study the impact of a method on students' accomplishment, they are appropriate for the notion in this research topic. Experimental studies enable researchers to examine a strategy's effectiveness in educational settings. Comparisons between groups that have experienced different learning methods or interventions are also possible in experimental studies. Researchers can assess the outcomes of students who received the treatment compared to those who did not, giving them essential information about the strategy's efficacy (Campbell & Stanley, 2015). As a result, the researcher chose this design to solve the research question.

b. Form hypotheses on cause-and-effect relationships

The next step is to make a prediction and then collect data to test the hypothesis. A hypothesis is a type that is often used in experimental research rather than a form of research question. However, both can also be used. The study's formulated hypothesis is presented below:

- 1) There is no remarkable improvement in the students' reading comprehension achievement of students taught using the

MALL strategy integrated with Quizalize at the tenth-grade students of SMAN 1 Gambut academic year 2022/2023

2) There is a remarkable improvement in the students' reading comprehension achievement of students taught using the MALL strategy integrated with Quizalize at the tenth-grade students of SMAN 1 Gambut academic year 2022/2023

c. Select experimental units and identify study participants

One of the first stages in the preparation of an experiment is to determine the experimental unit. Class X A, the experimental unit used for this study, had 30 students, but the researcher only selected 28 to ensure equivalence between the experimental and control classes. Class XA was chosen for this study because it meets the requirement for the MALL treatment integrated with Quizalize that all the students bring their mobile phones to class.

d. Choose an experimental treatment and recognize it

A key to experimental design is to set the level of treatment and apply a level to each group, such as one level in the experimental group and another level in the control group. Next, compare the results of each group. In this study, the experimental class received treatment using the MALL strategy combined with Quizalize, whereas the control class received treatment using the traditional strategy.

e. Choose an experiment design type

Preparing for an experiment is choosing a design and providing a visual diagram. Researchers need to determine some basis for experimental activities, the availability of participants, and how well researchers can treat control from foreign influences. For this study, the researcher chose the quasi-experimental design with a non-equivalent group design since the subjects for the experimental group and the control group are selected from the population non-randomly but as a whole class.

f. Structuring an experiment

Structuring an experiment includes the procedure's right stages with the design selection. Which consists of:

- 1) Conducting the reading comprehension test that is used in this study.
- 2) Recognize the MALL strategy integrated with Quizalize as an experimental treatment for the experimental group.
- 3) Monitor processes so that threats to internal validity are minimized.
- 4) Make measurements for post-tests.
- 5) Use of ethical practice by informing the participants about the purpose and reasons for the experiment and asking their ideas about the events that occurred.

g. Organize and analyze data

## **B. Research Setting**

The researcher conducted the research from January 6, 2023, to February 17, 2023, with the tenth-grade students of SMAN 1 Gambut. This location was chosen because it meets the condition for this study, as the school permits students to bring their phones to class.

## **C. Population and Sample**

The population is the subject of engrossment to the researcher, the unit to whom the researcher seeks to extrapolate the study's findings. To put it another way, the population encompasses the entire research subject (Fraenkel, Norman, & Helen, 2006). Based on the above statement, the population of this study consisted of the nine classes of SMAN 1 Gambut tenth-graders, with 28–34 students in each class. Two hundred seventy-eight students made up the entire study's sample.

A sample is a collection of people from whom data is collected. The researcher utilized the purposive sampling technique to get a sample with the same or nearly identical characteristics as the research sample. Purposive sampling assumes that researchers may apply their knowledge of the population to determine whether or not a sample is representative (Fraenkel, Norman, & Helen, 2006).

The samples of this research were two classes (X A and X C). Those classes were taken as the research sample because they were

considered to have the same or minimally almost identical characteristics and were practically equal based on students' achievement in their English mean scores. They also have the same English teacher.

As a result, those classes –X A and X C – were regarded as representative samples of the population, with class X A as the experimental group and class X C as the control group. There are 30 students in class X A compared to 28 in class X C. The researcher only selects 28 students from each class to represent the sample to maintain parity between the experimental and control classes throughout the research. Fifty-six students are hence the fixed number in the sample. Class X A was chosen as the experimental class because this class met the requirement for implementing the MALL treatment integrated with Quizalize, in which all students of this class brought their mobile phones to the school. The experimental group is given a MALL treatment combined with Quizalize in period four meetings during the experiment. In contrast, the control group is not assigned MALL treatment, but only the conventional one.

#### **D. Research Instruments**

Instrument as the entire process of gathering data in a research study (Fraenkel, Norman, & Helen, 2006). In this research, the researcher used two instruments. They were achievement tests and documentation.



## 1. Test

In favor of getting the information for this study's research subjects, the researcher used a reading comprehension test. It's used to look into how well students comprehend text. There are twenty-five multiple-choice questions in the test.

The reading comprehension test is directed to experimental and control classes as a pre-test and post-test. The pre-test is used to ascertain the students' prior successes, while the post-test is used to ascertain the students' subsequent accomplishments.

## 2. Documentation

The act of collecting data from written sources is known as documentation. It is used to gather information about the learning and teaching process. The researcher will collect English subject syllabuses for this research. It will be collected from English teachers who teach SMAN 1 Gambut students in the tenth grade or from other sources and is used to create a lesson plan for either the experimental or control class.

### **E. Validity and Reliability of Instruments**

The researcher conducted or administered the try-out test before using the instrument in this research on the study samples. This is done to

investigate and ensure the instrument's validity, as well as to ensure that the instrument is sufficient.

Because study results are founded on the data gathered using these instruments, the quality of the tools utilized in research is essential. In order to ensure that the conclusions they draw from the data they gather are legitimate and dependable, researchers use a range of approaches. Validity refers to how acceptable, meaningful, accurate, and useful a researcher's conclusions are. At the same time, reliability assigns to the steadiness of results or scores from one administration of an instrument to the next as well as from one set of items to the next. When arriving at the right findings, both notions must be taken into account (Fraenkel, Norman, & Helen, 2006).

The try-out test was conducted on January 6, 2023, for students in class X B. The test consists of thirty-five multiple-choice questions. The test material was adapted from English textbooks that the tenth-grade students of senior high school use.

#### 1. Validity

When creating or choosing an instrument for use, validity is the most important notion to take into account (Fraenkel, Norman, & Helen, 2006). The validity test was used to assess the validity of the data collected by an instrument. Additionally, the researcher evaluates or analyzes the validity of each test question using the ANATES application, where the calculation results are obtained automatically.

## 2. Reliability

The consistency of scores or responses from one instrument administration to the next and from one set of items to the next is referred to as reliability (Fraenkel, Norman, & Helen, 2006). The test's reliability is tested by the researcher using the ANATES application, where the coefficient reliability is computed by entering the students' responses to each instrument's item.

The coefficient dependability is interpreted using the following standards:

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**Table 3.1 The Criteria of the Reliability Test**

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<b>Raw Scores</b>	<b>Interpretation</b>
0,000 - 0,200	Very Low
0,200 - 0,400	Low
0,400 - 0,600	Moderate
0,600 - 0,800	High
0,800 - 1,000	Very High

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(Arikunto, 2006)

## F. Data Collection Procedure

### 1. Planning Phase

During the planning phase, the researcher assembled materials, compiled a list of student names, and devised a scoring system. Before

commencing the study, the researcher ensured that a schedule for study time was in place.

## 2. Try-Out Phase

The researcher conducted a try-out test on the instrument before utilizing it to ensure its validity and dependability. Class X B, which had 32 students, was chosen for the try-out test on January 6, 2023. The researcher only chooses 28 out of the 32 students in class X B to preserve parity with the experimental and control classes. There are 35 multiple-choice questions on the test. The test materials were taken from English textbooks that senior high school students used in the tenth grade.

## 3. Pretest Phase

The pretest was administered to the students in the first meeting before they received their respective treatments. The pretest aimed to serve as an assessment tool to gauge the students' mastery of the subject matter. The pretest contained twenty-five multiple-choice questions. The pretest was distributed to both the control and experimental classes.

## 4. Treatment Phase

After the pretest was given, the experimental class received instruction on reading comprehension using the MALL integrated with Quizalize treatment, while the control class was instructed using conventional methods. The treatment process lasted for six meetings,

with the first meeting being the pretest phase. The second to fifth meetings for the experimental class consisted of learning activities using the MALL integrated with the Quizalize treatment. In contrast, the control class consisted of learning activities using the conventional method. The treatment process involved the teacher preparing the learning materials, distributing question sheets and answer sheets in a disordered formation, giving the students time to answer the questions, evaluating their answers, and collecting the answers for assessment.

#### 5. Post-test Phase

After the treatment process, a post-test was administered to the sample to determine the extent of their reading comprehension. The post-test was conducted at the end of the meeting and assessed the student's score after the whole treatment process.

### **G. Data Analysis**

Researchers carry out descriptive analysis on the use of statistical analysis programs. This descriptive analysis can provide a first view of the research results and filter the results that are read for a measurement result (Campbell & Stanley, 2015). This stage is the first stage in data analysis. Next, researchers began to analyze group comparisons of measurement results. And provide useful information to answer hypotheses or research questions.

In this study, the document and the result of the reading comprehension test are analyzed based on the following steps:

1. The researcher compiles the senior high school's tenth-grade syllabus as a document. When creating the lesson plan for the experimental or control class, it will be utilized as a guide.
2. Following that, the pre-test and post-test are administered in this study. The formula below will be used to calculate the students' scores when comparing their pre-test and post-test results:

$$Score = \frac{Total\ Correct\ Answer}{Total\ of\ Questions} \times 10$$

After that, those students' scores are interpreted using the scoring standard in SMAN 1 Gambut.

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**Table 3.2 Score Interpretation**

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<b>Score</b>	<b>Interpretation</b>
$\geq 90$	Excellent
80.00 – 89.99	Very Good
70.00 – 79.99	Good
60.00 – 69.99	Fair
$< 60$	Fail

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3. The researcher managed the normality test after getting the experimental and control class post-test scores. This test was done to ascertain whether the data were distributed normally or not.

In this study, researchers typically utilize SPSS version 25 to assess the data's normalcy. The following criteria are considered while deciding whether to perform a normality test:

- b. The data are regularly distributed if the significance value  $> 0.05$ .
- c. The data are not regularly distributed if the significance value  $< 0.05$ .

5. Next, after the normality test, the researcher tests the homogeneity of the two sample variances. The researcher utilized SPSS 25 to compute the data.

The basis used in deciding the homogeneity of the two sample's variances are:

- a. Data are not homogeneous if the significance value  $< 0.05$ .
- b. Data are homogeneous if the significance value  $> 0.05$ .

6. Testing hypothesis

Since the researcher uses a group as a comparison, the t-test is utilized to examine the significant improvement in the students' reading comprehension performance achieved by the students who are taught reading using the MALL approach combined with Quizalize at the tenth-grade students of SMAN 1 Gambut.

The researcher used a t-test to compare the mean score of the two classes on the post-test before testing the hypotheses. The T-test is examined by the researcher using the SPSS 25 application.

Then, after the researcher obtained the-test score, the researcher compared the critical value in the t-table and t-test result as the observed statistic.

- a.  $H_a$  will be rejected if the t-test score  $<$  t-table indicates no remarkable contrast in students' reading comprehension among those taught reading using the MALL strategy integrated with Quizalize and those who did not.
- b.  $H_a$  will be accepted if the t-test score  $>$  t-table indicates a remarkable contrast in students' reading comprehension among those taught reading using the MALL strategy integrated with Quizalize and those who did not.