CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

Research is conducted to collect data for investigative purposes, which can be acquired through scientific methods. According to Sugiyono (2016), A research method is an organized procedure for collecting data, designed to achieve specific goals and applications. In principle, all research methods are valid and applicable, but selecting the appropriate method depends on the nature of the problem being investigated.

This study investigated the impact of the Kahoot application on improving students' writing abilities. A quantitative approach utilizing a quasi-experimental design was employed to achieve the research objectives. According to Sugiyono (2022, p.72), there are various types of experimental designs, including: 1) pre-experimental design, 2) true experimental design, 3) factorial design, 4) quasi-experimental design.

In this study, the quasi-experimental One-Group Pretest-Posttest design was chosen because it provides a practical approach to measuring changes resulting from an intervention (treatment) without requiring a control group. This design involves a single group that undergoes a pretest before the intervention and a posttest after the intervention, allowing researchers to assess the effects of the treatment.

According to Sugiyono (2022, p. 75), the One-Group Pretest-Posttest design is used to measure differences before and after a treatment within a single group, despite its limitation of lacking a comparison group. Additionally, Creswell (2012) states that this design is frequently employed in educational and social research when forming an equivalent control group is challenging.

Furthermore, Campbell & Stanley (1963) emphasize that although this design does not fully eliminate threats to internal validity, such as history effects and maturation effects, it still provides valuable insights into potential relationships between independent and dependent variables. To enhance the validity of the results, researchers may apply

techniques such as data triangulation or additional statistical analyses to minimize bias.

The quasi-experimental PreTest Postest Design.which is an experimental study conducted on a single group selected randomly, without conducting a stability and clarity test of the group's condition before treatment is given. This *One-Group Pretest-Posttest Design* is measured using tests administered before the treatment (Pretest) and after the treatment (*Posttest*).

This methodology involved administering a pre-test to the experimental group to establish baseline performance levels prior to the intervention. Once the treatment was implemented, a post-test was conducted to assess the effects of the intervention. The subsequent section provided an overview of the One-Group Pretest-Posttest Design table utilized in this research.

Table 1.1 Research Design one group Pre Test Post test Design

Pre-Test	Treatment	Post-Test
O1	**X1**	**O2**

Description :

O1 : Pretest

O2 : Postest

X : Application of the treatment

B. Population and Sample

1. Population

All individuals involved in the study were considered participants. Population research was conducted when a researcher aimed to examine all aspects of a research area (Arikunto, 2016, p. 173). Similarly, Margono (2005, p. 118) stated that the population included all data relevant to the study within a defined scope and timeframe. Based on these definitions, this study focused on a single class as the research object. The observations were carried out in the second semester at STIES NU Bengkulu.

2. Sample

The sampling technique referred to a method employed in research to select participants (Sugiyono, 2014, p. 116). It aimed to identify individuals who

possessed specific characteristics relevant to the study (Turner, 2020). Given the relatively small population, the authors opted for purposive sampling as the sampling technique. Experimental research, on the other hand, was a method used to investigate the impact of a specific treatment under controlled conditions. This research employed a one-group pretest-posttest design, utilizing a single experimental group without the inclusion of a control or comparison group. The experimental approach was applied to investigate the influence of the Kahoot application on students' writing proficiency. The design centered on a single sample, specifically the experimental group, to assess changes before and after the intervention.

C. Technique Collecting Data

This research involved administering a pre-test to collect preliminary data, which established a baseline for evaluating participants' skills prior to the implementation of the treatment. Conversely, a post-test was implemented to evaluate participants' abilities after the treatment had been

applied, allowing for a comparison of results to measure the impact of the intervention.

D. Instruments of The Research

One of the critical aspects of any study was collecting data that aligned with the research problem. To gather accurate and relevant data, appropriate instruments were essential. For in-depth information, researchers often required additional supporting tools. In this study, the main tool employed was an essay-based assessment, utilized for both pre-test and post-test evaluations. The assessment included essay prompts aligned with the topics students were required to discuss. The tool was adapted from a framework developed in prior research by LY Hutasoit (2024). To ensure the quality of the instrument, the researchers assessed its validity and reliability. Validity was confirmed through expert review by validators, while reliability was tested to ensure consistency. The test evaluated writing ability based on four criteria outlined by Tamimi (2014): content, coherence and cohesion, grammar, vocabulary, and mechanics.

The tools and materials utilized by the researchers to facilitate their study include:

1. Test of Writing

   The assessment of learning outcomes is commonly conducted through teacher-created tests, which were specifically designed to evaluate students' proficiency in writing. These tests included tasks that were closely aligned with the instructional methods and learning processes. Their primary goal was to gauge the progress in students' learning achievements, helping them enhance their writing skills and effectively structure their ideas into coherent paragraphs.

   To analyze the impact of the Kahoot Application on students' writing performance, the researchers implemented a writing test. This test was divided into two phases: a pre-test, which was administered prior to the intervention, and a post-test, which was conducted after the classroom-based treatment. The comparison of results from both tests provided

insights into the effectiveness of the Kahoot Application in improving students' writing abilities.

2. Documentation

The last tool utilized in this research was documentation, which enabled researchers to gather data such as student scores, student data, and permit documents.

To assess writing performance, the analytic scoring method introduced by Ried (1993) was employed. This approach evaluated writing across five main components: content, organization/structure, vocabulary/style, grammar/language use, and mechanics. Table 1 provided a breakdown of the criteria used to classify students' writing proficiency based on these dimensions.

Table 1. The assessment of students' writing skills

Score	Categorization	Description
89-100	Excellent	Students demonstrate a strong understanding of the topic and can

		effectively describe it in their writing.
79 – 88	Good	Students produce well-written descriptive texts, showcasing good writing skills.
66 – 78	Fair	Some students can speak English fairly well, but their writing lacks sufficient vocabulary mastery.
46 – 65	Poor	Students' writing contains numerous errors in language and grammar usage.
0 – 45	Very Poor	Students struggle with mechanical aspects such as spelling, punctuation, word choice, and sentence

		structure, showing little to no understanding of these elements.

The structure for the research tools used to evaluate writing, as described by Tamimi (2014, p. 18), is presented as follows:

Table 2. Framework of Writing Skills Test

No	Variable	Components of writing	Indikator	Items
1		Content	Identifying information in writing that is developed in an essay, ensuring alignment between the title and the content of the text.	1

2	Writing Skills	Evident and Cohesion	Analyzing the essay to ensure logical organization and coherence between paragraphs.	1
3		Grammatical	Correct use of grammatical forms and structural patterns.	1
4		Vocabulary & Mechanic	Appropriate use of vocabulary, punctuation, spelling, and capitalization in the text	1
Total				**11**

E. Research Procedure

1. Pre-test

Before introducing the Kahoot Application, the researcher administered a pre-test. This test involved students completing a writing task focused on descriptive text, aimed at assessing their initial writing abilities. The results served as a baseline to measure improvements in their writing skills after the intervention.

2. Give treatment

After conducting the pre-test and evaluating the students' initial abilities, the next step involved using the Kahoot Application to measure and enhance their writing skills. The treatment was administered three times, with each session lasting two hours and forty minutes, scheduled according to the English lesson timetable. This study focused on a single group, consisting of students from STIESNU (Sekolah Tinggi Ilmu Ekonomi Sharia Nahdlatul Ulama) Bengkulu Sharia Economics Program, who participated in the research.

3. Post-test

The post-test had been administered following the implementation of the treatment in the classroom. This concluding assessment had included writing prompts that were comparable to those in the pre-test but had featured a different theme and a higher level of complexity. The primary objective of the post-test had been to evaluate whether the treatment had a significant impact on students' writing skills. Additionally, it had enabled a comparison of pre-test and post-test scores to determine if there had been improvement, stability, or a decline in performance. The data collected from the test had then been analyzed using the SPSS 26 software to ensure precise and comprehensive evaluation.

F. Data Analysis Techniques.

Once the data had been gathered the researcher used SPPS, the tools used (pre-test and post-test) and their outcomes had been examined to answer the research questions. The results from each instrument had been thoroughly explained, offering a detailed and coherent

summary of the findings. This descriptive evaluation had aided in interpreting the effects of the treatment and assessing the overall success of the study.

1. Normality Test

The normality test was utilized to assess whether a dataset adhered to a normal distribution, often visualized as a bell-shaped curve. In this research, the Shapiro-Wilk normality test had been applied. This method had compared the sample data's distribution to a normal distribution to determine if they matched. It had analyzed the sample's distribution by examining its standard deviations and mean scores in relation to those of a normal distribution. The normality test had been performed using a significance level (α) of 0.05, ensuring a 95% confidence interval for the findings.

2. Hypothesis Test

To evaluate the hypothesis in this study, the author employed the T-test formula,a paired t test type in SPSS. This involved comparing the computed T-value with the critical T-value obtained from the T-table. This

comparison was used to assess whether the independent variable exerted a statistically significant influence on the dependent variable. The null hypothesis was accepted or rejected as determined by the following criteria:

1) If *Tcount<Ttable,* Ho (the null hypothesis) is accepted when there is no significant effect of the independent variable on the dependent variable..
2) If*Tcount >Ttable,* Ho (the null hypothesis) is rejected when there is a significant effect of the independent variable on the dependent variable.
3) The T-test is used to examine the interaction between the independent and dependent variables. If*Tcount≤Ttable,* or *Tcount ≥Ttable* then Ha is rejected and Ho received.
4) If*Tcount >Ttable,* or *Tcount<Ttable* then Ha is accepted and Ho rejected.

The Paired T-Test formula is:

$$t = \frac{\bar{D}}{\frac{s_D}{\sqrt{n}}}$$

Where :

D = Mean of the differences between paired observations

sD = Standard deviation of the differences

n = Number of pairs