CHAPTER III

RESEARCH METHOD

This chapter outlines the research design, population and sample, research instruments, data collection techniques, the process of data collection, data analysis techniques.

A. Research Design

This study used quasi-experimental design, which involved a pre-test, treatment, and post-test. The quasi-experimental design was chosen because, in this context, the researcher could not fully control or manipulate all relevant variables. As explained by Creswell (2012), a quasi-experimental design was an appropriate method for studies in which subject groups were already pre-established, allowing the research to be conducted under real-world conditions. Furthermore, according to Harris et al. (2006), this design was often used to evaluate the impact of interventions by using pre- and post-intervention measurements, even though the control groups were not randomly selected. The primary purpose of this design was to demonstrate a causal relationship between the intervention and the outcomes obtained.

This study involved two main variables, the independent variable and the dependent variable. The use of the Praktika application as a technology-based learning medium served as the independent variable, while the improvement of students' speaking skills was the dependent variable. According to Sugiyono (2017), the independent variable was often referred to as the treatment variable because it directly influenced the dependent variable,

while the dependent variable referred to the outcomes or effects measured in the study.

Table 3.1 Research Design

Class	Pre-Test	Treatment	Post-Test
E	Y1	Using Praktika	Y2
C	Y1	Using Pictures	Y2

Explanation:

E : Experimental group.

C : Control group.

Y1: Pre-Test for Experimental and Control group.

Y2: Post-Test for Experimental and Control group.

B. Population and sample

According to Sugiyono (2018) stated that a population is a group of objects or subjects that possess specific characteristics and traits determined by the researcher as the focus of study, from which conclusions will later be drawn based on the research findings. In this study, the population selected is all 11th-grade students at MA Nurul Islam for the 2024/2025 academic year, totaling 125 students, consisting of 4 classes. The decision to choose this school is based on the fact that the Praktika.ai application is already familiar to the students there.

According to Sugiyono (2018), a sample is a part of the population that possesses the same characteristics. In experimental research, the sample can be non-randomly selected from existing classes. In this study, the sample was non-randomly selected by choosing two classes, namely class 11 A and 11 B, with

a total of 71 students. The selection of class 11 A and 11 B was recommended by the English teacher at MA Nurul Islam Lampung.

C. Research Instrument

The instrument used in this study is a speaking task, where student are asked to speak in front of the class with their desk partner to measure their speaking ability. This test consists of two parts, namely the pre-test and post-test, each of which aims to assess the student' abilities before and after receiving treatment.

1. Pre-test

   The pre-test is given to students before they receive treatment. The purpose of the pre-test is to assess students' speaking ability before they receive treatment. In the pre-test, the researcher asks students to create a dialogue with their desk partner on the theme of asking and giving directions. This pre-test is used to obtain the students' initial scores. The complete pre-test can be seen in appendix 1.

2. Post-test

   The post-test is given to students after they receive treatment. The purpose of the post-test is to assess the improvement in students' speaking ability after the treatment has been given. In the post-test, the researcher will ask students to perform a dialogue in front of the class with their desk partner, using the agreed-upon topic of asking and giving directions. The complete post-test can be seen in appendix 2.

3. Assessment Rubric

To carry out the pre-test and post-test, the researcher adopts an assessment rubric from Harris (1969) as cited in rikha (2022), which is used to assess fluency, grammar, pronunciation, vocabulary, and students' communication ability during the speaking test.

Table 3.2 Scoring Rubric of speaking Test

Aspect	Score	Qualifications
Pronunciation	5	Speech is smooth and natural, similar to a native speaker.
	4	Always understandable, though a clear accent is present.
	3	Pronunciation issues sometimes make understanding difficult.
	2	Hard to understand due to frequent mispronunciations, often asked to repeat.
	1	Severe pronunciation errors make the speech incomprehensible.
Grammar	5	Excellent grammar and sentence structure with almost no mistakes.
	4	Occasional minor errors that don't interfere with meaning.
	3	Frequent grammatical mistakes that affect clarity
	2	Poor sentence structure often requires rephrasing or simplification
	1	Grammar is extremely poor, making speech nearly impossible to understand.
Vocabulary	5	Uses vocabulary and expressions close to a native speaker.
	4	Sometimes chooses inappropriate words or rephrases due to limited vocabulary.
	3	Often uses incorrect words, limiting storytelling ability
	2	Very limited vocabulary makes it difficult to convey ideas.
	1	Vocabulary is so limited that storytelling is nearly impossible.

Fluency	5	Speech is fluent and effortless like that of a native speaker.
	4	Fluency slightly affected by language difficulties.
	3	Speed and fluency are clearly affected by language issues.
	2	Often hesitates or pauses due to language problems.
	1	Speech is so broken that conveying a message is nearly impossible.
Comprehension	5	Understands everything with ease.
	4	Understands nearly all at normal speed, with occasional repetition needed.
	3	Understands most content when spoken slowly and repeated.
	2	Struggles to follow what is being said.
	1	Cannot understand even simple storytelling in English.

Criteria for score:

5 = Excellent

4 = Very Good

3 = Good

2 = Poor

1 = Very Poor

D. Treatment Procedure

This research used quasi-experimental design. The researcher as the teacher applies treatment procedures to experimental group and the control group. The experimental group was taught by researcher using praktika.ai application and the control group was taught by researcher using image.

Table 3.3 The Treatment Procedure

Experimental Group	Control Group

Opening	Opening
- Greeting - Asking the Students' Condition - Checking the Attendance List - Reviewing the Previous Material - Explaining Today's Material	- Greeting - Asking the Students' Condition - Checking the Attendance List - Reviewing the Previous Material - Explaining Today's Material
The researcher explained the material of the day, which was about 'Asking and Giving Direction.	The researcher explained the material of the day, which was about 'Asking and Giving Direction.'
The researcher provided some examples of expressions used to ask for and give directions, followed by a short demonstration dialogue.	The researcher provided some examples of expressions used to ask for and give directions, followed by a short demonstration dialogue.
The students were instructed to take out their phones and open the Praktika.ai application. The researcher guided them to the practice session related to asking and giving directions.	The students were asked to choose a picture agreed upon together, such as a city map, school layout, or road illustration.
The students interacted directly with the AI tutor in the application, practicing dialogues such as 'Where is the nearest post office?' or 'How can I get to the train station?'	Using the selected picture, the students worked in pairs to create a dialogue based on the situation shown.
The students were asked to take notes of every correction or feedback given by the AI tutor.	The students were given time to write and prepare their dialogue.
After completing the speaking session in Praktika, the students performed a pair dialogue in front of the class based on what they had practiced with the AI tutor.	After that, the students performed the dialogue in pairs in front of the class.
The researcher gave feedback on the students' speaking performance and asked about the corrections they received from the Praktika.ai application.	The researcher gave feedback on the students' speaking performance, focusing on fluency, pronunciation, and sentence structure.
To conclude, the students were asked to summarize the material and present the learning outcomes along with the corrections they had noted from the AI tutor.	To conclude, the students were asked to summarize the material and write down key expressions they had learned.
The researcher informed the students about the next lesson plan.	The researcher informed the students about the next lesson plan.

Table 3.4 The Schedule of The Activity

Activity	**Experimental class**	**Control class**

Pre-test	23th January 2025	23th January 2025
Treatment 1	30th January 2025	30th January 2025
Treatment 2	6th February 2025	6th February 2025
Treatment 3	13th February 2025	13th February 2025
Post-test	20th February 2025	20th February 2025

E. Data Collection

There are some steps in collecting data. First, the researcher gives a pre-test to the students to assess their initial speaking skills. This pre-test is a speaking test designed to determine the students' speaking proficiency before the treatment is given. Second, after conducting the pre-test, the researcher provides different treatments to the two groups. The experimental group, consisting of students from class 11 A, receives treatment using the Praktika application to practice their speaking skills. Meanwhile, the control group, consisting of students from class 11 B, is given speaking practice by describing pictures provided by the researcher. Third, after the treatment has been delivered over several sessions, the researcher gives a post-test to all students in both groups to measure the improvement in their speaking skills after the treatment. Finally, the researcher analyzes and compares the results of the pre-test and post-test from both groups to determine whether there is a significant difference in speaking skill improvement between the group using the Praktika application and the group using picture.

F. Data Analysis

The data analysis technique used in this study was statistical analysis through the Analysis of Covariance (ANCOVA). In this case, ANCOVA was employed to analyze the data in order to determine whether there was a

significant difference between two classes: the experimental class, which was taught using the Praktika.ai application, and the control class, which was taught using picture media in improving English speaking skills.

Since ANCOVA is a type of parametric test, it is necessary to examine several underlying assumptions before conducting the main analysis to ensure that the results are valid and can be interpreted accurately. Therefore, the researcher first conducted tests for normality, homogeneity of variance, linearity, and homogeneity of regression. All tests were performed using IBM SPSS Statistics version 23. To analyze the data and ensure that all assumptions were met, the researcher carried out the following steps:

1. Normality test

   The normality test was conducted before performing the main analysis. This is essential because many statistical procedures, particularly parametric tests such as ANCOVA, require the assumption of normality to be fulfilled in order for the results to be considered valid (Ghasemi & Zahediasl, 2012). According to Nuryadi et al. (2017), the normality test is a procedure used to determine whether the data come from a normally distributed population.

   In this study, the normality test was used to determine whether the data from the experimental group taught using the Praktika.ai application and the control group taught using pictures were normally distributed or not. The normality test was conducted using the Shapiro-Wilk test with the help of SPSS version 23. The Shapiro-Wilk test was chosen because it is more

appropriate for sample sizes under 50 or when the data set is not large. The decision-making criteria for the normality test are as follows:

a. If the significance value (Sig.) > 0.05, the data are normally distributed

   This means that there is no significant difference between the sample data distribution and a normal distribution. In other words, the data distribution is considered to follow a normal pattern, indicating that the assumption of normality is met and the data are appropriate for parametric analysis such as ANCOVA.

b. If the significance value (Sig.) ≤ 0.05, the data are not normally distributed

   This indicates a significant difference between the sample data distribution and a normal distribution. Therefore, the data do not meet the assumption of normality. In such a case, the use of parametric tests such as ANCOVA should be reconsidered or the data may need to be transformed to meet the required assumptions.

2. Homogeneity Test

After conducting the normality test, a homogeneity of variance test was carried out using Levene's Test. This test aims to determine whether the variances between the experimental and control groups are equal or different. Homogeneity is a crucial assumption in ANCOVA to ensure that comparisons between groups are made fairly and reliably, without being influenced by differences in the data spread of each group. The analysis was conducted using SPSS version 23. The criteria for decision-making are as follows:

a. If the significance value (Sig.) > 0.05, the data are considered homogeneous.

   This means there is no significant variance difference between the experimental and control groups. Therefore, it can be concluded that the variances of the two groups are equal, the assumption of homogeneity is met, and ANCOVA analysis can proceed.

b. If the significance value (Sig.) ≤ 0.05, the data are considered not homogeneous.

   This indicates that there is a significant variance difference between the two groups. In other words, the homogeneity assumption is not fulfilled, and the ANCOVA analysis results may be invalid due to unequal data spread between groups.

3. Linearity Test

   The linearity test aims to determine whether there is a linear relationship between the covariate, namely the pre-test scores, and the dependent variable, namely the post-test scores. This assumption is essential to ensure that ANCOVA can adjust accurately for initial group differences. If the relationship between variables is linear, the statistical model can better predict the outcome. The linearity test was conducted using SPSS version 23. According to Purnomo (2016), analytical techniques can only be accurately applied if the relationship between variables is linear. The criteria for decision-making are as follows:

   a. If the significance value (Sig.) > 0.05, the relationship between variables is linear.

This indicates there is no deviation from linearity between the pre-test and post-test scores. In other words, the linearity assumption is fulfilled, and ANCOVA can be applied validly.

b. If the significance value (Sig.) ≤ 0.05, the relationship between variables is not linear.

This means there is a deviation from the linear pattern, suggesting that the relationship between pre-test and post-test scores is not linear. In such cases, the use of ANCOVA may be inappropriate, as it can lead to biased results.

4. Homogeneity of Regression Test

The homogeneity of regression test aims to ensure that the relationship between the covariate and the dependent variable remains consistent across both the experimental and control groups. This assumption is crucial in the application of ANCOVA, as the analysis requires that the regression lines between the covariate and the dependent variable have the same slope across all groups. This test is conducted by analyzing the interaction between the pre-test scores as the covariate and the grouping variable (experimental and control groups), using SPSS version 23. The decision-making criteria are explained as follows:

a. If the significance value (Sig.) > 0.05, the regression slope is homogeneous.

In other words, no significant interaction was found between the covariate and the group variable, indicating that the relationship between the covariate and the dependent variable is consistent across all groups.

Therefore, the assumption of homogeneity of regression is met, and ANCOVA can be used appropriately.

b. If the significance value (Sig.) ≤ 0.05, the regression slope is not homogeneous.

   This indicates that there is a significant interaction between the covariate and the group variable, meaning the relationship between pre-test and post-test scores differs across groups. As a result, the assumption of homogeneity of regression is not fulfilled, and ANCOVA may not be the appropriate analysis method.