

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

The research design used in this study was a quasi-experimental design, specifically the Non-Equivalent Control Group Design. According to Sugiyono (2018) quasi-experimental research is a type of experimental research in which the researcher cannot fully control all external variables and does not randomly assign subjects into groups. This design is commonly used in educational research when the classes have already been formed and cannot be reorganized.

In this study, the researcher used intact classes of eighth-grade students at MTsN 6 Agam. One class was assigned as the experimental group, and another class was assigned as the control group. The experimental group received reading instruction using the Beelinguapp application, while the control group was taught using conventional teaching methods such as reading texts from textbooks and answering comprehension questions.

Both groups were given a pre-test before the treatment to measure students' initial reading comprehension ability. After the treatment was completed, both groups were given a post-test to measure students' reading comprehension after the treatment. According to Sugiyono (2018) the use of pre-test and post-test in quasi-experimental research is important to determine the effectiveness of a treatment by comparing students' achievement before

and after the intervention. The design of the study can be illustrated as follows:

Table 3. 1
Research Design

Group	Pre-test	Treatment	Post Test
Experimental Group	O ₁	X (Beelinguapp)	O ₂
Control Group	O ₃	C (Conventional Method)	O ₄

Where:

O₁ and O₃ = pre-test scores of experimental and control groups

O₂ and O₄ = post-test scores of experimental and control groups

X = treatment using Beelinguapp

C = reading instruction using conventional method

This research design is appropriate because it allows the researcher to compare students' reading comprehension results between the experimental group and the control group, as well as before and after the treatment. By referring to Sugiyono (2018) this quasi-experimental design is suitable for determining the effect of using the Beelinguapp application on the eighth-grade students' reading comprehension of descriptive text at MTsN 6 Agam.

B. Variable of the Research

This study employed a quantitative research approach involving two variables, namely the independent variable (X) and the dependent variable (Y). The purpose of this research was to examine the effect of Beelinguapp

media on the reading comprehension of the eighth-grade students at MTsN 6 Agam.

The independent variable (X) in this study was Beelinguapp media. Beelinguapp is a digital language learning application that provides bilingual reading texts and audio narration. In this research, Beelinguapp was used as a digital instructional medium to present English reading materials to the eighth-grade students through an LCD projector (infocus). The use of Beelinguapp provided students with bilingual texts and audio support during reading activities.

The dependent variable (Y) in this study was students' reading comprehension. Reading comprehension refers to the students' ability to understand and interpret information presented in written texts. In this research, students' reading comprehension was measured through a reading comprehension test consisting of several indicators, namely identifying the main idea, finding specific information, understanding vocabulary in context, identifying references, making inferences, and identifying the purpose of the text. The students' reading comprehension was measured through pre-test and post-test scores before and after the treatment.

Thus, this research focused on examining the effect of Beelinguapp media (X) on students' reading comprehension (Y) in understanding descriptive texts. Descriptive text was used as the reading material in this research and was not considered as a separate variable.

C. Population, Sample and Sampling Technique

1. Population

According to Sugiyono (2018) population was a generalization area consisting of subjects or objects that have certain qualities and characteristics determined by the researcher to be studied and then drawn a conclusion from. In this study, the population referred to all eighth-grade students of MTsN 6 Agam in the academic year 2026/2027.

At MTsN 6 Agam, the eighth grade consisted of eighth classes, with each class comprising approximately 32 students, bringing the total population to around ± 256 students. These students share similar curriculum exposure and English learning materials, particularly descriptive text, making them appropriate as the population for this quantitative research.

2. Sample

According to Sugiyono (2018) a sample is a part of the population that is selected using certain procedures and is considered to represent the characteristics of the entire population. The sample must reflect the qualities and characteristics of the population so that the conclusions drawn from the sample can be generalized.

In this research, the sample consisted of two classes taken from the eighth-grade students of MTsN 6 Agam. Since there are eight classes in total, the researcher selected two classes as the sample, with one class assigned as the experimental group and one class assigned as the control group. Each

class consisted of approximately 32 students, so the total number of sample participants was 64 students.

- a. Experimental Class: Receives treatment using the Beelinguapp application as a learning tool for descriptive text.
- b. Control Class: Is taught using conventional reading instruction without the Beelinguapp application.

This sampling decision aligns with the quantitative design used in the study, which requires two comparable groups for pretest–treatment–posttest analysis.

3. Sampling Technique

The sampling technique used in this study was Cluster Random Sampling, as suggested by Sugiyono (2018) which is commonly applied when the population is naturally divided into groups or clusters, such as classes.

In this research, the researcher randomly selected two out of the eight existing eighth-grade classes through a lottery conducted together with the English teacher. The selected classes were Class VIII.1 as the experimental class and Class VIII.5 as the control class. Each class represented one cluster, and all students in the selected classes were included in the sample. This technique was appropriate because the students were already organized into intact classes, making the sampling process more practical and minimizing disruption to the school schedule.

D. Time and Place of the Research

This research was conducted at MTsN 6 Agam, located in Agam Regency, West Sumatra, Indonesia. The subjects of this research were the eighth-grade students of MTsN 6 Agam in the 2026/2027 academic year.

The research was carried out during the first semester of the 2026/2027 academic year. The research was conducted for approximately two weeks, consisting of four meetings. The activities included the administration of the pre-test, the implementation of teaching and learning activities, the treatment using the Beelinguapp application in the experimental class, conventional teaching in the control class, and the administration of the post-test.

E. Technique of Data Collecting

According to Sugiyono (2018) data collection technique was a systematic procedure used by the researcher to obtain the required data. In this research, the technique of data collection is a reading comprehension test. The test was administered to both the experimental class and the control class in the form of a pre-test and post-test.

The procedures of data collection are as follows:

1. Pre-test

The pre-test was given to the experimental and control classes before the treatment. The purpose of the pre-test was to measure students' initial ability in understanding descriptive text. The pre-test consisted of 20 multiple-choice items based on descriptive texts.

2. Treatment

The treatment was administered to the experimental class by using the Beelinguapp application through an LCD projector integrated with the KWL strategy. Meanwhile, the control class was taught using the same KWL strategy with printed versions of the same descriptive texts taken from the Beelinguapp application, without using the application's digital features.

3. Post-test

After the treatment, the same type of test was administered to both groups. The post-test was used to determine whether there is an improvement in students' reading comprehension after the use of Beelinguapp. The results of the post-test were then compared with the pre-test scores.

F. Procedure of Treatment

The treatment in this research was conducted in four meetings. The experimental class was taught using Beelinguapp through an LCD projector integrated with the KWL strategy, while the control class was taught using the same KWL strategy with conventional learning media such as textbooks and worksheets. The detailed treatment procedures are presented in the following table.

Table 3.2
Treatment Procedure Using KWL Strategy

Research Stage	Experimental Class (Using Beelinguapp)	Control Class (Without Beelinguapp)
Pre-Test (Meeting 1)	. The researcher administered a pre-test to measure the students' initial reading comprehension ability. . The test consisted of 20 multiple-choice questions based on descriptive texts. . The indicators covered the main idea, specific information, vocabulary in context, reference, inference, and communicative purpose. . The time allocation was 40 minutes.	The researcher administered a pre-test to measure the students' initial reading comprehension ability. The test consisted of 20 multiple-choice questions based on descriptive texts. The indicators covered the main idea, specific information, vocabulary in context, reference, inference, and communicative purpose. The time allocation was 40 minutes.
Treatment 1 (Meeting 1)	Know Stage : 1. The researcher introduced descriptive text by using PowerPoint. 2. The students shared their prior knowledge about descriptive text.	Know Stage: 1. The researcher introduced descriptive text by using PowerPoint. 2. The students shared their prior knowledge about descriptive text.

	Want Stage : 1. The students expressed what they wanted to know about the topic. 2. The researcher displayed the descriptive text entitled " <i>Elephant</i> " from Beelinguapp through an LCD projector. 3. The students read the bilingual text while listening to the audio narration. 4. The students identified the identification and description parts of the text.	Want Stage 1. The students expressed what they wanted to know about the topic. 2. The researcher distributed the descriptive text entitled " <i>Elephant</i> " through a printed worksheet. 3. The students read the text and identified the identification and description parts of the text.
	Learned Stage: 1. The researcher and the students discussed the content of the text. 2. The students concluded what they had learned.	Learned Stage: 1. The researcher and the students discussed the content of the text. 2. The students concluded what they had learned.
Treatment 2(Meeting 2)	Know Stage: 1. The researcher reviewed the previous lesson. 2. The students recalled their prior knowledge about descriptive text.	Know Stage: 1. The researcher reviewed the previous lesson. 2. The students recalled their prior knowledge about descriptive text.

	Want Stage: 1. The students expressed what they wanted to know about the text. 2. The researcher displayed the descriptive text entitled "<i>Dolphin</i>" from Beelinguapp. 3. The students read the bilingual text while listening to the audio narration. 4. The students identified the main idea, specific information, vocabulary, reference, inference, and text purpose of the text.	Want Stage: The students expressed what they wanted to know about the text. The researcher distributed the descriptive text entitled "<i>Dolphin</i>" through a printed worksheet. The students read the text. The students identified the main idea, specific information, vocabulary, reference, inference, and text purpose of the text.
	Learned Stage: The researcher and the students discussed the answers. The students concluded what they had learned.	Learned Stage: The researcher and the students discussed the answers. The students concluded what they had learned.
Treatment 3(Meeting 3)	Know Stage: The researcher reviewed the previous lesson. The students recalled their understanding of descriptive	Know Stage: The researcher reviewed the previous lesson. The students recalled their understanding of

	text.	descriptive text.
	Want Stage: The students expressed what they wanted to know about the text. The researcher displayed the descriptive text entitled "<i>Tiger</i>" from Beelinguapp through an LCD projector. The students read the bilingual text while listening to the audio narration. The students identified the main idea, specific information, ★ vocabulary, reference, inference, and text purpose based on the text.	Want Stage: 1. The students expressed what they wanted to know about the text. 2. The researcher distributed the descriptive text entitled "<i>Tiger</i>" through a printed worksheet. 3. The students read the text. 4. The students identified the main idea, specific information, vocabulary, reference, inference, and text purpose based on the text.
	Learned Stage: The researcher and the students discussed the students' answers. The students concluded what they had learned.	Learned Stage: The researcher and the students discussed the students' answers. The students concluded what they had learned.
Treatment 4 (Meeting	1. The researcher administered the post-test	1. The researcher administered the same

4) Post-Test	after the treatments had been completed. 2. The students answered 20 multiple-choice questions based on descriptive texts. 3. The indicators covered main idea, specific information, vocabulary, reference, inference, and text purpose. 4. The level of difficulty was equivalent to the pre-test. 5. The time allocation was 40 minutes.	post-test after the treatments had been completed. 2. The students answered 20 multiple-choice questions based on descriptive texts. 3. The indicators covered main idea, specific information, vocabulary, reference, inference, and text purpose. 4. The level of difficulty was equivalent to the pre-test. 5. The time allocation was 40 minutes.
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G. Research Instrument

According to Sugiyono (2018) an instrument was a tool used to measure the value of the variables studied. The instrument used in this research is a reading comprehension test, The reading comprehension test was used to measure students' reading comprehension ability before and after the treatment. The test was given in the form of a pre-test and post-test.

The instrument in this research consists of:

1. Form of the Instrument

The reading comprehension test consisted of 20 multiple-choice questions with four options (A, B, C, and D). The reading texts used in the

pre-test and post-test were adapted from the Beelinguapp application. The test items were developed by the researcher based on the reading comprehension indicators used in this study, namely identifying the main idea, finding specific information, understanding vocabulary in context, identifying references, making simple inferences, and identifying the communicative purpose of the text.

2. Indicators of the Test

According to Grabe, W., & Stoller (2013) reading comprehension is an interactive process of constructing meaning from a text by combining textual information and readers' background knowledge. In reading assessment, students were expected to identify the main idea, locate specific information, understand vocabulary in context, identify references, infer implicit information, and recognize the purpose of a text. Therefore, the indicators measured in the reading comprehension test included:

- a. Identifying the main idea
- b. Finding specific information
- c. Understanding vocabulary in context
- d. Identifying references in descriptive text
- e. Making simple inferences based on the text
- f. Identifying the purpose of the text

The test was designed based on the reading skills practiced during the treatment by using Beelinguapp, such as understanding the main idea,

identifying specific information, enriching vocabulary, and interpreting descriptive texts.

3. Validity of the Instrument

The validity of the instrument was established through content validity. The test items were constructed based on the syllabus, learning objectives, and reading comprehension indicators for Grade VIII students. The instrument was reviewed by the English teacher and the lecturer to ensure that the items are appropriate for the students' level and the research objectives.

4. Reliability of the Instrument

The reliability of the instrument was ensured through clear test instructions, consistent scoring procedures, and objective multiple-choice items. Each item had only one correct answer, so the scoring process is consistent and minimizes subjectivity. In addition, the instrument was reviewed by the English teacher and the lecturer before being administered to the students.

5. Scoring System

Each correct answer received 1 point and an incorrect answer received 0 point. The students' score was calculated using the formula:

$$\text{Score} = \frac{\text{Correct Answers}}{20} \times 100$$

H. Technique of Data Analysis

The data obtained from the pre-test and post-test are analyzed quantitatively. According to Sugiyono (2018) quantitative data are analyzed using statistical procedures.

The steps of data analysis in this research are:

1. Descriptive Analysis

Descriptive statistics such as mean, minimum score, maximum score, and standard deviation are used to describe students' reading comprehension scores in both the pre-test and post-test.

2. Normality Test

A normality test was conducted to determine whether the data from both the experimental and control classes were normally distributed. Because each class consisted of 32 students ($n < 50$), the Shapiro–Wilk test was used to assess the normality of the data. If the significance value (Sig.) was greater than 0.05, the data were considered normally distributed, indicating that the assumptions for conducting parametric statistical analysis were met.

3. Homogeneity Test

A homogeneity test was conducted to determine whether the variances of the experimental and control groups were equal. This test was performed to ensure that both groups had similar variances before conducting the hypothesis testing. If the significance value (Sig.) was

greater than 0.05, the variances were considered homogeneous. Otherwise, the variances were considered heterogeneous.

4. Hypothesis Testing

Hypothesis testing was carried out using the Independent Samples t-test if the data were normally distributed and homogeneous. This test was used to determine whether there was a significant difference between the post-test scores of the experimental and control groups.

Decision rule:

- a. If Sig. (2-tailed) < 0.05, H_a is accepted and H_0 is rejected.
- b. If Sig. (2-tailed) > 0.05, H_0 is accepted and H_a is rejected.

Through this analysis, the researcher aimed to determine whether the Beelinguapp application had a significant effect on the eighth-grade students' reading comprehension of descriptive texts at MTsN 6 Agam.

UIN IMAM BONJOL
PADANG