

CHAPTER III

RESEARCH METHODOLOGY

This chapter consists of research method, research design, research location, instrument, data collection, and data analysis.

3.1 Research method

The research method used in this study was quantitative because the researcher aimed to investigate the effectiveness of using the Awabe Learn Languages application to improve students' reading skills. Quantitative research required the researcher to apply numerical calculations when collecting, analyzing, and presenting data (Arikunto, 2021). According to Sugiyono (2014), quantitative methods were based on positivist thinking, involving the use of populations and samples, research instruments for data collection, and analysis in statistical form. In this study, the researcher conducted an experiment using a sample from one class to represent the population, aiming to examine how much influence the Awabe Learn Languages application had on students' learning outcomes in improving their reading skills.

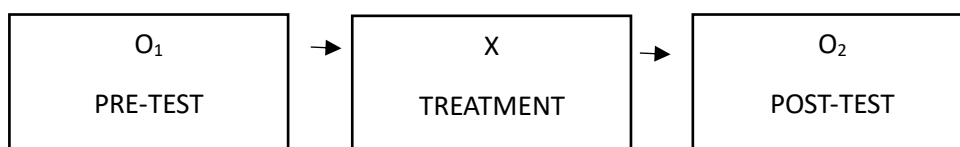
3.2 Research Design

The researcher used a quasi-experimental one group pre-test post-test design in this study. The aim was to determine the improvement in students' reading skills after the treatment had been administered. This pre-test post-test design was suitable for evaluating educational development in a natural classroom setting without

dividing students into separate control and experimental groups (Gul Malik & Alam, 2019). In practice, the researcher selected one class as a sample from the existing population and provided treatment to all students in that class (Setia, 2022). The results of this study were analyzed using statistical methods to assess the effects of the treatment on students' reading skills. The use of the quasi-experimental one group pre-test post-test design provided flexibility for the researcher to effectively measure the impact of interventions without having to restructure existing classroom arrangements. In an educational environment, especially in established classroom settings, it was challenging to implement experimental designs with random assignments. Therefore, this quasi-experimental approach was a very practical alternative to ensure that the research proceeded naturally without disrupting the students' learning process. This design also allowed the researcher to directly measure changes in one group that received the treatment, ensuring that the results truly reflected the effects of the intervention. By using tests before and after the treatment (pre-test and post-test), the researcher was able to quantitatively observe differences in students' reading skills outcomes. This provided strong evidence to assess how effective the treatment was in improving students' reading skills. Furthermore, although this design did not involve a control group, this approach remained valid and provided reliable empirical data. The statistical analysis used in this research strengthened the findings and helped draw accurate conclusions about the impact of the intervention. Thus, the results of this study were expected to make a significant contribution to the development of teaching methods

for reading skills, as well as provided a foundation for further research to develop similar approaches in educational settings.

In this research, the researcher gave a pre-test to figure out the basic students' value. Furthermore, the researcher used the *Awabe Learn Languages* application during four meetings. Lastly, a post-test was given to determine the effect of the *Awabe Learn Languages* media on students' reading ability.



Tabel 3.1 Experimental Plan 1

Explanation of table:

O₁ = Pre-test (before giving a treatment)

X = Treatment

O₂ = Post-test (after giving treatment)

Source: Sugiyono (2014;74)

Based on the table above, the researcher took a class at SMAN 1 Banda Aceh grade X. After do the pre-test, then researcher gave treatment for student by used *Awabe Learn Languages* Application as a media. After gave pre-test and treatment, then researcher gave post-test to assess the students' performance.

3.3 Research Location

The research location to be carried out is SMAN 1 Banda Aceh class of 2023/2024. With 56 teachers and students from all batches were 852 students. Consist of, 362 were male and 490 were female. This school has 25 study groups, and the school accreditation is A. Address of school is at JL. PROF. A. MAJID IBRAHIM, Punge Jurong, Kec. Meuraxa, Kota Banda Aceh Prov. Aceh, Indonesia.

3.4 Population and Sample

In scientific research, an understanding of the concepts of population and sample is very important. Population refers to all groups of individuals or objects that were the focus of research, while sample is a subset taken from the population to represent and generalize research findings. Population refers to the whole individual, unit, or event that is the subject of a study with certain characteristics and serves as a generalization werea defined by the researche (Salmina, 2021)

3.4.1 Population

In research, researcher aim to examine a phenomenon in a group of groups. The group is researched to find facts or solutions to a problem experienced. The entire part of the group is referred to as the population. Population refers to the whole individual, unit, or event that is the subject of a study with certain characteristics and serves as a generalization werea defined by the researche (Salmina, 2021). Population is called the general werea or all parts of something that is understood to be characteristic. Based on the understanding that has been intended by experts, the population can be interpreted as the entire part that used as

the object of research, be it humans, places, objects, and others. In this study, the population that was used as an object is second-year students for the 2024/2025 academic year at SMAN 1 Banda Aceh. Students from class X to be studied amounted to 286 students divided into 8 study groups, including classes X1, X2, X3, X4, X5, X6, X7, and X8. Each class contains around 36 students.

3.4.2 Sample

Samples were a very important part of a study. Because with the sample, researcher can determine a character from the population studied. According to (Firmansyah, 2022) the sample is a part of the entire object to be studied that has certain characteristics of a population. From this sample, researcher can ascertain what kind of character the population is being studied. Researcher chose class X5 in SMAN 1 Banda Aceh to be used as an experimental class sample. There were 35 students in this class.

3.5 Variable of Study

There were two variable used in this research. They were independent variable and dependent variable.

1. Independent Variable

In this research, the independent variable is “Using Awabe Learn Languages”

2. Dependent Variable

Beside that, the dependent variable in this research is “ To Improve Reading Skills”

3.6 Research Instrument

Research instruments were tools or means used by researcher to collect data or information needed in a study. Research instruments can be questionnaires, interviews, tests, observations, or a combination of several other data collection methods(Sugiyono, 2014). The main use of research Instruments is to obtain relevant and accurate data in accordance with research objectives. Using the right instruments, researcher can gather the information necessary to answer research questions, test hypotheses, or identify specific patterns and trends in the subject under study. In addition, research instruments also help in ensuring that the data obtained were reliable and accountable in the analysis and interpretation of research results. Thus, research instruments were key components in the research process that help ensure the validity and reliability of research findings.

According to Taherdoost, (2021) instruments were tools used by researcher to collect data that aims to make the researcher's work better, complete, and sequential. The instrument that was used by researcher to conduct this research is a test. Students tested with pre-test to see their ability before treatment given and post-test to prove whether the *Awabe Learn Languages* app is effective when used to improve English reading skills for students or not. Because the test used is a reading test, researcher provided a test in the form of a question sheet that requires students to filled essay accorded to the text read by their self.

3.6.1 instrument validity

Instrument validity is a very important part of a study. The function of instrument validity is to prove that the data obtained using the instrument is correct. According to (Zohrabi, 2013) validity relates to how much a study can be believed to be true, it can be evaluated for the purpose of the results of the study. It is simply, a research instrument in the form of a test must be in accordance with the material provided. The validity instruments that used in this study were pre-test and post-test.

Pre-test Validity is used to measure the initial level of English reading ability of students before treatment using the *Awabe Learn Languages* English Reading application. Pre-test validity in the form of reading comprehension. That is, students were asked to read to each sentence in the text, then answer based on what is asked on the pre-test sheet. The assessment is in the form of how many correct answers the student has. Post-test Validity is used to measure students' level of English Reading ability after treatment given. Students were given question sheets in different material containing choice questions where students must answer according to what they were Post-test validity was guaranteed if the instrument can accurately measure the improvement of students' English reading skills after treatment.

Both types of instruments have been validated by instrument validators. The testing of instruments in this study uses professional judgment in content instrument. The validator of this instrument is Mrs. Zahrul Wardati S.Pd.i M.Ag

who is an English teacher from SMAN 1 Banda Aceh where this research carried out. Furthermore, the instruments used in this study have been validated by Mrs. Rosdiana, M.Pd, who is a lecturer in English Education at Bina Bangsa Getsempena University. In the validation process, a research instrument evaluated by experts, and then an in-depth review carried out to ensure that the instrument is suitable for use in research (Ibrahim, 2023). This process involves careful examination and refinement of the instrument before it can be applied in an actual study.

3.7 Data Collection Procedure

In the research process, data collection is a critical stage that allows researcher to gather relevant and valid information to answer research questions. Appropriate data collection methods play a central role in the success of a study, ensuring the accuracy and reliability of the resulting findings. As according (Sugiyono, 2015) the purpose of research is to obtain data, and data collection is the first step that must be done to obtain data.

The researcher submitted a research request letter to the school. After the application letter was received, the researcher became the location of the study to make in-depth observations about the ability of grade X students to listen to English. After made observations, researcher began to conduct research on the use of the '*Awabe Learn Languages*' application to find out whether the application is effective when used to teach reading to grade X students of SMAN 1 Banda Aceh.

3.7.1 Pre-test

In order to ensure the effectiveness and accuracy of a research instrument, pre-test is a very important step. Pre-test allows researcher to evaluate the feasibility, validity, and reliability of the instruments to be used in the study thoroughly before wider use. According to (Sugiyono, 2014) pre-test need to be done so that researcher can prove that between the control group and the treatment/ experiment class there were differences at the beginning. Pre activities, core activities and post activities during pre-test to determine students carried out several steps taken by researcher namely as follow:

1. The researcher began the process in class by saying greetings and asking about students' readiness to start learning
2. The researcher directed students to read the prayer together
3. Researcher checked the students' attendance
4. Researcher showed the text titled "The Majestics Elephant"
5. Researcher distributed Essay question sheets for students to filled out
6. Students were directed filled in the answer sheets that they understanding were correct accorded to the content of the text they have read.
7. The researcher checked the student's answer sheets and put score based on they answer by used answer keys.

8. Researcher assessed students' pre-test abilities based on the pre-test post-test assessment rubric.

3.7.2 Treatment

Treatment in research is a treatment or intervention given to research subjects to find out certain effects or influences. The usefulness of this treatment is important, as it helps researcher observe whether the intervention has the desired impact on the variables being measured.

In this study, treatment was used to find out whether the use of the *Awabe Learn Languages* application was effective in improving students' reading ability. With several meetings involving the use of this application, researcher can enjoy changes in students' reading skills. The results of this treatment were expected to show an improvement in reading ability and provide data on the effectiveness of the application as a tool for reading learning for students. During the treatment there were four meetings. The first meeting is done individually, the second and third meetings were done in groups while the last one is individually. Pre activities, core activities and post activities during those treatments to determine students carried out several steps taken by researcher namely as follow:

1. Researcher began the used greeting
2. Researcher asked students to pray together
3. Researcher checked student attendance
4. Researcher asked questions related to the material

5. The researcher confirmed facts about the material that the students searched for
6. Students were directed to created groups of four people
7. Researcher asked students to install the Awabe Reading Learn Languages app and registed an account used a personal email
8. Students were directed to browsed the text accorded to the material studied
9. Students were allowed to read while finded out the meaning of the vocabulary or sentence directly by clicked on the vocabulary or sentence in questions
10. The next stage students were only allowed to read cannot find out the meaning of vocabulary or sentences.
11. Each group was tasked with re-explaining what they had read from the text without resorted to the help of app again
12. Researcher provided an assessment of student performance results in accordance with the reading assessment rubric
13. Researcher provided opportunities for students to asked questions
14. Researcher provided motivation and advice to students on how to improve their reading skills
15. Researcher closed the learning with prayers and greetings

3.7.3 Post-test

In experimental research, post-test was an important stage carried out after giving treatment to research subjects. Post-test is an evaluation carried out to measure the impact or effect of treatment that has been given to research subjects. By analyzing the post-test results, the researcher were able to evaluate whether the treatment was successful in achieving the research questions that had been set. Pre activities, core activities and post activities to determine students during post-test carried out several steps taken by researcher namely as follow:

1. The researcher began the process in class by saying greetings and asking about students' readiness to start learning
2. The researcher directed students to read the prayer together
3. Researcher absent student attendance
4. Researcher show the text titled "KOALA-Animal"
5. Researcher distributed Essay question sheets for students to filled out
6. Students were directed to fill in the answer sheets that they understanding were correct according to the content of the text they have read.
7. The researcher checked the student's answer sheets and put score base on they answer by using answer key.
8. Researcher assessed students' pre-test abilities based on the pre-test post-test assessment rubric.

3.8 Data Analysis

Comparative Technique it was used in this study to analyze the data that had been obtained during the research process. According to Sugiyono (2014), data analysis is the process of processing data obtained from interviews, fields notes, and other materials so that they can be understood and become information for the audience.

The researcher processed and present the data obtained by using normality test, statistical formulation of t-test and N-gain score.

3.8.1 Normality Test

The data obtained from the research were calculated and analyzed using the SPSS application through a normality test, in order to determine whether the data were normally distributed as one of the requirements for further statistical analysis.

3.8.2 T-Test

$$t_o = \frac{MD}{SE_{MD}}$$

t_o = Test observation

MD = Mean differences, the average value from the differences gained value between first variable and second variable, which were calculated with the formula.

$$MD = \sum \frac{D}{N}$$

ΣD = Total score between variable (X) and variable (Y).

And D was gained with formula;

$$D = X - Y$$

N = number of classes

SD_D = The standard deviation from differences between value of variable X, which was gained with the formula;

$$SD_D = \sqrt{\frac{\Sigma D^2}{N} - \left[\frac{\Sigma D}{N}\right]^2}$$

SE_{MD} = The standar error from mean that was gained with the formulation bellow;

$$SE_{MD} = \frac{SD_D}{\sqrt{N-1}}$$

Df = Degree of freedom with formula $N - 1$

$$P = \frac{F}{N}$$

Interpretations:

P = Percentages

F = Total Percentage Score

N = Number of Students

3.8.3 N-Gain Score

The concept of N-gain Score:

1. To find out the effectiveness of using a method or treatment
2. The N-Gain Score test is carried out by calculating the difference between the posttest score and the pretest score

Formula for calculating N-Gain Score:

$$N\ GAIN = \frac{\text{posttest score} - \text{pretest score}}{\text{score ideal} - \text{score pretest}}$$

*Ideal Score is the highest score that can be obtained

source: (Triyono, 2024)

3.8.4 Hypothesis Testing

Hypothesis testing was carried out to verify the correctness of the provisional assumptions made in the study. The hypothesis can be proven to be true or quite the opposite. In this study, the hypothesis was tested with a t-test:

$t_o > t_t$: the alternative hypothesis (H1) was accepted and the null hypothesis (H0) was rejected. This allows that there was a significant difference in students' reading ability using *the Awabe Lean Languages application*. It can be concluded that this application was effective media in reading material.

$t_o < t_o$: the alternative hypothesis (H1) was rejected and the null hypothesis (H0) was accepted. This allows that there was no significant difference in students' reading ability using *the Awabe Lean Languages application*. It can be concluded that this application was not an effective media in reading material.