

CHAPTER 2

LITERATURE REVIEW

2.1. Descriptions of Vocabulary Mastery

As these four language skills can be difficult to acquire, vocabulary is a very important skill for students to acquire when learning English. In particular, students who lack vocabulary will have difficulty understanding texts and communicating appropriately.

Vocabulary is a very important part of the English learning process. As the most fundamental element in language use, vocabulary is closely related to other aspects of English such as speaking, writing, listening, and reading. Vocabulary includes all the words routinely used by an individual in everyday activities and specific language contexts (Hornby, 2006). Thus, vocabulary refers to the words used orally and in writing by individuals during the language process. In the linguistic process, these words play an important role in everyday language actions.

Hiebert and Kamil (2005) stated that vocabulary is usually defined as understanding the meaning of words. The linguistic component includes the meaning of the language and all the information associated with the word. In order to understand and use all the words you want to express in various situations, including when practicing a language, you must mastery vocabulary.

Cameron (2001) said that to understand a word, you need to know its form (sound, notation, and grammatical variations), meaning (conceptual content and its relationship to other concepts and words), and usage (how it appears in other words and in certain types of language use).

It can be concluded that vocabulary is an important skill for English language students, as it is the basis for acquiring the four main language skills: speaking, writing, listening, and reading. A lack of vocabulary makes it difficult for students to understand texts and communicate effectively. Vocabulary includes all words used daily in everyday life, not just in a particular language, and includes both speaking and writing vocabulary, which is an integral part of the language learning process. Vocabulary refers to understanding the meaning of words and

emphasizes that vocabulary mastery is essential for understanding and using words in various contexts. The understanding of words includes form (sound, spelling, and grammatical variation), meaning (conceptual content and relational context), and usage (patterns of language occurrence and specific applications). This holistic understanding emphasizes the importance of vocabulary in language courses and the need for students to develop a strong vocabulary to improve their language skills.

2.2. Principles of Vocabulary Mastery

Teachers play a crucial role in the process of teaching and learning. Their enormous responsibility to provide knowledge to the kids and assist them in growing intellectually. The idea of teaching vocabulary should be understood and known by teachers. The following are some guidelines for teaching vocabulary, Cameron (2001) stated that:

- 1) The types of words that children find difficult to understand change over time;
- 2) Deeper and more profound understanding of words is as important to vocabulary development as learning new vocabulary;
- 3) Words and word knowledge can be understood as part of an interconnected semantic network;
- 4) Core vocabulary may be appropriate for young children and for learning vocabulary related to new concepts;
- 5) Children learn words in different ways.

Moreover, the following rules apply to the communicative method of vocabulary education, Brown (2015) stated:

- 1) Take time to teach vocabulary in class;
- 2) Help students develop language understanding through context;
- 3) Reduce the use of bilingual dictionaries in the learning process;
- 4) Encourage students to develop strategies to infer word meanings independently;
- 5) Involving students in the vocabulary learning process spontaneously.

The first principle in vocabulary teaching is that the teacher must determine the purpose of vocabulary teaching itself. In other words, the teacher must determine the target vocabulary that students should master. The second principle is that teachers should consider how many vocabularies lists to give to students. The third principle is that the teacher should understand the needs of the students and ensure that the vocabulary taught matches the needs of the students and does not include irrelevant words. The fourth principle is that vocabulary cannot be taught in one meeting and must be repeated to help students remember the vocabulary. The fifth principle is that new vocabulary taught to students should be unambiguous. Finally, the vocabulary taught should be varied and adapted to the situation.

Regarding the previous theory, it can be concluded that the teacher should understand the nature of teaching vocabulary. The teacher should be clever and creative in choosing, designing, and giving the material to the students. So, when teaching vocabulary, teachers can make students comfortable and interested in learning. In this study, Duolingo will be used as a medium to see the effect on the students' vocabulary.

2.3. The Teaching of Vocabulary

Vocabulary teaching plays an important role in English language teaching, as vocabulary is a key component in achieving communication goals. If students do not master vocabulary well, then it will be difficult for them to achieve their goals. For students to learn English, vocabulary must be taught first. Without vocabulary, students cannot speak, read, or write in English. Therefore, teachers need to use interesting teaching resources, techniques, and methods to help students develop their vocabulary during the learning process and to improve students' understanding in the classroom. Kukulska-Hulme et al (2015) stated that there are varied ways to implement mobile pedagogy in language teaching, as follows:

- 1) Engage students in tasks related to their communication needs, both inside and outside the classroom;
- 2) Introduces students to language as a dynamic system;
- 3) Integrating the four core skills of speaking, listening, reading, and

writing;

- 4) Provides timely feedback and step-by-step support to students;
- 5) To provide opportunities for students to interact socially, negotiate meaning, and communicate in diverse and creative ways with peers and English-speaking people outside the classroom, across boundaries of time and place;
- 6) To facilitate speaking and writing practice where students have difficulty in the classroom;
- 7) To encourage students to develop 'learning to learn' skills and pay attention to the learning process;
- 8) To give students the freedom to choose what they learn and how they learn it;
- 9) To support student development and achievement throughout the learning process.

Teaching is about facilitating and guiding students on their learning journey. One of the functions of vocabulary teaching is to provide feedback to students. Teachers need to motivate students so that they understand where they need to focus. Without motivation, students will not learn English vocabulary optimally.

2.4. Learning Vocabulary

Learning is an activity that all students understand and experience. Students often spend time improving their understanding and skills, often in the formal context of an education system such as school. The learning process should have a positive impact on the potential of each individual. Students who actively participate in the learning process are generally more likely to succeed (Kukulska-Hulme et al., 2015). Hatch & Brown (2001) stated that there are five essential steps in vocabulary learning.

1) Encountering new words

An important first step in vocabulary learning is familiarizing yourself with new words, i.e., ensuring that you have sources to learn them. At this stage, strategies such as 'learning new words by reading books',

'listening to TV and radio programs', and 'reading newspapers and magazines' can be used.

2) Getting the word form

The second important step in vocabulary learning is to get a clear picture of the form of the word being learned, either visually, auditory, or both.

3) Getting the word meaning

The third step is considered important in the strategies reported by the students, and it is most often associated with the concept of vocabulary learning, which is understanding the meaning of words.

4) Consolidating word form and meaning in memory

According to Brown and Payne's analysis, the fourth important stage is the deep integration of the word form and meaning into memory.

5) Using the word

The last step in vocabulary learning is applying the words. Some people say that this step is not necessary if the main goal is only to understand the word receptively.

In this section, all students will gain confidence in their understanding of the vocabulary tested when they complete one of the five essential steps in vocabulary learning. Although the activities and strategies used by students in each step are different, all five steps are necessary for a thorough understanding of the vocabulary. Therefore, learning takes place naturally. Although students only have one learning style, teachers can identify each student's learning style. Many teachers know that each student has a different learning style. Therefore, it is very important to develop the ability to use different learning styles to improve student success.

2.5. Vocabulary Mastery Assessment

Assessment is the process of evaluating or judging the characteristics, qualities, or abilities of something or someone. In vocabulary teaching, assessment is needed to measure students' ability to understand and use words in both speaking and writing. Without assessment, it is difficult to properly determine the effectiveness of the teaching sequence (Zhao, 2011). This shows that without

testing students, teachers cannot know the vocabulary of their students. Teachers also cannot assess the effectiveness of the teaching methods they use.

To check the outcome of the learning process, teachers need to measure what students have learned through exams. Examination is one of the methods used to assess students' ability, knowledge, or performance. An exam is a tool used to assess a person's competence, knowledge, or skills in a particular field (Brown, 2015).

The principles of vocabulary assessment include assessing the meaning and spelling of words. Various types of tests are used for vocabulary instruction, including multiple-choice, word-matching, and scrambled word placement tests. There are several kinds of vocabulary tests, as follows: (1) Multiple-choice items; (2) Sets (associated items); (3) Matching items; and (4) More objective items (word formation test items, items involving synonyms; rearrangements items (Heaton, 2021).

It is mentioned that types of vocabulary tests consist of six parts: selection items, multiple-choice items, set words, matching items, rearrangement items, and so on. In this research, the researcher will use multiple-choice and matching tests to assess the learners' vocabulary mastery.

2.5.1 Multiple-Choice

Multiple-choice is the most widely used test format, and it asks the examinee to select the correct answer from a set of options. McKenna (2019) stated that multiple-choice questions (MCQs) are commonly used for summative assessment in education. Typically, students are asked to select the correct answer from a multiple-choice list. There is usually one correct answer among two to four choices, but there are many variations, such as choosing one correct answer or multiple correct answers. Multiple-choice tests are also an effective tool for measuring students' knowledge of grammar and vocabulary.

2.5.2 Matching Test

This test asks the examinees to match the premise with one of the responses. Christmann et al. (2020) argued that in matching exercises, the

elements on the left side of the page (e.g., country names) are usually referred to as assumptions. The elements on the right side are called answers (e.g., the name of the country's capital).

2.6. Kinds of Vocabulary

Hiebert and Kamil (2005) stated that vocabulary is divided into three, which are:

- 1) Oral vocabulary is a set of words whose meaning can be understood by speaking or listening to others;
- 2) Written vocabulary includes words whose meaning can be known by writing or reading them silently; therefore, it can be concluded that oral and written vocabulary are distinguished based on how students receive these words;
- 3) Productive vocabulary is a set of words that one can use in writing and speaking activities. These words are generally known, familiar, and frequently used.

Vocabulary consists of two kinds: receptive and productive vocabulary. Receptive vocabulary involves perceiving the form of a word while listening or reading and retrieving its meaning. The activity of gathering the vocabulary is rather passive. Productive vocabulary involves wanting to express meaning through speaking or writing and retrieving and producing the appropriate spoken or written word form. Besides requiring active performance, it also stimulates the students' confidence in expressing their ideas, opinions, and thoughts (Nation, 2022).

Furthermore, to kinds of vocabulary, Nation (2022) argued that there are four kinds of vocabulary in the text:

- 1) High-frequency words. These words are almost 80% of the running words in the text. For example, function words (in, for, the, of, a), content words (government, forest, production);
- 2) Academic words. Typically, these words make up about 9% of the running words in the text. It contains many words that are common in

different kinds of academic texts, such as policy, phase, adjusted, sustained;

- 3) Technical words. These words make up about 5% of the running words in the text. It contains some words that are very closely related to the topic. In this case, the topic is planting up a forest, so the technical words are indigenous, regeneration, podocarp, beech;
- 4) Low-frequency words. These are the words of moderate frequency that did not manage to get into the high-frequency list. They make up over 5% of the words in an academic text, such as zoned, pioneering, perpetuity, aired, and pastoral.

Depending on those experts' explanations, it can be concluded that vocabulary is divided into receptive vocabulary, which is rather passive (written and printed), and productive vocabulary, which is based on activity (writing and speaking). Those two types of vocabulary consist of high-frequency words: academic, technical, and low-frequency words.

2.7. Problems in Learning Vocabulary

EFL students, particularly Indonesian students, usually have difficulties remembering and understanding the vocabulary. There are many factors that stimulate it, and one of the reasons is the students are bored during the lesson. They get bored with vocabulary learning, which they learn passively by listening to the teacher's explanations. Also, the number of dictions owned by students is small. It limits their way of doing interactions using English.

Azar (2012) in this research argued that many students don't want to take risks in applying what they have learned. Students may recognize a word in a written or spoken form and think that they already "know the word", but they may not be able to use that word properly in different contexts or pronounce it correctly. It underlines the productive vocabulary of the students. As for further steps of vocabulary mastery, students have to use their vocabulary productively, such as writing or speaking. Yet, it is found that those students are afraid of expressing their thoughts through the words they have known.

Furthermore, there are other factors that often cause students to have difficulties in learning vocabulary. As stated by Thornbury (2011), the problems are:

- 1) Pronunciation. The words that sound unfamiliar to the students are potentially difficult words for the students to understand. Research shows that the more difficult the word to pronounce, the more difficult it is to learn. For example: poignant, conscience, turmeric;
- 2) Spelling. Words that contain silent letters are particularly problematic, such as foreign, listen, honest, etc;
- 3) Length and Complexity. Long words seem to be no more difficult to learn than short ones. But, as a rule of thumb, high-frequency words tend to be short in English, and therefore, the learner is likely to meet them more often, a factor favoring their 'learnability.' The word "odd" may be chosen by students rather using the word "peculiar," even though both have the same meaning;
- 4) Grammar. Another problem is the grammar associated with the words, especially if this differs from that of its first language equivalent;
- 5) Meaning. When two words overlap in meaning, learners are likely to be confused by them, such as "popular" and "famous."

By identifying and resolving these many issues, we may help kids learn language in a more encouraging and productive setting. Overcoming these obstacles requires modifying instructional tactics to take into account students' diverse learning preferences as well as creating a welcoming and stimulating environment.

2.8. Definition of Using Duolingo

Nowadays, the development of technology is increasing significantly. The inventions of it are inevitable and have caused huge changes in our lives, such as in the industrial, communicational, and educational aspects. In education, the tradition of teaching is changing drastically because of the entry of technology. It helps the teacher in their teaching, assessing, evaluating, and many other activities. Technology, such as computers and smartphones, can also play a role in education

as a medium. Media is a channel of communication derived from the Latin word meaning 'between' (Dewdney & Ride, 2006). The term refers to anything that carries information between a source and a receiver. The definition of media focuses on the use of technology, plus concepts and contexts. Media is divided into three: text, audio, and visual. Those are used as tools in learning to make it easier, not boring, and become more active.

The technology that is used as media is called digital media, the newest media today. Digital media is digitized content that can be transmitted over the internet or computer networks (Das, 2020). This can include text, audio, video, and graphics. This means that news from a TV network, newspaper, magazine, etc. They also argued that the best strategy for curriculum integration is to put technology into the hands of trained teachers, make it easily accessible, and let them decide how best to use it at the point of instruction in their classroom. The point of their statement is that using technology in teaching should be handled well by the teacher, and more importantly, the use of it should be under the guidance of the teacher's instruction.

In vocabulary teaching, to increase the amount of vocabulary and its knowledge for the students, we as a teacher can take advantage of using media. There are many media that teachers can use, one of them being the Duolingo application. Duolingo launched in June 2012. It is a game-based platform for learning foreign languages. The role of the teacher is crucial in the successful implementation of different games and teaching materials to engage students in the learning process and enhance their educational experience, stated by Wang (2018), as cited in Andriani et al. (2024). It consists of two major components: grammar and vocabulary exercises. It was created by Luis von Ahn, PhD, and Severin Hacker, PhD, with over 50 million app downloaders and more than 100 million learners. Duolingo has recently become the most popular way to learn languages online.

2.9. Features of Duolingo

Duolingo is available in two versions, one for the teacher and one for the student. For the student, it shows some exercises and quizzes for grammar and vocabulary grouped by various contexts. The teacher version (Duolingo classroom) consists of students' management and English curriculum management, constructing assignments, monitoring the class activities, and also giving the tests, assessments, and feedback online.

These features give the teacher many advantages. First, we can reduce the time we spend on assessment activities. Compared to common paper-based assessments, operating Duolingo is much faster, and the students can get their feedback directly on the phone screen or by monitoring it after they finish the test.

The second is about the content limitation. By using Duolingo, we can handle the materials we give to the students because there is a curriculum page that contains what will be given as a test for the students. It shows what the goal of the materials is, and it needs our approval to get posted. Then, as for the efficiency of time management for the students, we can give the exact time when the test will be done and its duration (Munasiroh, 2023).

Here are the characteristics of the Duolingo application, such as:

1) Achievements

Duolingo provides the user with challenges. When the user completes it, they will receive the achievements. Achievements is a Duolingo feature that rewards learners or users for completing classes with the best effort.



Figure 2.1 Achievements

2) Badge

Duolingo offers several badges and monthly tasks. If you complete it, you will receive the badge.



Figure 2.2 Badges

3) Diamond

Diamonds can be spent to buy a variety of items in Duolingo, such as hearts and time boosters.

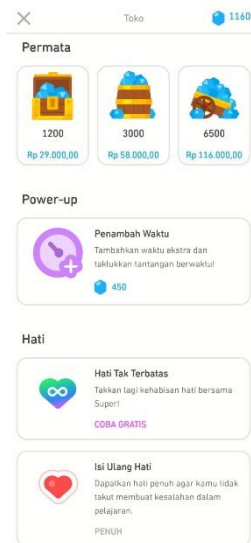


Figure 2.3 Diamond

4) Exercise

Duolingo offers a variety of exercises, each with a different theme. It also includes certain exercises and examinations, such as vocabulary, grammar, pronunciation, speaking, and listening. This feature is frequently employed by the researcher during the treatment. The exercises included organizing the words into sentences, translating, and matching the words to their meanings.



Figure 2.4 Exercise

5) Heart

The user will be limited to five hearts each day. When you get the wrong answer, it reduces one heart and so on. When the user runs out of hearts, there are three options: Buy the Duolingo Pro, which will give you infinite hearts and many other benefits, or do the special exercise, which Duolingo will give you one heart for each pass.



Figure 2.5 Heart

6) League

The more you play Duolingo and get points, the more likely you are to reach the top of the league and become number one. Each league has its own set of limitations. If you are within the boundary, you will be booted and relegated to the previous league.

The top XP earners in your leaderboard will be promoted to a higher league for the coming week. Lower XP earners will be demoted to the previous league. Leagues: Bronze, Silver, Gold, Sapphire, Ruby, Emerald, Amethyst, Pearl, Obsidian, and Diamond.



Figure 2.6 League

7) Mission

There are daily missions that must be accomplished.



Figure 2.7 Mission

8) Story

Duolingo has an exercise in the story version. The user will listen to the story and then respond to the questions provided.

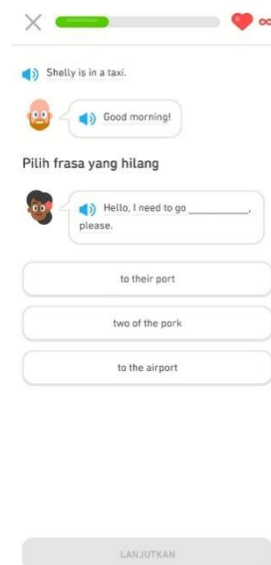


Figure 2.8 Story

9) Streak

A streak indicates how long you have been playing Duolingo since the first day. If you don't play Duolingo for a day, you will lose your streak.

2.10. Teaching Vocabulary of Using Duolingo

Duolingo helps students develop their vocabulary knowledge in English, where good vocabulary-building skills are essential. By using this app, students can gain at least three main advantages. First, Duolingo motivates students and makes the learning process more fun. Secondly, the app makes it easier for students to learn new words, as they can immediately see interesting pictures and different features in the vocabulary learning process. In addition, Duolingo can also be used to help students understand the meaning of words more effectively.

Duolingo can be used independently by students in class after the teacher provides the material. The platform provides practical and systematic steps for students to learn new vocabulary. Teachers can select and customize teaching materials according to the syllabus set by the government.

Several steps can be conducted in the classroom learning activities as follows:

- 1) First, to use the app on your phone, download the app from Google Play or App Store and install it on your device using Android or iOS operating systems. You can create an account or directly access activities without an account. However, you can only save your learning progress if you create an account first;



Figure 2.9 Wallpaper

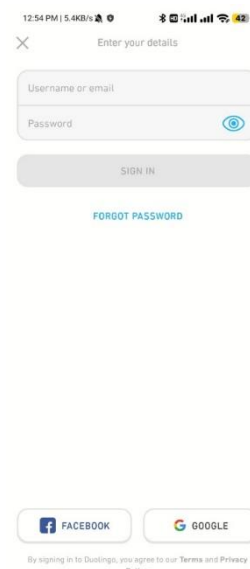


Figure 2.10 Login Account

- 2) Once you create an account, you can also select English as your learning language and start learning activities immediately;



Figure 2.11 Choose a language

- 3) Students can then take a placement exam to proceed to the next level. The course consists of thematic units starting from the basic level, such as 'basics,' through thematic vocabulary topics, such as 'food' and 'family,' to advanced grammar topics, such as 'past perfect' and 'past subjunctive.';



Figure 2.12 Home Page

- 4) Finally, students can track their progress through completed lessons or units. Each lesson consists of 10 to 20 questions designed to improve vocabulary skills, including pronunciation, translation, listening comprehension, and vocabulary acquisition. After completing a lesson, students can move on to the next level to access new lessons and earn crowns based on their achievements.

In classroom learning activities, teachers can start by presenting materials from English books and giving tips on how to use the Duolingo app. Students are then invited to decipher the meaning of the words in the material to deepen their overall understanding while adding new vocabulary. Students can then start using the Duolingo app by choosing topics that have been determined by the teacher or by choosing their topics according to their preferences (Teske, 2017).

As stated before, the major components of the Duolingo application are grammar and vocabulary, so it is recommended that this application be used to teach

those subjects. As stated by Magnuson (2014), there are some implementations of using Duolingo in teaching EFL students:

1) During a Class

The teacher provides time for the students to work by themselves individually for at least 50 percent of class time, and then the rest of the time is used for the students to work in teams on either the online language reviews or the language awareness activities. At the same time, a teacher can also do the review and give some feedback;

2) As a Homework

Regardless of how effective time management is in the class, it is important to continue making adequate progress in using Duolingo outside the classroom. The problem is that students tend to pay less attention because they think that they already use the application in the classroom, so they would rather not use it outside the classroom. However, it is still the teacher's duty to maximize the use of Duolingo as homework. It can be giving them an actual physical reward, prolonging the assignment deadline, and so on.

Whether or not there was time to work on Duolingo in class, adequate progress (can be determined by the teacher) was required weekly. Magnuson (2014) thought that students would be more readily intrigued by Duolingo than they were, and because it is so easy to access for short bits of learning, students would register at least a few points most days.

2.11. Study of Relevant Research

The researcher has analyzed some previous studies that are related to this research. The first is a study conducted by Prasetyani et al. in 2023. This study focuses on comparing the effectiveness of vocabulary learning with and without the Duolingo application. Furthermore, the study also aims to identify the most problematic English word class for students in the context of Mobile Assisted Language Learning. This research study employed a quantitative design. The study sample is 30 seventh-grade students from class VII-A. The research instruments

included vocabulary tests and a questionnaire. The data collection process involved administering the pre-test, followed by the treatment using the Duolingo application, and finally conducting the post-test. The data was analyzed using SPSS 25.0, including N-Gain, normality, and homogeneity tests. The findings showed that the use of Duolingo had a significant positive effect on enhancing students' vocabulary abilities. After utilizing the Duolingo application, the post-test results demonstrated a significant improvement in the students' vocabulary skills. The paired sample t-test further confirmed the effectiveness of Duolingo in enhancing vocabulary proficiency. Moreover, the study also identified adverbs as the most problematic English word class for the students. The Paired Sample T-Test results, as displayed in Table 6 using SPSS version 25.0, provided evidence to address the hypothesis of this study. In the paired sample t-test, the decision-making criterion is based on the significance value (Sig.) or Sig. (2-tailed). If the Sig. (2-tailed) value is less than 0.05, H_0 is rejected, and H_a is accepted. Conversely, if Sig. (2-tailed) is greater than 0.05, H_0 is accepted, and H_a is rejected. In this case, the Sig. (2-tailed) value was 0.000, which was smaller than 0.05 ($0.000 < 0.05$). Therefore, H_0 was rejected, and H_a was accepted. This indicated that there was a significant increase in students' vocabulary skills before and after utilizing the Duolingo application. These statistical findings support the conclusion that the use of Duolingo has a positive impact on enhancing the vocabulary proficiency of the students in the experimental class.

The second is a study conducted by Abin & Andas in 2022. The aim of this study was to find out whether the use of the Autonomous Learning Model by Duolingo-assisted has an effect on increasing the vocabulary mastery of the eighth-grade students of SMPN 3 Buteng. Purposive sampling was used to select 29 students in the VIII grade class as a sample of this research. This study applied a pre-experimental method using one class pretest and posttest. To collect data and information, researchers used tests, distributed questionnaires, and conducted interviews. From the result of the analysis, the researcher found that the students' average score increased from 60.94 to 86.83. Hypothesis analysis at a significant level of 0.05 showed that the value of T_{observed} was higher than the value of T_{table} .

(14,662 > 2,048), so H_0 was rejected and H_1 was accepted. This means that the treatment given to students, namely the Autonomous Learning Model assisted by the Duolingo application, has an effect on increasing vocabulary. Autonomous Learning, assisted by the Duolingo application, is very appropriate for teaching vocabulary because, with this learning model, students are encouraged to be more independent and responsible in learning English without others' help. Duolingo, as a learning medium, made students more interested in learning English because this application is equipped with complete features that make it easier for students to learn vocabulary.

The third is a study conducted by Oktarini in 2023. The purpose of the research is to find out the effect of using Duolingo on students' vocabulary mastery in eleventh grade at SMAN 5 Pinggir. The research used a quantitative approach, which used a quasi-experimental research design. Through this research, the research wanted to find out the effect of using Duolingo on students' vocabulary mastery in eleventh grade at SMAN 5 Pinggir. There were two groups: the first was an experimental group, which had been given a technique that had been implemented, and the second was a control group that had no special treatment in the teaching-learning process. Class XI IPS 1 and class XI IPS 2 were chosen as the samples because both of these classes have the same aspects and the same environment around the classroom. Based on the presentation and data analysis, the Duolingo application had a significant effect on students' vocabulary. The students are more interested in learning vocabulary by using the Duolingo application; it can be seen in their value before using the Duolingo application and after using Duolingo in their class. Based on the data analysis, paired sig was found. (2-tailed) the result was 0.000 because of sig. (2-tailed) was smaller than 0.05, it can be concluded that H_a was accepted and H_0 was rejected.

The fourth is a study conducted by Haris et al. in 2024. The aim of this study is to find the students' capabilities and the determination of students' vocabulary, especially in the absence of class directly at school during the COVID-19 lockdown a few years back. This study will use a quantitative research methodology. The researcher will use quasi-experimental data collection as the method of inquiry.

This research focused on two variables: Duolingo application as the dependent variable and students' vocabulary mastery of descriptive text as the independent variable. The subject of this research is tenth-grade students of high school 11 Jambi city. The research will use purposive sampling. The participant was chosen based on their experience with the phenomena of online learning during the COVID-19 epidemic. On the other hand, the research involves two classes of experiment and control classes, X-5 and X-6. X-5, the experimental class, is taught by applying the Duolingo application, and X-6, the control class, is taught by conventional technique without the Duolingo application. After the investigation is completed, the result is gathered, and the statistics show the value of t_{observe} is 3.484 and the value of t_{table} is 2.00. After comparing the two by the value of the degree of significance, the researcher finds that t_{observe} is higher than t_{table} ($t_{\text{observe}} > t_{\text{table}}$, $3.484 > 2.00$). Considering that t_{observe} exceeds t_{table} , the alternative hypothesis (H_a) was accepted, and the null hypothesis (H_o) was rejected. This means there is a positive effect of using Duolingo in the experimental class compared to the control class, which uses a conventional method that didn't use it.

2.12. Research Hypothesis

The alternative hypothesis (H_a) is "There is an influence of using Duolingo on students' vocabulary mastery of ninth-grade students in one of the junior high schools in Tasikmalaya." Meanwhile, the null hypothesis (H_o) is "There is no influence of using Duolingo on students' vocabulary mastery of ninth-grade students in one of the junior high schools in Tasikmalaya."