

CHAPTER II

LITERATURE REVIEW

This chapter presents and discusses the definition and concept of Gamification, the definition of Duolingo, the definition of Vocabulary Mastery and Previous Related Study

A. Literature Review

1. The Concept of Gamification

Nowadays in globalization era, technology has been developed in every part of human life, from smartphones that facilitate communication and information gathering to robots that assist Lestari (2019). Gamification is one of the trends that have emerged as a result of technological advancements. Gamification was initially frowned upon by others since it was viewed solely as a gaming tool. Gamification refers to the use of game elements in non-game contexts to enhance user engagement, motivation, and learning outcomes Deterding et al. (2023).

Gamification in the educational sector is typically implemented through the use of game-based applications that integrate game elements into learning environments (Jusuf, 2019). One widely recognized example is the Duolingo application, a language learning platform that presents materials such as nouns, verbs, phrases, and daily expressions in a structured, interactive way. According to Ajisoko (2020), Duolingo offers various language options including English, Arabic, Spanish, and French, allowing learners to choose based on their interests and goals. The gamified nature of

Duolingo significantly improves students' motivation and learning outcomes by transforming conventional learning into an engaging experience (Aga, 2023). It uses features like levels, points, leaderboards, progress bars, rewards, and ranks, all of which encourage continuous participation and provide a sense of accomplishment (Sausan et al., 2021). These elements tap into students' intrinsic and extrinsic motivation, making learning feel less like a task and more like a challenge or competition. For example, earning points or maintaining a streak motivates students to return and practice regularly, which promotes consistent exposure to vocabulary and reinforces memory retention. The sense of achievement from leveling up or competing with peers on leaderboards also increases learner engagement. In this way, gamification does not just make learning fun it supports cognitive and emotional involvement, which are essential for deeper and long-term language acquisition. Therefore, the implementation of gamified applications like Duolingo offers a promising alternative to traditional methods by making vocabulary learning more interactive, personalized, and motivating.

According to Zichermann and Cunningham (2011), gamification enhances learning by tapping into psychological principles such as reward, progress, and mastery, which stimulate intrinsic motivation and long-term engagement in learners. The goal of gamification is to influence learners' behavior, emotions, and cognition positively. In their framework, gamification consists of several key elements, including points, levels, leaderboards, badges, challenges, and instant feedback. These elements are

designed to create a sense of achievement and progression that keeps learners engaged. In the context of this study, these components are relevant to analyze how students perceive motivation, engagement, and ease of use when using Duolingo in vocabulary learning. This shows that gamification is not just about playing games, but about creating a learning environment that makes students more motivated and involved Deterding et al. (2011).

McGonigal (2011) adds that games can make difficult tasks feel more achievable and enjoyable, leading to increased persistence and deeper emotional investment in the learning process. Meanwhile according to Hamari, Koivisto, and Sarsa (2014) in their meta-analysis concluded that gamification consistently improves user engagement and motivation, especially when feedback, achievements, and progression systems are included.

Gamification is the application of game elements in a non-game context to increase user engagement, motivation and experience. According to Cloke (2024) Gamification is the application of game design elements and principles in non-game contexts to motivate and engage users. They explain that gamification not only involves the game as a whole, but can also use elements such as points, levels and badges to increase motivation.

According to Consalvo (2023) a game is a structured system in which players engage in an artificial conflict, defined by rules that lead to quantifiable outcomes. Games also elicit powerful emotional reactions including excitement, frustration, and curiosity. Gamification and Game

Based Learning are not the same thing. There is a basic distinction between the two that is frequently misinterpreted. While game-based learning is a pure science or skill learned while playing games on a computer, console, etc. Gamification is changing the teaching and learning process by including game components. According to Werbach and Hunter (2019) while badges, points, and leaderboards are the most popular game mechanics in gamification, there are numerous more game mechanics that can be incorporated into systems and procedures. For instance, incorporating a leaderboard mechanism into a game can encourage player competition.

a. The Advantages of Gamification

Kapp (2021) a major expert in gamification and learning, has written extensively about the advantages of gamification in education. The following are thorough explanations :

1. Increasing student motivation and engagement Kapp says that gamification boosts student motivation by introducing game components such as points, medals, and leaderboards into the learning process. These aspects promote active engagement and make learning more fun.
2. Gamification is the use of game features in non-gaming contexts to improve user motivation and engagement. According to Werbach and Hunter (2012), gamification aspects such as points, scores, and visual/auditory effects can make users feel challenged and inspired.

Students who feel challenged to get high scores or love the animation and sound elements on Duolingo are more motivated to learn. This promotes a modern learning method that focuses on the user experience in order to achieve learning objectives.

3. Providing immediate feedback. According to Kapp, gamification helps students to obtain instant feedback via game mechanics. This allows students to better understand their progress and identify areas for improvement, making the learning process more efficient.

4. Promoting challenge-based learning. According to Kapp, including obstacles into learning through gamification encourages critical and creative thinking. This technique promotes the development of higher-order thinking skills among students.

5. Creating A Fun Learning Environment

Kapp contends that gamification may turn the classroom environment into a more pleasant and participatory space, enhancing students' interest and engagement with the topic.

6. Facilitating Personalized Learning.

According to Kapp, gamification allows for the tailoring of difficulty levels and material to specific student skills. This guarantees that each student learns at their own speed and using their preferred learning method.

Student engagement is a critical component of the learning process that reflects how engaged, eager, and focused students are when

participating in learning activities. Fredricks et al (2004) define student engagement as behavioral, emotional, and cognitive characteristics that interact to encourage active participation in the learning process. In the context of application-based learning, such as Duolingo, student involvement can be demonstrated by an enthusiastic attitude, seriousness when performing exercises, readiness to seek assistance when necessary, and the ability to converse with peers. This is especially essential in gamified learning, which tries to enhance student active participation.

b. The Disadvantages of Gamification

Kapp (2021) a major expert in gamification and learning, has written extensively about the disadvantages of gamification in education. The following are thorough explanations :

1. Overemphasis on rewards may reduce intrinsic motivation.

According to Kapp, an overreliance on extrinsic rewards, such as points, badges, and leaderboards, may cause students to focus primarily on earning rewards rather than engaging deeply with the learning material. When gamification focuses on external incentives, students may lose their genuine interest in the subject. For example, they may prioritize completing chores to obtain points over learning the topic. Over time, this can impede their capacity to cultivate a genuine love of studying.

2. Not every student responds equally to gamification.

According to Kapp, individual differences influence how students perceive and interact with gamified learning situations. While some

children thrive in competitive, game-like settings, others may become overwhelmed, disheartened, or bored. For example, students who are less competitive or struggle to keep up with others on leaderboards may disengage, negatively impacting their learning experience.

3. Complexity and Cost of Implementation.

Kapp emphasizes that building and deploying good gamified systems can be costly and time-consuming. Creating gamified education generally necessitates educators devoting time, money, and technical skill. Additionally, schools with limited funds may struggle to properly implement gamification, particularly when using advanced tools or technology-based systems.

4. Risks of Superficial Learning.

Kapp warns that gamification might sometimes prioritize "fun" over deep, meaningful learning. For example, students may focus on completing basic challenges or earning badges without fully comprehending the underlying principles. This can lead to superficial engagement, in which pupils recall material in order to win the game but fail to retain it long term.

5. Dependency on technology.

Many gamified systems rely on technology, which can lead to overdependence or accessibility difficulties. Students without dependable internet or devices may feel ostracized. Furthermore,

technical faults or poorly designed systems can disrupt the learning process, producing irritation for both students and educators.

6. Difficulty measuring long-term impact.

Kapp also tackles the problem of determining the long-term usefulness of gamification in education. While gamification may increase short-term engagement, its effects on deep learning, critical thinking, and long-term information retention are more difficult to assess. Educators may struggle to identify whether kids are actually benefiting or merely reacting to game elements.

c. Kinds of Gamification

Firmansyah (2020) explains two types of gamification used in education:

1. Structural Gamification

Structural gamification refers to the use of game elements such as points, badges, leaderboards, and progress bars without altering the core structure of the learning content. The purpose is to enhance student motivation and sustain participation through external incentives (Kapp, 2012). For example, students may receive points for completing tasks or appear on leaderboards, which create a sense of competition and achievement. Zichermann and Cunningham (2011) explain that these elements activate reward mechanisms in the brain, increasing persistence and engagement. Structural

gamification is especially useful for guiding learners through a sequence of materials while maintaining their interest and consistency over time.

2. Content Gamification

Content gamification involves modifying the presentation of learning materials to make them more game-like, using narratives, challenges, or interactive simulations (Kapp, 2012). This approach transforms passive learning into an immersive experience, where students actively engage with the content in a meaningful context. For instance, a language lesson might be framed as a story-based mission where each vocabulary challenge unlocks the next stage. Werbach and Hunter (2015) emphasize that content gamification increases intrinsic motivation by encouraging emotional connection, problem-solving, and exploration. This method not only improves understanding but also fosters deeper retention, especially for abstract or complex concepts.

2. The Concept of Duolingo Application

a. The Definition of Duolingo Application

Duolingo a free language-learning program, was developed by Severin Hacker and his team under the leadership of Luis von Ahn in November 2011. According to Wongso et al. (2020) a number of languages for both English speakers and non-native speakers. One tool for language

learning is Duolingo, which can assist users in expanding their communication vocabulary. Through the Duolingo process, application, the pupils readily pick up new vocabulary on their own initiative.

Duolingo is a gamification-based application that helps students learn languages such as English, Arabic, Spanish, and French Ajisoko (2020). Duolingo App has features that can boost students' motivation and achievement in language learning Kreisa and Cristiano (2020). These include organized and progressive lessons divided into levels, opportunities to strengthen skills, and immediate sentence building training, Duolingo provides language-specific add-ons for reading and listening comprehension through Duolingo Stories. To improve listening skills, users must complete questions such as listen-translation, listen-speaking, and listen-arranging words. Reminders are also provided on a set date to ensure consistent learning.

According to Jaskova (2019) Duolingo is a free site and application for learning a new language. Duolingo facilitates language learning in a simple and unrestricted manner. People can study languages for free while the web is being translated. Teachers and students can share ideas and experiences in the educator forum on Duolingo. There are numerous learning options on Duolingo that are suitable for novices who wish to start from scratch. Because the processes are straight forward, it's simple to utilize. This is due to the fact that Duolingo is suitable for users of all ages, including children, teenagers, adults, and many more. According to Munday

(2016) claimed that because Duolingo is more user-friendly than traditional assignments and media, it is superior. This enhances Duolingo's use, convenience, and appeal, making it a viable option for language learning.

As a conclusion Duolingo is a game-based free learning platform that can be utilized as instructional technology in schools, which leads to the conclusion that it is one of the English teaching learning resources that can help students learn the language in a more pleasurable way.

b. The Nature of Duolingo Application

According to Munday (2019), Duolingo is a free language-learning platform, in November 2011. The program claims to have over 30 million registered users and provides a variety of language options for both English speakers and non-native English speakers.

Meanwhile, Teske (2019) states that "Duolingo is an online language-learning platform that offers courses in 27 different world languages and was launched in 2012. Android smartphone applications and computer internet connection are two ways to access Duolingo itself.

Moreover according to Paula (2017), Duolingo is an app available for both smartphones and laptops. This language teaching application is well regarded and widely used. This tool is simple and effective for learning English and other languages including Spanish, Italian, German, and Turkish. Users can practice for at least five minutes per day and choose their preferred method from the start.

As a game-based, free learning platform, Duolingo can be utilized as instructional technology in schools, making language learning a more enjoyable experience. Students' ability to use the Duolingo app demonstrates their technical proficiency in handling digital learning resources. This interaction with the application completing exercises, utilizing voice functions, and managing errors serves as crucial indicators of Duolingo's effectiveness. These activities also highlight students' ability to independently use digital tools for language learning, which is a core component of constructivist learning, where knowledge is actively constructed through engagement with the technology.

c. Characteristics Duolingo

Duolingo is available with two versions, one for teachers and one for students. The student will find grammar and vocabulary activities and quizzes organized by context. The teacher version (Duolingo classroom) manages students and English curriculum, creates assignments, monitors class activities, and administers online quizzes and assessments. By utilizing school.duolingo.com, teachers can follow the progress of students and give them feedback. Lessons can include matching, translating, speaking, and multiple choices. Duolingo is Add free, so it is safe for young learners. Moreover, some languages are given more importance and priority than others in Duolingo.

These features give the teacher numerous advantages. First, we can limit the amount of time we spend on evaluation tasks. Compared to traditional paper-based assessments, Duolingo is more faster to use, and students can receive results instantly on their phone screen or computer after completing the test. The second issue is content limitations. We can manage the resources we present to students using Duolingo because there is a curriculum page that contains information about what will be tested on. The material's objective is clearly stated and requires our permission before being posted. To better manage students' time, we can provide specific test times and durations.

d. The Purpose of Duolingo

Vocabulary mastery is crucial for language beginners, particularly foreign language learners. Inadequate vocabulary can make it difficult for beginners to comprehend written or spoken language. Understanding a language relies heavily on vocabulary. Teachers must use engaging techniques to deliver language to students.

Duolingo aims to help users understand and use a language. Users can determine if Duolingo prioritizes vocabulary mastery in their learning experience. Duolingo can be a useful tool for students to improve their vocabulary. Teachers can use it in the classroom to help students master new vocabulary through games, keeping them engaged in learning.

e. Duolingo Exercise

There are many types of exercises help people learn in unique ways. Duolingo offers four types of tasks: vocabulary, listening and transcriptions, sentence completion, and speaking Wagner et al, (2015 p.322). As previously stated, because the exam is computer adaptive, the order and number of times each item appears may vary for each test taker depending on his or her replies. Nushi and Eqbali (2017) outlined the following tasks:

1. Arrange all the words : Users are given a jumbled sentence in their target language and must rearrange the words to make a valid sentence.
2. Complete the translation : sentence is given with a missing word, prompting users to type it.
3. Mark the correct meaning : Users are asked to identify which statements in a single incorrect option are not even grammatically correct.
4. Picture flashcard matching : Involves presenting words and images in one language and matching them to words in another.
5. Picture flashcard translation : Involves showing users a word in one language and asking them to translate it into another using relevant visuals.
6. Read and respond : to a sentence in the learners' target language, highlighting a word and providing three alternative meanings.
7. Select the missing word : Students are given a sentence with a blank and instructed to choose the correct word or phrase to finish it. Sentence completion is a task that involves completing sentences.

8. Sentence shuffle : Students are shown the text of a sentence in one language and a jumbled sentence in the other. You must rearrange the words to create the correct translation. There are two versions of this exercise.
9. Speak this sentence : feature prompts users to read a statement aloud into a microphone. Duolingo's speaking exercises use AI speech recognition to rate how near the pronunciation is to the objective, giving them real-time feedback on their progress! Each word turns blue when the pronunciation is correctly detected. This job also has a one-minute completion time limit.
10. Tap the pairs : to see an even number of boxes in the learners' native and target languages. They must choose the couples. Users can select a box in any language and then translate it.
11. Translation : Users are asked to translate a sentence from one language into another.
12. Type what you hear : learners are given the audio of a sentence and instructed to transcribe it. A button with a turtle on it steadily repeats the text. The test taker should finish the assignment and hear the audio text up to three times. The test taker has one minute to complete this assignment.
13. What you hear : Learners are given audio and transcription options for a word or sentence.

f. Advantages of Duolingo Application

There are several advantages of Duolingo as medium of learning in classroom. The advantages include :

- a. Duolingo is a language learning program that promotes student engagement in learning English. Duolingo uses gamification to stimulate and engage students in their study Munday (2016). Students are more likely to remember game-related material since they are engaged and enjoy learning.
- b. Duolingo is a customizable program that can help students improve their vocabulary while at home. According to Munday (2016, p. 93-94) research, 84.8% of A1 students believe Duolingo homework is superior to other forms of homework.
- c. Teachers may easily include the Duolingo app into both indoor and outdoor learning, as it is accessible at any time. This language learning app allows users to study anytime, anywhere with an internet connection.

Based on the description above, the Duolingo program can keep students engaged in their English language studies since it appears to be a game, which keeps them from becoming disinterested in studying grammar, particularly the basic present tense. You can use this adaptable program at home or at school.

g. Disadvantages of Duolingo Application

There are several advantages of Duolingo as medium of learning in classroom. The Disadvantages include:

- a. The Duolingo app will work as long as you have an internet connection. Mobile connectivity encompasses numerous wireless access technologies, including GPS, EDGE, GPRS, GSM, 3Gs, 4Gs, WiMAX, WiFi, and WLAN. The Duolingo app is not suitable for distant places without internet connectivity.
- b. If teachers wish to utilize the Duolingo app in class, they'll need a projector. This encourages student engagement and participation in the learning process. Teachers require additional time and resources to prepare projectors, loudspeakers, and notebooks for regular classes (Munday, 2016). Inadequate infrastructure, such as projectors and loudspeakers, can hinder the efficacy of the Duolingo app in schools.

Based on the description above, the duolingo application cannot be used when there is no good internet network and this application requires a projector in the classroom so schools are required to have adequate facilities.

3. The Concept of Vocabulary

a. The Definition of Vocabulary

The definitions of vocabulary are provided by a number of professionals. Since mastery of vocabulary is the primary criterion that determines a person's success in becoming proficient in the language,

vocabulary plays a crucial part in learning English Yulianti (2021). For further information, someone who lacks vocabulary will find it difficult to express his ideas and thoughts; on the other hand, someone who has learned vocabulary will be able to use it to construct sentences.

Vocabulary is essential to language and crucial to the normal process of acquiring a language Zimmerman and Anisa (2018). Those learning a language shouldn't overlook vocabulary. If someone wishes to become proficient in all four language skills, it must even be mastered. Therefore, it is important for students to have a solid vocabulary in order to assist their capacity to communicate both orally and in writing. Students can converse in English with others once their vocabulary grows. When students feel a sense of belonging in the classroom, it can significantly enhance their educational success and motivation in various ways Gray (2021).

Vocabulary is recognized as the foundation for all languages. As a result, learning a new language is inextricably linked to vocabulary development. Vocabulary is crucial for language mastery as it guides learners' speech, listening, reading, and writing skills. A limited vocabulary can hinder learning and discourage students from using language effectively. For instance, students may struggle with reading comprehension. According to Mahmudah (2019) vocabulary plays a crucial role in comprehending communication. Recognizing sentence structure without knowing the words can hinder comprehension.

According Crystal (2020) Vocabulary refers to the set of words known or used by a person or within a language. English schools typically teach vocabulary as a skill. Vocabulary helps kids learn English more effectively. Vocabulary is a technique for conveying ideas and messages through words. Vocabulary is an important ability to teach in English classes, although it is not always obvious in the session. It is integrated into the overall teaching of the language.

Students need to develop their vocabulary in order to comprehend material that is presented to them both orally and in writing. Proficiency in vocabulary will also help students articulate their thoughts and goals. Therefore, before learning a language learner needs to become proficient in vocabulary Sunariati (2019). Therefore vocabulary is so crucial to studying English in order to improve and fluently use the four English language abilities of speaking, listening, reading, and writing. The meaning of the term, spelling, grammar, and affixes are only a few of the numerous vocabulary-related elements that can be studied during vocabulary study.

b. The Natures of Vocabulary

Language acquisition and vocabulary mastery should go hand in hand. Mastering vocabulary is equally vital as mastering other language skills and components. As mentioned in the previous chapter, vocabulary is a crucial aspect of English language. Vocabulary is one of the language skills that should be acquired. Acquiring it is crucial since learners must first master

vocabulary in order to write, speak, and listen. It implies that when acquiring vocabulary, students must comprehend its meaning as well as be able to utilize it in a sentence. One component of language proficiency that is both vital to have and crucial to master is vocabulary.

According to Hornby (2019), Vocabulary is the total number of words which make up language, word know too, or used by a person, in trade profession, etc. According to Read (2020), vocabulary is the knowledge of understanding the meanings of words. Vocabulary usage varies by field, individual, class, and career. Wessel on Arina emphasizes the importance of vocabulary for academic performance. Students may struggle to comprehend text content if they don't understand the meaning of the terms used. Academic books often use many dictionaries to prevent over-reading. Limited vocabulary can hinder students comprehension of the book's content. Vocabulary is an important part of the English language that conveys meaning throughout communication. Acquiring the English language requires mastering it.

Vocabulary usage might differ depending on the profession, class, individual, or field. According to Wessel on Arina, vocabulary is crucial for students to succeed academically. If children are unable to comprehend the meaning of the words in a text, they may have trouble grasping the text's content. In order to avoid reading too much, academic books frequently use a lot of language. Students may find it difficult to comprehend the material in the book if their vocabulary is limited.

As a result, we may presume that vocabulary is a significant part of the English language that conveys meaning for communication. In order to learn English, you must become proficient in it.

c. Types of Vocabulary

Vocabulary is classified into two types: respectful and productive. Arista (2018) distinguishes between productive and receptive vocabulary. Productive vocabulary includes commonly used nouns, adjectives, verbs, and adverbs, while receptive vocabulary includes rarely used nouns, verbs, adjectives, and adverbs, such as ruffel (noun) and glaring (adjective). Arista (2018) categorizes language into nouns, verbs, adjectives, and adverbs.

a. Noun

Noun is one of part speech which used to identify any a class of people, place, or things. Nouns indicate substances whether animate or inanimate objects. So it can be concluded that nouns refer to words that refer to people, animals and places.

b. Verbs

Verb are words that tell about an action or situation. So, in a sentence the verb will show the action carried out by someone.

c. Adjective

Adjectives are words to describe something and usually appear before nouns. Adjectives are used to identify a noun/pronoun, they are usually placed before the noun or pronoun.

d. Adverb

Adverbs are used to explain further about verbs and verbs can also show information such as when, where, usually adverbs often modify verbs and adjectives.

Furthermore, in relation to kinds of vocabulary, Nation states that there are four kinds of vocabulary in the text :

1. High-frequency words. Nearly 80% of the text's running words are these words. For instance: substance terms (government, forest, production) and function words (in, for, the, of, a).
2. Academic words. These words typically account for around 9% of the text's running words; it includes a number of terms that are frequently used in various academic text types, including policy, phase, adjusted, and sustained.
3. Technical words. These words comprise roughly 5% of the text's running words; some of them are highly relevant to the subject. The technical terms used in this context include indigenous, regeneration, podocarp, and beech because the subject is forest planting.
4. Low-frequency words. These are the moderately frequent terms that were left off of the high frequency list. These words, which include zoned, pioneering, perpetuity, aired, and pastoral, comprise more than 5% of the vocabulary in an academic text.

d. Vocabulary Mastery

Vocabulary is one of the language skills that should be developed. It is crucial to learn since in order to speak, write, and listen, students must first acquire vocabulary. When a person recognizes the meaning of a term, they are said to have knowledge of it. This means that when acquiring vocabulary, students must understand and be able to utilize it in sentence context.

According to Nation (2020), vocabulary mastery is a key component of language proficiency, encompassing both receptive (words recognized in listening and reading) and productive (words used in speaking and writing) vocabulary. He emphasizes that mastering vocabulary involves more than knowing word meanings it requires the ability to understand a word's form, meaning, and usage in context. This mastery develops through repeated exposure, meaningful interaction, and active practice. Nation also highlights the importance of connecting English words with learners' native language and experiences to support retention and application. In this study, Nation's theory serves as the foundation for exploring how Duolingo supports students' understanding and use of vocabulary through its gamified, interactive features.

These are the presumptions of certain by experts regarding what constitutes language mastery. In conclusion, mastery refers to thorough understanding, whereas vocabulary deals with words and meaning. Vocabulary mastery is the ability to recognize, comprehend, and generate

words and their meanings through extensive knowledge. All things considered, we can review that mastering a word involves more than just understanding its meaning it also entails understanding its usage, semantic significance, and many other aspects. However, the students vocabulary should also be compared to their cognitive stage.

Vocabulary mastery refers to an individual's understanding and mastery of words. To learn vocabulary, individuals must memorize it, pronounce it correctly, and comprehend its meaning. According to Kurniati and Karsana (2020) common vocabulary as the generic terms humans use for communication, such as verbs, nouns, adjectives, adverbs, conjunctions, and pronouns. Specialized vocabulary includes words related to certain topics including time, color, money, secret, and popular terminology. Vocabulary mastery refers to an individual's or student's understanding of vocabulary, including its various facets.

Mastering vocabulary can enhance English proficiency and provide pupils with a deeper understanding of its meanings. Mastering English vocabulary allows pupils to speak effectively and appropriately. According to Asyiah (2020), vocabulary has a significant role in communication. Therefore, vocabulary is crucial for effective communication.

Vocabulary proficiency is essential in learning English as a second language, a restricted vocabulary can make it difficult for student to communicate successfully in English. Without a large vocabulary, ideas cannot be adequately articulated but, with a diverse vocabulary at their

disposal, students can significantly improve their English skills. Extending one's vocabulary and learning new expressions can help students improve their English communication skills. Students must learn vocabulary in order to comprehend information received verbally and in writing. Mastery of language will also help students convey their ideas as well as their goals and aspirations. According to Sunariati (2019) the importance of mastering vocabulary as a prerequisite for language learning.

Vocabulary mastery refers to knowing the meaning, form, and usage of multiple terms in a language throughout communication. Prior to learning English, students must first acquire basic knowledge. Vocabulary learning is a major issue in English learning since it contains the fundamental building blocks of English sentences. Vocabulary mastery is not a spontaneous or simple process. Vocabulary mastery occurs as early as infancy. The baby's first language is his or her mother tongue. Listening to others speak will help students master simple vocabulary words. Effective English vocabulary learning requires both English ability and English skills, which are crucial in the teaching and learning process. Students need a broad vocabulary to understand passages and queries that differ from everyday language.

e. Vocabulary Retention

1. Vocabulary Retention

Vocabulary retention refers to the ability to recall previously learned words after a set period of time. Retention is an important feature of language acquisition since vocabulary mastery cannot be fully completed without the ability to recall previously learned terms.

According to Ebbinghaus's (1885) idea of the forgetting curve, we forget information with time, but regular repetition can improve long-term retention. In terms of vocabulary retention, this indicates that words learned will be simpler to recall if they are taught repeatedly. Duolingo employs a spaced repetition technique that allows students to repeat language in a predetermined time frame. This allows kids to retain words more efficiently in the long term. According to Craik and Lockhart (1972), the more deeply information is digested, the longer and better the memory retention. In the context of vocabulary mastering, students who process words more deeply (for example, by using them in sentences or relating them to personal experiences) have better retention than students who merely learn word meanings. Duolingo helps with this process by giving exercises that push students to not only recall vocabulary but also utilize them in a variety of settings through sentence-based questions.

Spaced repetition is a strategy in which the subject to be studied is portrayed over an increasing length of time. Tharp and Gallimore (1988) discovered that repeating at regular intervals can strengthen long-term

memory. This is especially true for mastering vocabulary in a foreign language, as repeating a word at regular intervals causes it to be remembered beyond short-term memory. Duolingo employs a spaced repetition approach, which repeats vocabulary to pupils according on their skill level and the time since the word was last acquired. This ensures that more difficult terms or those that have not been used in a long time will emerge in practice.

According to Atkinson and Shiffrin (1968), information that enters short-term memory must undergo a consolidation process before it can be retained in long-term memory. In this scenario, repeating information helps to consolidate that memory. Vocabulary that is often learnt and used will be easier to commit to long-term memory. Duolingo allows students to repeat words through a variety of exercises that not only measure vocabulary knowledge but also confirm if students recall them after a period of time. This facilitates a more efficient memory consolidation process.

Vocabulary mastery is the primary foundation for foreign language learning. According to Nation (2001), vocabulary mastery includes the ability to mention, interpret, and employ words in context. In addition, Schmitt (2008) stated that good vocabulary acquisition includes long-term retention or vocabulary retention. In application-based learning, students who can rephrase, utilize in sentences, understand meaning, and pronounce new vocabulary confidently demonstrate a high degree of mastery. As a

result, this factor is critical to consider while conducting studies on the use of Duolingo.

2. Factors Affecting Vocabulary Retention

a. The frequency and duration of repetition

Regular repetition of words is critical in the memory process. According to Laufer (2000), the more frequently pupils see words, the more likely they are to keep them in long-term memory. With enough repetition, the word will be easy to remember when needed.

b. Active Participation in Learning

Active participation of students in the use of acquired words can improve vocabulary memory. According to Nassaji (2004), using words in a range of situations and activities (e.g., listening, speaking, reading, and writing) might help pupils recall them for longer periods of time.

c. Applied Learning Methods

Learning strategies that allow pupils to interact directly with words can improve retention. According to Schmitt (2000), teaching vocabulary through context and practical application increases the likelihood of word retention in memory.\

3. The Importance of Vocabulary Retention in Language Learning

- a. Long-Term Learning Effectiveness: Without strong retention, vocabulary learning is restricted to short-term comprehension, and pupils will struggle to use the language in conversation or writing.
- b. Use in Context: Vocabulary that has been successfully preserved in long-term memory is easier to apply in more natural and effective communication settings.

f. Relevance of Theories to the Research Instruments

The instruments used in this study namely the questionnaire and interview guidelines were fully adopted from previous studies that have been proven valid and reliable in examining students' perceptions of Duolingo in vocabulary learning.

The questionnaire was adopted from Masita (2022), who developed it to assess how gamified features in Duolingo, such as points, levels, and challenges, enhance student engagement in vocabulary learning. Her study found that students felt more motivated and engaged in memorizing vocabulary due to the presence of interactive elements. Therefore, her questionnaire was considered appropriate for use in this study.

The interview guidelines were adopted from the study by Jaelani and Rachmadanti (2020), which explored students' perceptions of Duolingo as a language learning application. Their interview instrument aimed to explore learners' motivation, learning experience, and attitudes toward

gamified vocabulary learning. The findings revealed that students had a positive perception of Duolingo because it made learning more enjoyable and less monotonous.

The use of these instruments is also supported by relevant theories and empirical findings. For instance, Wardani (2023) stated that gamified elements in Duolingo such as points, rewards, and daily challenges significantly boost students' motivation and learning consistency. Derakhshan et al. (2021), in their systematic review, concluded that gamified apps like Duolingo provide repeated exposure to vocabulary, which contributes to long-term retention. Repeated interaction with vocabulary in meaningful ways helps students remember and reuse words effectively. Wahyuni et al. (2024) emphasized that Duolingo not only improves vocabulary acquisition but also supports self-regulated learning through flexible repetition and independent pacing. Students are able to control their learning schedules, which fosters autonomous learning habits. Fadhilah (2022) also found that students felt more confident and enthusiastic when using gamified mobile learning tools compared to conventional methods. She highlighted that gamification creates a more positive and engaging learning atmosphere.

In summary, the instruments used in this study were not arbitrarily constructed but were based on strong theoretical and empirical foundations. The adoption of previously validated instruments strengthens the credibility and trustworthiness of the data collected in this qualitative research.

B. Previous Related Study

There are several researcher have been conducted related to this topic. In this research there are three previous research which related to this topic.

The first previous research is conducted by Masita (2022), with the research entitled "Students' Perception Of Using Duolingo Application In Improving Students' Vocabulary Mastery at the Tenth Grade of Sma Negeri 1 Kasimbar ". Masita's study on students' perception of using the Duolingo application to improve vocabulary mastery among tenth-grade students at SMA Negeri 1 Kasimbar employed a qualitative approach, utilizing questionnaires and interviews to gather students' perspectives. The findings indicated that most students viewed Duolingo positively as an effective tool for enhancing their vocabulary skills. They appreciated the app's interactive and user-friendly features, which made learning more enjoyable and motivated them to study independently. However, some students noted challenges, including technical difficulties and occasional lack of sufficient explanations for certain vocabulary items. The study concluded that while Duolingo supports vocabulary improvement and increases learner engagement, it should be complemented with additional learning resources and teacher guidance to maximize its benefits. Overall, Masita's research offers valuable insights into how students perceive Duolingo's role in vocabulary development. This is relevant to my study, which similarly explores students' perceptions using a qualitative method but focuses on

Duolingo as a gamification tool to increase vocabulary mastery specifically for eighth-grade students at MTs Al Fakhriyah.

The second previous study was conducted by Utami (2020) under the title "Students' Perception on the Use of Duolingo as a Language Learning Application For Learning English." Dezza Yuanda Utami's study on students' perception of using Duolingo as a language learning application employed a qualitative approach with questionnaires and interviews to explore students' views on using Duolingo in English language learning. The findings revealed that the majority of students had a positive attitude toward Duolingo due to its interactive features, ease of access, and engaging, motivating learning methods. However, some students expressed challenges such as limited direct interaction with teachers and insufficient opportunities to practice speaking skills, indicating that the application could not fully replace conventional classroom learning. The study emphasized that while Duolingo is effective in increasing motivation and supporting independent learning, the teacher's role remains essential in complementing language instruction. In brief, Utami's research provides valuable insights into students' perceptions and experiences using Duolingo as a tool for learning English. This study is relevant to my research, which also uses a qualitative approach to explore students' perceptions but focuses specifically on the use of Duolingo as gamification to enhance vocabulary mastery among eighth-grade students at MTs Al Fakhriyah.

The third previous study was conducted by Urrohmah (2022), titled "Junior High School Students' Perceptions Toward the Use of Duolingo as a MALL (Mobile-Assisted Language Learning) for Learning English Grammar." This research aimed to explore how students perceived the use of Duolingo specifically for learning grammar. The study employed a qualitative descriptive method by using questionnaires and interviews with junior high school students. The results showed that most students had positive attitudes toward Duolingo. They found the application user-friendly, enjoyable, and motivating due to its gamified features such as levels, rewards, and daily streaks. Students particularly appreciated the immediate feedback and repetition, which helped reinforce their understanding of grammar structures. However, some participants noted that the app lacked in-depth grammar explanations, making it difficult to fully grasp the rules without teacher guidance. Overall, the study concluded that Duolingo is a supportive tool that promotes learner motivation and autonomy in grammar learning.

This previous study shares similarities with the current research in that both investigate the use of Duolingo in junior high school contexts and focus on students' perceptions of the application. However, there are important distinctions. Liwa's study concentrates on grammar learning, while the present research focuses on vocabulary mastery a fundamental component that supports all language skills. In addition, while Liwa primarily explores students' attitudes, this study also aims to examine how

Duolingo contributes to the process of vocabulary retention and mastery through its gamified features. By focusing on vocabulary, this study fills a gap in the existing literature and offers a different angle on how mobile-assisted learning tools like