CHAPTER I

INTRODUCTION

Language learning evolves the tools that support it. This chapter introduces the foundation of the current research, including its background, objectives, research question, significance, scope, conceptual framework, and relevant prior studies. Each part is essential in establishing the relevance and direction of the investigation.

A. RESEARCH BACKGROUND

Vocabulary mastery is a fundamental aspect of English language learning, particularly for young learners (EYL). It serves as the foundation for developing other language skills, including listening, speaking, reading, and writing. However, many EYL students encounter difficulties in expanding their vocabulary due to monotonous teaching methods and the limited availability of engaging and diverse learning resources. According to a UNESCO report (2022), more than 60% of primary school students in developing countries struggle to comprehend simple texts due to inadequate vocabulary mastery. This issue underscores the need to adopt innovative approaches to enhance vocabulary learning, making it more effective, interactive, and enjoyable.

In the early stages of language acquisition, children are highly receptive to input, but they require meaningful exposure and repetitive practice to internalize vocabulary effectively. As stated by Cameron (2001), young learners tend to remember words better when they are taught in a context that is familiar, enjoyable, and multisensory. Therefore, the use of creative and child-friendly media plays an important role in supporting vocabulary development. Unfortunately, in many classroom settings, vocabulary is often taught through drilling or rote memorization, which may not align with how children naturally learn.

In addition to these general challenges, vocabulary instruction also presents specific issues in real classroom contexts, particularly in Indonesian elementary schools. Based on personal teaching experience in an elementary school, students encountered difficulties in acquiring English vocabulary due to several practical factors. At the time, the school lacked a qualified English teacher, resulting in limited exposure to structured language input. While students had access to digital tools and were later facilitated with computers, these technologies were not

optimally used for language learning. The absence of engaging and interactive media further contributed to low motivation and poor vocabulary retention among students. This situation highlights the urgent need to incorporate more effective, student-friendly digital tools into vocabulary instruction for young learners.

Technological advancements in the modern era have significantly transformed education by introducing various digital tools that support the learning process. One notable tool is Duolingo, a digital language learning application that has been downloaded over 500 million times worldwide. Duolingo incorporates gamification elements, including points, badges, and challenges, to sustain learners' motivation and engagement. A study by Loewen et al. (2020) found that Duolingo improved vocabulary skills by up to 34% among adult learners after a three-month usage period. These features position Duolingo not only as a language learning platform but also as an interactive and enjoyable educational tool.

From the perspective of Mobile-Assisted Language Learning (MALL), Duolingo represents a form of flexible and self-paced learning that aligns with the digital habits of today's learners. According to Kukulska-Hulme (2009), mobile learning enhances access to content, increases learner autonomy, and encourages out-of-classroom engagement, which is essential for vocabulary growth. Especially in contexts where classroom time is limited, supplementary digital tools such as Duolingo can offer consistent practice outside formal lessons, helping students retain and internalize vocabulary more effectively.

In Indonesia, English instruction at the elementary level is now aligned with the Kurikulum Merdeka, a curriculum designed to be flexible and student-centered. This curriculum provides teachers with greater autonomy and encourages personalized learning approaches. Introduced by the Kemendikbudristek, the Kurikulum Merdeka aims to cultivate not only academic proficiency but also life skills, critical thinking, and creativity among students (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022). While this shift offers opportunities for integrating digital learning tools such as Duolingo, it also presents challenges, particularly for educators transitioning from traditional teaching methods to modern, technology-enhanced approaches.

Many schools now permit students to use digital devices for educational purposes, creating opportunities to incorporate technology-based applications like Duolingo into the learning process. The integration of Duolingo as a mobile learning application aligns with the demands of 21st-century education, which emphasizes digital literacy, interactive learning, and self-directed study. Implementing such tools has the potential to bridge the gap between conventional teaching methods and contemporary educational needs.

Despite Duolingo's global popularity, research on its impact on vocabulary acquisition among young learners in formal educational settings remains limited. Most existing studies have examined its application among adult learners or its effects on overall language proficiency. This research gap is particularly relevant given the unique developmental characteristics and learning needs of young learners. As noted by Pinter (2006), children's learning is heavily influenced by emotional engagement, visual stimuli, and repetition, all features integrated into Duolingo's platform.

Therefore, this study aims to examine the effectiveness of Duolingo as a digital language learning tool in improving vocabulary mastery among EYL students. By focusing on an elementary school setting where the integration of mobile applications is feasible, this research seeks to contribute to the growing body of literature on technology-enhanced language instruction. Furthermore, the findings are expected to offer practical insights for educators in incorporating innovative platforms like Duolingo to enhance English vocabulary for young learners.

B. RESEARCH QUESTIONS

This study focuses on the effectiveness of using Duolingo as a digital learning tool to enhance students' vocabulary mastery in an elementary school setting. Based on this objective, the research questions are formulated as follows:

1. What is the level of students' vocabulary mastery before the use of Duolingo as a learning tool?

2. What is the level of students' vocabulary mastery after being exposed to the Duolingo application?

3. To what extent does the use of Duolingo significantly improve vocabulary mastery among elementary school students?

C. RESEARCH PURPOSES

This study aims to examine the effectiveness of Duolingo as a digital language learning tool in improving vocabulary mastery among elementary school students. The research is conducted through a pre-experimental design by implementing a one-group pre-test and post-test model. Based on this aim, the purposes of the study are:

1. To identify the level of students' vocabulary mastery before the implementation of Duolingo as a digital learning tool.
2. To determine the level of students' vocabulary mastery after using the Duolingo application.
3. To investigate the extent to which Duolingo significantly improves students' vocabulary mastery in the context of English for Young Learners (EYL).

D. RESEARCH SIGNIFICANCE

This study is expected to contribute both theoretically and practically, as outlined below:

1. Theoretical Significance

This study contributes to the field of Teaching English to Young Learners (TEYL) by providing insight into the use of Duolingo as a digital tool to improve vocabulary mastery. Research by Garcia Botero et al. (2019) shows that mobile-assisted language learning (MALL) can enhance students' motivation and outcomes. By applying Duolingo in a formal elementary classroom, this study expands the discussion on language acquisition in digital learning environments, especially for young learners. Moreover, this study supports the ongoing discussion of language acquisition in digital learning contexts, where mobile-assisted tools are seen as potential facilitators for vocabulary growth among EYL students.

2. Practical Significance

This study has several practical implications for educational stakeholders. For teachers, the findings offer actionable guidance on integrating technology-based tools like Duolingo into classroom instruction to create interactive and gamified vocabulary lessons. For students, especially English for young learners (EYL), Duolingo supports self-paced and motivated vocabulary learning through features like streaks, badges, and level progression. Moreover, empirical evidence supports

these claims. In an experimental study at SMKN 1 Padang, Nasrul and Fatimah (2023) found that tenth-grade students experienced a significant increase in both English learning motivation and vocabulary enrichment after using Duolingo. Motivation scores rose from a mean of 47.86 to 81.82, and vocabulary scores likewise increased from 48.91 to 82.50 (p <.001).

This suggests that gamified learning applications, when appropriately implemented, can serve as highly effective supplementary resources, aligning with 21st-century educational objectives. Schools and institutions may consider adopting such digital platforms as part of blended learning models, where gamified tools like Duolingo complement structured classroom instruction, rather than replace it.

E. RESEARCH SCOPE

This study aims to examine the effectiveness of Duolingo as a digital language learning tool in improving vocabulary mastery among English Young Learners (EYL) within a formal educational setting. The participants are fifth-grade students from an elementary school in Subang City, who represent the developmental stage of middle childhood, where foundational language skills are actively being formed. As students within the EYL category (typically aged 6–12), they are ideal subjects for observing the impact of mobile-assisted language learning tools such as Duolingo.

The study focuses on two main variables: the use of Duolingo as the independent variable (implemented through guided digital learning activities), and students' vocabulary mastery as the dependent variable, measured through vocabulary tests. Using a pre-experimental one-group pre-test and post-test design, the research evaluates students' vocabulary mastery before and after they are exposed to Duolingo-based learning activities over a six-week period. The intervention is carried out during regular English classes, where Duolingo is integrated as a supplementary tool to support vocabulary acquisition.

The collected data will be analyzed to determine whether a statistically significant improvement in vocabulary mastery occurs as a result of using Duolingo. Through this design, the study aims to provide empirical evidence on the

potential of digital gamified tools to enhance vocabulary learning among elementary school students in a structured classroom environment.

F. RESEARCH FRAMEWORK

This study investigates the effectiveness of Duolingo, a digital language learning tool, in enhancing vocabulary mastery among elementary school students, specifically those learning English for Young Learners (EYL). Duolingo is a mobile-based platform that integrates gamified lessons, adaptive learning technology, and instant feedback to promote language acquisition (Munday, 2016). The application is designed to engage learners through motivational features such as streaks, badges, and level progression, encouraging consistent and self-directed learning habits.

From a theoretical perspective, the integration of Duolingo into language learning can be situated within the framework of Mobile-Assisted Language Learning (MALL). MALL refers to the use of mobile devices such as smartphones and tablets to support language learning in flexible, context-aware, and learner-centered ways (Kukulska-Hulme & Shield, 2008). This approach emphasizes portability, immediacy of access, and opportunities for authentic practice beyond the classroom. Viberg and Grönlund (2013) highlight that MALL promotes learner autonomy, increases engagement, and enables personalized learning experiences, particularly beneficial for young learners who respond well to interactive and multimodal input. Positioning Duolingo within the MALL framework underscores its potential to enhance vocabulary mastery by offering frequent, engaging, and context-rich language practice accessible anytime and anywhere.

In this research, Duolingo is implemented as a supplementary instructional tool during six weeks of classroom English lessons. Its gamified design, combined with visual and audio elements, provides repeated and contextualized exposure to vocabulary retention and more meaningful language practice. The researcher posits that the interactive nature of Duolingo allows learners to process and engage apply vocabulary, making learning both accessible and enjoyable for young learners.

Vocabulary mastery, the dependent variable in this study, is defined as the ability to recognize, understand, and appropriately use words in various contexts (Nation, 2001). Rather than viewing vocabulary as a static list of words, this study

emphasizes vocabulary as a dynamic skill that develops through exposure, repetition, and usage. Through the structured practice provided by Duolingo, learners are expected to make incremental progress in vocabulary acquisition.

The study employs a pre-experimental one-group pre-test and post-test design. The independent variable (X) is the use of Duolingo as a digital language learning tool, applied equally to all participants during classroom instruction. The dependent variable (Y) is students' vocabulary mastery, measured through vocabulary tests administered before and after the treatment period. The comparison of these test results aims to determine whether there is a statistically significant improvement is students' vocabulary mastery following the integration of Duolingo into their learning experience.
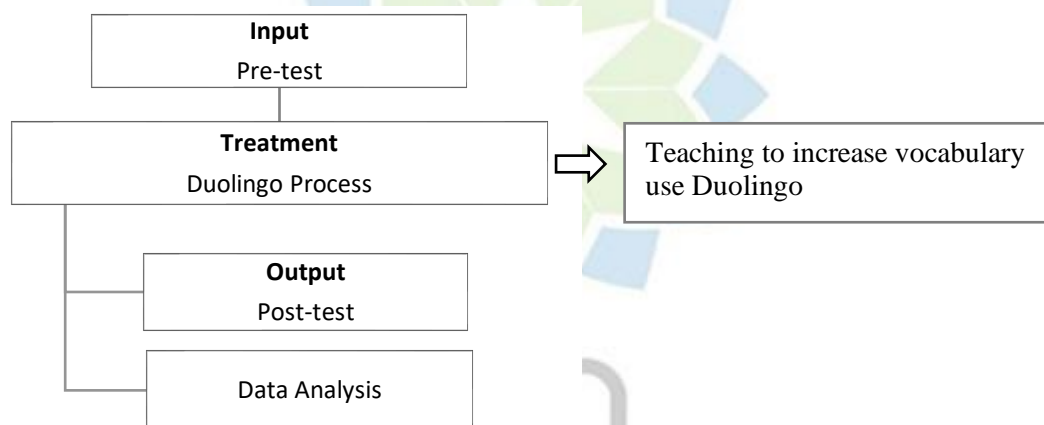

Figure 1.1 Conceptual Framework

The conceptual framework above illustrates the overall process of this study, beginning with the input, which includes the students as participants and their initial vocabulary ability, measured through a pre-test. The treatment refers to the learning process using Duolingo, a digital language learning application, conducted over several sessions. During this stage, students practiced English vocabulary through gamified features provided in the app. The output is the students' vocabulary mastery after using Duolingo, which was measured through a post-test. Lastly, the data analysis was carried out using statistical tools, specifically a paired sample t-test, to examine whether there was a significant difference between students' pre-test and post-test scores. This framework helped guide the researcher in evaluating

the effectiveness of using Duolingo in teaching vocabulary to young learners in a structured and measurable way.

G. HYPOTHESIS

Following the research questions and objectives outlined in this study, hypotheses are formulated to test the significance of the difference in students' vocabulary mastery before and after the use of Duolingo as a digital learning tool. Hypothesis testing is an essential step in quantitative research to determine whether the observed outcomes are statistically meaningful or occurred merely by chance. The hypotheses are stated as follows:

- Null Hypothesis (H_0):
  There is no significant difference in students' vocabulary mastery before and after using Duolingo.
- Alternative hypothesis (Ha):
  There is a significant difference in students' vocabulary mastery before and after using Duolingo.

H. PREVIOUS STUDY

Duolingo has been widely explored as a digital language learning tool, particularly for its potential to enhance vocabulary acquisition. One of the most prominent studies was conducted by Loewen et al. (2020), who employed a quantitative research method involving pre- and post-tests to assess the impact of the application on vocabulary development among adult learners. Their findings revealed a significant improvement, about a 34% increase in vocabulary retention, after three months of regular Duolingo use. This result demonstrates Duolingo's capacity to contribute positively to language acquisition when learners engage consistently with the platform.

However, despite the compelling data, Loewen et al.'s study had limitations. It focused on adults and took place in informal learning settings, where learners used Duolingo independently rather than in structured classroom environments. In addition, while labeled a "case study," the research leaned heavily on quantitative data, which makes it strong in statistical validity but less informative about learning processes in children or pedagogical strategies in formal education. As a researcher focusing on young learners, I find this gap particularly relevant, as children's

cognitive and emotional needs in vocabulary learning differ significantly from those of adults.

Moving to secondary education, Purwanto and Syafryadin (2023) explored students' perceptions of using Duolingo at a Madrasah Tsanawiyah (Islamic Junior High School). Their research revealed that most students found the app to be fun, interactive, and useful for expanding their English vocabulary. Students appreciated the app's gamified features, which included point systems, badges, and short practice sessions. However, the research mainly focused on perception data through questionnaires, without any follow-up on actual performance outcomes such as vocabulary tests. From the perspective of practical application in EYL contexts, the lack of measurable academic results limits how far the findings can be generalized, especially to primary-level students who require both engagement and guided instruction to make meaningful language gains.

A similar conclusion emerges from the study by Febrianti et al. (2024), who investigated the impact of Duolingo on vocabulary learning among university students. Utilizing a quantitative design, the research reported statistically significant gains in students' lexical knowledge after structured use of the application. Participants described Duolingo as user-friendly and motivating, and noted its effectiveness in supporting vocabulary expansion within autonomous learning contexts. However, given the study's focus on higher education, where learners typically exhibit greater self-regulation and metacognitive capacity, the findings are less directly transferable to younger learners in elementary or early secondary settings. As such, while this study affirms Duolingo's value as a vocabulary learning tool, it does not capture the unique needs and dynamics of vocabulary development among young EFL learners.

In a junior high school setting, Jaelani and Sutari (2021) conducted a descriptive quantitative study involving 30 eighth-grade students from a school in Bogor, Indonesia. The research aimed to explore students' perceptions of using the Duolingo application as a supplementary tool for English vocabulary learning. The findings showed that the majority of students held positive views toward the application. They found Duolingo easy to use, enjoyable, visually engaging, and highly motivating. The app's game-like format and reward system were perceived

to increase their willingness to study and maintain consistency. Moreover, students reported improvements in their vocabulary knowledge and pronunciation as a result of repeated exposure and practice through the app. These results indicate that Duolingo can serve as a supportive platform for vocabulary acquisition, especially in digital-based language learning environments. However, the study emphasized learners' perceptions rather than learning objective outcomes. which suggests the need for further research involving experimental methods to assess the actual impact of Duolingo on vocabulary mastery.

On the other hand, a relevant study for elementary school learners is the descriptive qualitative research by Rahma Sakina and Riyanti Sri Astuti (2024), conducted with fifth-grade students in Sumedang. They explored young learners' perceptions of using Duolingo for vocabulary acquisition through observation, questionnaires, and interviews. The findings revealed that students perceived the application as motivating, effective in helping them memorize new words, and supportive in using vocabulary in daily conversations. Despite some issues such as mismatched materials and limited classroom technology, Duolingo was generally regarded as a helpful supplement to English instruction in young learners' contexts. As the study did not measure vocabulary gains quantitatively, it underscores the importance of combining learner perception and empirical evidence, especially in EYL settings.

Additionally, Saraswati, Anam, and Purwanti (2023) explored how Duolingo contributes to self-regulated learning in elementary school students. They found that the app encouraged learners to develop independent study habits and motivation. The study adds important insights about the behavioral outcomes of Duolingo use, such as autonomy and perseverance. However, one key limitation is that the research did not directly measure vocabulary improvement, making it difficult to determine the true impact of the app on language acquisition. Still, the study remains relevant as it emphasizes the broader benefits of mobile-assisted language learning (MALL) for young learners, particularly in supporting flexible and student-centered education.

Finally, several international studies highlight the effectiveness of Duolingo and other mobile-assisted tools for vocabulary learning among young or early

learners. One study in Spain by Cerezo, Calderón & Romero (2019) investigated a holographic mobile-based application designed for Spanish-speaking preschool children. The controlled experiment revealed significant improvements in both motivation and vocabulary retention when compared with traditional instruction methods. Meanwhile, Kazu & Kuvvetli (2024) conducted a mixed-methods quasi-experimental study with high school learners in Turkey. Students who used Duolingo's school feature weekly for 12 weeks showed marked gains across all language skills, including vocabulary, along with strong positive perceptions of the gamified, adaptive platform.

In conclusion, while previous studies have made meaningful contributions to understanding Duolingo's role in language learning, they also highlight several research gaps. First, there is limited empirical research on how Duolingo impacts vocabulary mastery among elementary school students in formal educational settings. Most existing studies focus on adult or secondary learners, often in informal environments. Second, several studies lack objective vocabulary outcome measures, relying primarily on perceptions, interviews, or observations. Third, even when vocabulary gains are reported, the importance of teacher support in guiding young learners is often highlighted but not deeply investigated. This suggests a need for more integrated research that combines digital tools like Duolingo with structured, teacher-led instruction to optimize learning outcomes.

Therefore, the present study aims to address these gaps by investigating the effectiveness of Duolingo as a digital learning tool in enhancing vocabulary mastery among elementary school students. By using pre- and post-test instruments in a formal classroom setting, this research provides a more reliable and structured approach to evaluating how Duolingo functions when aligned with the needs of English for Young Learners (EYL). In line with the findings of earlier studies, it is hypothesized that Duolingo will significantly improve vocabulary mastery when used consistently and under the guidance of classroom instruction.