
Improving English Vocabulary Mastery Through Duolingo Application For Grade 5 At SD Inpres Kayu Putih

Patrisius Dake¹⁾, Rozita Yusniaty Lodo²⁾, Agnes O. Manek³⁾

^{1,2,3)}English Language Education Study Program, Universitas San Pedro Kupang, Indonesia

*Patrisius Dake

Email : patrisiusdake8@gmail.com

Abstract

This study investigates the effectiveness of the Duolingo application in improving the English vocabulary mastery of fifth-grade students at SD Inpres Kayu Putih, Oesao II, Kupang Timur District, Kupang Regency, East Nusa Tenggara. This research is based on vocabulary learning theories that emphasize the importance of vocabulary in language acquisition (Nation, 2013; Schmitt, 2010), as well as the theory of Mobile-Assisted Language Learning (MALL), which supports the use of digital applications in language education. Duolingo also utilizes gamification elements to enhance student motivation in learning. The research employed a quantitative quasi-experimental design involving two groups: an experimental group taught using the Duolingo application and a control group taught through conventional methods. Data were collected through pre-tests, post-tests, classroom observations, and student questionnaires. Statistical analysis using an independent samples t-test revealed a significant difference between the two groups ($t = 4.208$, $p < 0.05$), with the experimental group achieving a higher mean post-test score ($M = 84.27$) compared to the control group ($M = 68.80$). The effect size (Cohen's $d = 1.54$) indicated a strong impact of Duolingo on vocabulary mastery. Questionnaire results further showed that students perceived Duolingo as enjoyable, motivating, and effective for learning new vocabulary. The findings suggest that integrating Duolingo into English instruction enhances both learning outcomes and student engagement. Therefore, the application can serve as an effective supplementary tool for teaching vocabulary to young learners in elementary education.

Keywords: English Vocabulary Mastery, Duolingo application, Grade 5 students, SD INPRES Kayu Putih.

INTRODUCTION

English is widely recognized as an international language that plays a crucial role in global communication, science, technology, and education (Crystal, 2003). Due to its global importance, English proficiency has become an essential skill for students in many countries, including Indonesia. Mastery of language skills—listening, speaking, reading, and writing—depends greatly on vocabulary knowledge, as vocabulary forms the foundation of language competence (Nation, 2013; Schmitt, 2010; Thornbury, 2002). Without adequate vocabulary mastery, learners face difficulties in comprehending texts and expressing ideas effectively.

In second language acquisition theory, vocabulary development is considered central to communicative competence (Ellis, 2008; Krashen, 1982). Brown (2014) emphasizes that meaningful exposure and repeated interaction with lexical items are necessary for long-term retention. Similarly, Harmer (2007) argues that vocabulary teaching should involve contextualized and interactive activities rather than simple memorization. However, in many elementary schools, vocabulary instruction still relies heavily on teacher-centered explanation and rote learning, which limits students' engagement and retention (Richards & Rodgers, 2014). This situation is evident among fifth-grade students at SD Inpres Kayu Putih Oesao II. Students often struggle to remember new words and use them appropriately in context. Young learners require motivating and meaningful learning experiences, as their cognitive and affective development differs from adult learners (Pinter, 2017). Traditional vocabulary teaching methods may not fully address these developmental needs.

The rapid advancement of educational technology has introduced new opportunities through Mobile-Assisted Language Learning (MALL). Kukulska-Hulme and Shield (2019) explain that MALL enables flexible, learner-centered instruction that extends beyond classroom

boundaries. Applications such as Duolingo integrate multimedia principles (Mayer, 2009) and digital pedagogy (Dudeney & Hockly, 2007) to create interactive learning environments. In addition, Chapelle (2001) states that computer-assisted language learning can enhance learner autonomy and provide immediate feedback, which is crucial for language acquisition.

Duolingo employs gamification elements such as points, levels, and rewards to increase motivation. Dörnyei (2001) highlights the importance of motivational strategies in sustaining learner engagement, while Tomlinson (2011) emphasizes that well-designed instructional materials should stimulate learners cognitively and emotionally. Previous studies indicate that Duolingo positively impacts vocabulary learning and student engagement (Munday, 2016; Alnajjar, 2020; Vesselinov & Grego, 2012; Ramadhani, 2018). However, research focusing specifically on elementary school learners remains limited.

Therefore, this study aims to examine the effectiveness of the Duolingo application in improving English vocabulary mastery among fifth-grade students and to explore students' perceptions of using digital game-based learning tools in elementary classrooms.

RESEARCH METHODS

This study used a quantitative quasi-experimental design to examine the effect of the Duolingo application on fifth-grade students' English vocabulary mastery at SD INPRES Kayu Putih Oesao II, Indonesia. Thirty students were selected through purposive sampling and divided into an experimental group and a control group. The experimental group learned vocabulary using Duolingo, while the control group received conventional instruction.

A pre-test and post-test control group design was applied. Vocabulary tests, a Likert-scale questionnaire, and classroom observations were used as research instruments. The independent variable was the use of Duolingo, and the dependent variable was students' vocabulary mastery. Data were analyzed using descriptive statistics and an Independent Samples t-test, preceded by normality and homogeneity tests. Effect size was calculated using Cohen's *d*, and all analyses were conducted using IBM SPSS Statistics Version 20.

RESULTS AND DISCUSSION

The results of this study reveal that the use of the Duolingo application contributed positively to students' English vocabulary mastery at SD Inpres Kayu Putih. The comparison between the experimental group and the control group shows that students who learned vocabulary through digital media demonstrated greater improvement than those who learned through conventional teaching methods.

Table 1 and 2 presents the comparison of vocabulary test scores between the experimental and control groups before and after the instructional intervention. Both groups showed improvement, indicating that learning occurred during the instructional period. However, the experimental group experienced a noticeably higher increase in vocabulary mastery than the control group. This pattern suggests that Duolingo provided more effective learning support for vocabulary acquisition than traditional classroom instruction alone.

Table 1 Students' Scores of Experimental Class

| Nu | Respondents | Pre-test | Pos-test |
|----|-------------|----------|----------|
| 1 | R1 | 68 | 80 |
| 2 | R2 | 64 | 80 |
| 3 | R3 | 68 | 92 |
| 4 | R4 | 80 | 88 |
| 5 | R5 | 80 | 84 |
| 6 | R6 | 52 | 72 |
| 7 | R7 | 56 | 88 |
| 8 | R8 | 48 | 96 |

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|----------------------|-----|--------------|--------------|
| 9 | R9 | 56 | 72 |
| 10 | R10 | 88 | 96 |
| 11 | R11 | 48 | 64 |
| 12 | R12 | 64 | 84 |
| 13 | R13 | 88 | 96 |
| 14 | R14 | 64 | 84 |
| 15 | R15 | 64 | 88 |
| Mean score | | 65,86 | 84,26 |
| Maximum Score | | 88 | 96 |
| Minimum Score | | 48 | 64 |

Based on Table 1, it can be observed that the scores of the 15 students in the experimental class varied. The average score in the pre-test was 65.86, while the mean score in the post-test increased to 84.26. The lowest pre-test score was 48, and the highest was 88. In contrast, after the treatment, the post-test results showed an improvement, with the highest score reaching 96 and the lowest being 64.

Table 2 Students' Scores of Controlled Class

| Nu | Respondents | Pre-test | Post-test |
|----------------------|-------------|--------------|--------------|
| 1 | R1 | 60 | 72 |
| 2 | R2 | 68 | 72 |
| 3 | R3 | 72 | 80 |
| 4 | R4 | 44 | 52 |
| 5 | R5 | 48 | 60 |
| 6 | R6 | 48 | 68 |
| 7 | R7 | 64 | 68 |
| 8 | R8 | 80 | 92 |
| 9 | R9 | 72 | 76 |
| 10 | R10 | 68 | 72 |
| 11 | R11 | 44 | 52 |
| 12 | R12 | 68 | 72 |
| 13 | R13 | 52 | 72 |
| 14 | R14 | 56 | 68 |
| 15 | R15 | 40 | 56 |
| Mean score | | 58,93 | 68,80 |
| Maximum Score | | 80 | 92 |
| Minimum Score | | 40 | 52 |

According to the data presented in Table 2, the control group included 15 students. The average score on the pre-test was 58.93, and this increased marginally to 68.80 on the post-test. The pre-test scores ranged from a minimum of 40 to a maximum of 80. In contrast, the post-test results showed a wider spread, with the highest score rising to 92 and the lowest score at 52.

Table 3. Independent Samples t-test Result (Post-test)

| Group | N | Mean | Std. Deviation | t | Sig. (2-tailed) |
|--------------|----|-------|----------------|-------|-----------------|
| Experimental | 15 | 84.27 | 9.498 | 4.208 | 0.000 |
| Control | 15 | 68.80 | 10.605 | | |

The t-test result ($t = 4.208, p < 0.05$) indicates a statistically significant difference between the experimental and control groups. The effect size calculation using Cohen's d yielded a value of 1.54, which represents a strong effect. This finding demonstrates that the Duolingo application had a substantial positive impact on students' English vocabulary mastery. Questionnaire results further revealed that students were highly motivated and enjoyed learning English vocabulary through Duolingo. These findings support previous studies indicating that gamification and digital applications enhance vocabulary learning and student engagement.

The improvement observed in the experimental group can be attributed to the learning features embedded in the Duolingo application. Duolingo presents vocabulary through interactive tasks that require learners to recognize, listen to, and use words in various contexts. According to vocabulary learning theory, meaningful and repeated exposure to lexical items is essential for vocabulary retention (Nation, 2013). Through Duolingo, students repeatedly encountered the same vocabulary items in different activities, allowing them to process words more deeply and remember them more effectively.

In contrast, the control group relied on conventional teaching methods that focused mainly on memorization and teacher explanation. While these methods still resulted in some improvement, the learning experience was more passive and less engaging. This finding supports previous studies indicating that traditional vocabulary instruction often leads to limited retention, particularly among young learners who require interactive and motivating learning environments (Schmitt, 2010).

The statistical analysis further supports the effectiveness of Duolingo. The difference in vocabulary mastery between the two groups indicates that learning with Duolingo produced stronger outcomes. Rather than emphasizing statistical terminology, the important implication of this result is that students who used Duolingo were better able to understand and retain new vocabulary compared to students who learned through conventional instruction. This reinforces the idea that digital learning tools can enhance the quality of language learning when appropriately implemented.

The strong learning outcomes of the experimental group are also related to the gamification elements used in Duolingo. Features such as points, levels, rewards, and instant feedback created a learning environment that was enjoyable and motivating for students. Young learners tend to respond positively to game-like activities, which reduce anxiety and increase engagement. This finding aligns with previous research suggesting that gamified learning environments increase motivation and encourage learners to practice more frequently (Munday, 2016; Alnajjar, 2020).

In addition to cognitive improvement, students' affective responses toward Duolingo played an important role in learning success. Questionnaire results show that the majority of students expressed positive perceptions toward learning vocabulary through Duolingo. Most students reported that the application was fun and motivating, helped them remember new words more easily, and allowed them to learn flexibly anytime and anywhere. Positive attitudes toward learning are particularly important in elementary education, as motivation and enjoyment strongly influence learning behavior and outcomes (Pinter, 2017).

The flexibility provided by mobile-assisted language learning also contributed to vocabulary improvement. Duolingo allowed students to practice vocabulary beyond classroom hours, which increased exposure to English input. According to the principles of Mobile-Assisted Language Learning (MALL), learning that extends beyond the classroom supports continuous practice and reinforces language acquisition (Kukulska-Hulme & Shield, 2019). This flexibility was especially beneficial in the context of SD Inpres Kayu Putih, where instructional time for English is limited.

The findings of this study are consistent with previous research demonstrating the effectiveness of Duolingo in improving vocabulary mastery. Studies by Vesselinov and Grego (2012) and Ramadhani (2018) reported similar improvements in vocabulary learning through Duolingo. However, this study contributes new evidence by focusing on elementary school learners, a group that has been less frequently examined in previous research. The results indicate that Duolingo is not only suitable for older learners but also effective for young EFL learners when used under teacher guidance.

Although the results indicate strong benefits, the successful implementation of Duolingo requires appropriate instructional planning. Teachers should guide students in selecting relevant learning content and monitor their learning progress. Duolingo should be integrated as a

complementary learning tool rather than a replacement for classroom instruction. When combined with teacher-led activities, digital applications can provide balanced and effective learning experiences.

Overall, the findings confirm that the integration of Duolingo into English vocabulary instruction enhances students' vocabulary mastery and learning engagement. The use of digital media offers a promising alternative for improving English learning outcomes at the elementary school level, particularly in contexts where students struggle with vocabulary retention and motivation.

CONCLUSION

This study concludes that the use of the Duolingo application effectively improves English vocabulary mastery among fifth-grade students at SD Inpres Kayu Putih. Students who learned vocabulary through Duolingo demonstrated greater progress than those who learned through conventional teaching methods. The findings indicate that digital learning media, when appropriately integrated into English instruction, can enhance students' vocabulary acquisition and learning engagement.

The improvement in vocabulary mastery can be attributed to the interactive and gamified features of Duolingo, which provide repeated exposure, immediate feedback, and enjoyable learning experiences. These features support key principles of vocabulary learning and are particularly suitable for young learners who require motivating and meaningful learning environments. In addition, the flexibility of mobile-assisted language learning allows students to practice vocabulary beyond classroom hours, contributing to better retention and understanding of new words.

Students' positive perceptions toward Duolingo further reinforce the effectiveness of the application. Most students found the learning process enjoyable, motivating, and helpful in remembering vocabulary. This positive learning experience supports the development of learner autonomy and confidence, which are important factors in long-term language learning success.

Based on these findings, Duolingo can be recommended as a supplementary learning tool for teaching English vocabulary in elementary schools. Teachers are encouraged to integrate digital applications such as Duolingo into classroom instruction while maintaining teacher guidance to ensure alignment with learning objectives. Future research may explore the use of Duolingo for developing other language skills, such as speaking or reading, or examine its long-term effects on vocabulary retention in different educational contexts.

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