THE EFFECT OF DUOLINGO APPLICATION ON THE ENGLISH VOCABULARY MASTERY OF SEVENTH-GRADE STUDENTS AT SMPN 3 CANDI

[1]Choirifqa Widya Wiranadzifah, [2]Sulistyaningsih, [3]Lailatul Musyarofah

Sarjana Pendidikan Bahasa Inggris, UNIPDA, Jl. Kemiri Sidoarjo 61234 Jatim

Email: choirifqawidya@gmail.com

ABSTRACT

This study aims to determine the significant impact of the Duolingo application and students' perceptions regarding English vocabulary mastery at SMPN 3 Candi. The research employed a pre-experimental design, specifically a one-group experiment, to explore the effectiveness of the Duolingo application in enhancing seventh-grade student's vocabulary at SMPN 3 Candi. The study methodology consisted of pre-test, treatment, and post-test phases. The study focused on seventh-grade students at SMP Negeri 3 Candi. The simple Random Sampling Technique was used to select the sample for this research. In determining the sample, researchers utilized a lottery technique. The sample size was determined by dividing the seventh-grade student population of 288 from eight classes, resulting in 36 students with each class requiring 4-5 students. Based on the research findings, the use of the Duolingo application significantly improved English vocabulary mastery among seventh-grade students at SMP Negeri 3 Candi. These findings were supported by increased test scores, statistical analysis showing significant differences, and positive student perceptions and engagement with Duolingo. This confirms the effectiveness of Duolingo as an enjoyable and effective vocabulary-learning tool.

Keywords: Duolingo, Language learning application, English vocabulary mastery, Effectiveness of Duolingo, Vocabulary learning.

INTRODUCTION

Globalization has significantly contributed to the prominence of the English language as a key medium for communication across various domains such as commerce, education, business,

and tourism worldwide. English serves as a bridge for individuals from diverse linguistic and national backgrounds to interact effectively (Fithriani, 2018). In Indonesia, the importance of English is explicitly recognized in official government documents, particularly in the educational sector, where English is seen as essential for economic goals, international relations, social and cultural processes, and individual educational and professional growth (Maduwu, 2016). Consequently, English has been incorporated into the curricula of Indonesian educational institutions, ranging from elementary schools to universities.

The acquisition of English involves mastering four primary language skills: listening, speaking, reading, and writing, along with essential components like vocabulary, pronunciation, and grammar (Ambara, 2020). Among these, vocabulary is fundamental for students aiming to master English, as it is the cornerstone of language complexity and a prerequisite for developing other linguistic abilities (Puspita, 2017; Laufer, 1997; Basuki, 2018). Despite its importance, many students face challenges in learning vocabulary due to monotonous teaching methods and insufficient use of engaging media. This often results in difficulties in comprehension and expression, leading to low motivation and proficiency in English vocabulary among students, as observed at SMPN 3 Candi Sidoarjo. Effective vocabulary instruction requires innovative strategies and media to maintain student interest and facilitate learning (Thornbury, 1999; Southerland).

Mobile Assisted Language Learning (MALL) has emerged as a promising technique for vocabulary instruction, leveraging mobile applications like Duolingo to make learning more interactive and enjoyable (Beatty, 2003; Nushi, 2017). Duolingo, a popular free application, offers a game-based learning approach that has shown statistically significant improvements in language skills (Vesselinov & Grego, 2012). It provides users with a platform to assess and enhance their English proficiency through engaging and competitive elements.

Given these insights, this study aims to explore the impact of integrating the Duolingo application into classroom instruction on the vocabulary mastery of seventh-grade students at SMPN 3 Candi. The research seeks to determine the potential benefits of using Duolingo as a supplementary tool for vocabulary acquisition, fostering a positive learning environment, and enhancing students' language proficiency. The study is titled "The Effect of Duolingo Application on the English Vocabulary Mastery of Seventh-Grade Students at SMPN 3 Candi." The study

explores the impact of the Duolingo application on the English vocabulary mastery of seventh-grade students at SMPN 3 Candi. It addresses two main questions: whether Duolingo significantly improves vocabulary mastery and how students perceive its effectiveness.

Vocabulary

Vocabulary encompasses all the words a person knows and uses and all the words in a language. It is vital for effective communication and understanding, allowing individuals to express ideas clearly and comprehend others. Mastery of vocabulary enhances students' ability to absorb information and articulate their thoughts more proficiently (Hornby, 2000; Willis, 2008). A robust vocabulary is crucial for advanced language learners, as limited vocabulary can hinder effective communication and the acquisition of other language skills (Alqahtani, 2015; Fisher, 2015). Understanding vocabulary involves knowing the meanings, functions, and appropriate usage of words in context. This comprehensive knowledge aids in problem-solving and boosts confidence in communication.

Teaching vocabulary is fundamental in English language education. Effective instruction should integrate media, techniques, and strategies that engage students and facilitate vocabulary acquisition. Methods include task-based learning, immediate feedback, social interaction, and fostering autonomy. Motivation is key, as students need encouragement to focus on and retain new vocabulary (Agnes, Lucy, & Donohue, 2015). Learning vocabulary involves five stages: encountering new words, obtaining the word form, understanding the meaning, consolidating form and meaning in memory, and using the word practically (Hatch & Brown, 1995). Engaging students in active learning and understanding their learning styles enhances their vocabulary acquisition and overall academic success (Pritchard, 2018). Vocabulary is divided into active (productive) and passive (receptive) categories. Active vocabulary includes words used proficiently in speaking and writing, while passive vocabulary consists of words understood in written and spoken communication (Zainuri, 2003). Mastery of both types is essential for effective communication in a foreign language like English, requiring a strong vocabulary foundation beyond grammatical knowledge.

Learning Media in English as a Foreign Language (EFL)

Media plays a vital role in enhancing education by serving as a conduit for communication and information dissemination between teachers and students. It includes various tools and technologies that create an environment conducive to learning. Media can be broadly categorized into humans, materials, and events that facilitate knowledge acquisition, skills, or attitudes (Djamarah, 2014; Arsyad, 2010; Khurmatus, 2022). Types of Learning Media: Print Media: Newspapers, magazines, journals, handouts, posters. Graphics Media: Overhead transparencies, charts, graphs, models, maps, globes. Photographic Media: Still pictures, slides, film strips, motion pictures. Audio Media: Audiotapes, cassettes, records, radio, telecommunication. Television/Video: Broadcast TV, cable TV, videotapes, video cassettes, videodiscs. Computers: Minicomputers, microcomputers. Simulations and Games: Board-based, written, human-interactive, machine-based.

Advantages of Learning Media: Media use in education offers several benefits: Equitable Delivery: Ensures consistent delivery of content. Clarity and Interest: Makes learning clearer and more engaging. Interactivity: Enhances learning through interactive elements. Time and Energy Efficiency: Optimizes the use of time and resources. Quality Improvement: Improves educational outcomes. Flexibility: Can be used anytime and anywhere. Positive Attitude: Fosters a positive attitude towards learning. Conceptual Understanding: Makes abstract concepts easier to understand. Overcomes Limitations: Transcends spatial and temporal limitations. Sensory System Constraints: Mitigates human sensory limitations (Falahudin, 2014).

Effective Media Integration: To effectively integrate media into teaching, it is essential to: Understand the distinct attributes of each type of media. Select the appropriate media based on educational goals and circumstances. Use technology to enhance engagement and facilitate interactive learning (Hadi, Sari, & Sabat, 2013; Sharon, Deborah, & others, 2011). Overall, media is a fundamental component in education, enhancing the learning experience and helping students achieve their educational objectives through various engaging and interactive methods.

Mobile Assisted Language Learning (MALL)

Mobile Assisted Language Learning (MALL) leverages mobile devices to facilitate language learning. Since their inception in 1973, mobile devices have become integral to daily life, leading to their adoption in educational contexts. MALL allows for flexible, anytime-anywhere learning, accommodating diverse learning environments such as buses, outdoor settings, and

workplaces (Miangah & Nezarat, 2012). This flexibility is a hallmark of MALL, providing continuous access to educational resources (Hulme & Shield, 2008). MALL integrates listening, reading, and speaking exercises, promoting academic inquiry, critical analysis, and research skills (Gholami & Azami, 2012). This method supports English learning, which is crucial for professional qualifications and education in many communities. Mobile devices enhance vocabulary acquisition and critical thinking skills, offering features like pronunciation guides and voice recording for self-assessment and instructor feedback (Miangah & Nezarat, 2012).

Types of MALL Devices: Mobile Phones: Widely used due to their accessibility and multifunctionality. Features like SMS, MMS, GPS, cameras, and internet connectivity support various learning activities (Trinder, 2005; Cavus & Ibrahim, 2007). Effective for vocabulary learning, demonstrated by studies showing higher vocabulary retention through mobile learning compared to traditional methods (Thornton & Houser, 2005; Lu, 2008). Personal Digital Assistants (PDAs): Compact computers for data management and multimedia applications. Utilized for downloading and storing educational content, providing an effective learning aid despite lower usage rates compared to mobile phones (Beatty, 2010; Chinnery, 2006). Podcasts: Digital media files distributed via the internet, often used for language learning. Facilitate supplementary learning and have shown to enhance student motivation and attitudes towards learning (Stanley, 2006; Lee, 2007). Media Players: Devices like MP3/MP4 players and portable CD/DVD players used for accessing audio lectures and other educational materials. Commonly employed in distance education settings.

Characteristics of MALL: Ubiquity: Accessible anytime and anywhere, supporting spontaneous learning. Portability: Small size allows easy transport and single-handed use. Privacy: Each student has a personal device, ensuring individual access to materials. Instant Access: Immediate access to educational resources and prompt interaction with instructors (Kljunic & Vukovac, 2015). Advantages and Disadvantages of MALL: Advantages: Enhanced Learning: Provides diverse approaches for vocabulary acquisition, pronunciation improvement, and listening skills through multimedia resources (Nah, White, & Sussex, 2008). Interactive Learning: Facilitates effective communication between teachers and students via chat programs and encourages independent and collaborative learning. Flexible Learning Environment: Supports informal learning and digitalized teaching practices, allowing students and teachers to engage

without being co-located. Disadvantages: Device Variability: Different models and specifications of smartphones can lead to varied levels of proficiency among students. Network Issues: Mobile network availability and quality can affect learning experiences (Kljunic & Vukovac, 2015). Despite its challenges, MALL offers significant benefits that enhance the educational experience, making it a valuable tool in modern language learning.

Duolingo Application

The rapid advancement of technology has profoundly impacted various domains, including industry, communication, and education. Technology integration in education has revolutionized teaching methodologies, enhancing the facilitation, evaluation, and assessment of student learning. Computers and smartphones, with their advanced technological capabilities, serve as effective educational media, which encompasses any means of transferring information that facilitates communication between the sender and the recipient in a learning context (Sharon, Deborah, & Clif, 2017). Educational media can be categorized into three forms: textual, auditory, and visual. These instruments facilitate learning by increasing engagement and promoting active participation, thereby reducing monotony. Duolingo is the largest online platform for language learning globally (Vasselinov & Grego, 2012). Developed by Luis von Ahn and Severin Hacker in 2011, Duolingo is software designed to facilitate language learning and offers free educational services. The application boasts over 30 million active users engaged in learning various languages (Munday, 2016). Duolingo supports vocabulary acquisition, allowing users to assess their proficiency and identify areas for improvement (Guaquet & Castro, 2018). It is highly user-friendly, making it accessible to a diverse user base across all age groups, which contributes to its widespread adoption as a medium for instruction (Guaquet & Castro, 2018).

Duolingo is a gamified digital platform and mobile application offering an innovative approach to language learning. The application employs game-like elements to enhance educational pursuits, particularly in acquiring proficiency in non-native languages. Users are allocated five hearts to sustain their progress, losing one heart for each incorrect answer. Upon depletion of hearts, users must revisit and reattempt lessons. Thus, Duolingo provides a cost-effective and engaging method for language acquisition. According to Gibbs (2018), the Duolingo application has several notable characteristics: Achievements: Learners receive "Achievements" for completing lessons with significant effort. Lingots: Small jewel icons awarded for successful

completion of activities and levels, which can be used for additional exercises. Crown Levels: Proficiency in each skill is denoted by "Crown Levels." A crown is awarded upon completing a skill, allowing users to progress to new skills. Daily Goal: Users receive rewards for accomplishing daily objectives, and enhancing enjoyment through surprising sounds and unique pictures. Variety of Exercises: Duolingo offers diverse exercises within each lesson, including Vocabulary assessments with images. Pronunciation tasks require verbal reproduction of sentences. Listening exercises involving transcription of audio clips. Translation exercises for converting words or sentences into the target language.

Munday (2016) outlines several benefits of using the Duolingo application: Enhanced Engagement: The gamified design of Duolingo increases student motivation and engagement in language learning. Homework Assignments: Duolingo can generate homework assignments, enabling students to enhance their vocabulary outside the classroom. Accessibility: The mobile application is conveniently accessible anytime and anywhere, allowing students to learn at their convenience. Munday (2016) also highlights some drawbacks of using the Duolingo application: Internet Dependency: Reliable internet connectivity is necessary, which may pose challenges in some classroom settings. Classroom Implementation: Using Duolingo during classroom instruction may require additional equipment like projectors. Lesson Efficacy: Projector-based use during instruction can potentially impede lesson efficacy and waste valuable class time. Pronunciation Accuracy: The automated pronunciation may not always reflect native speakers, affecting the quality of listening exercises.

Gibbs (2018) describes how the Duolingo application can significantly improve students' English vocabulary proficiency: Motivation Enhancement: The application's interactive features captivate students, preventing monotony. Comprehension of Lexical Items: Duolingo helps students understand the meanings of words through engaging visual elements. Standalone Educational Tool: Duolingo can be used independently in the classroom after the teacher provides relevant course material. Educators can select and personalize instructional content based on the curriculum, following specific stages: Pre-Duolingo Texts: Provide literature-based resources to help students recognize words. Reinforcement Exercises: Administer exercises to reinforce vocabulary comprehension. Duolingo Application: Allow students to acquire new vocabulary through the application. Students can access Duolingo via its website and start with basic modules,

progressing to advanced topics. The application comprises various levels and thematic modules, enhancing vocabulary knowledge through quizzes and interactive exercises.

RESEARCH METHOD

The study was conducted at SMP Negeri 3 Candi, located at Jl. Kedaton, Waras, Sugiwaras, Kec. Candi, Kabupaten Sidoarjo, from March 20 to April 20, 2023. It focused on seventh-grade students, with eight sessions including an initial assessment, four treatment sessions, and a final evaluation. The research used a pre-experimental design, specifically a one-group experiment, with pre-test, treatment, and post-test phases. A pre-test was conducted to assess students' vocabulary proficiency before treatment using the Duolingo Application, followed by educational sessions with the application. A post-test was then administered to evaluate vocabulary improvement. The population comprised eight classes of seventh-grade students at SMP Negeri 3 Candi, totaling 288 students. Simple Random Sampling was used to select a sample of 36 students, with 4-5 students selected from each class using a lottery method.

The independent variable (Y) was the Duolingo application, while the dependent variable (X) was the students' level of vocabulary mastery, focusing on transitive and intransitive verbs. Tests (pre-test and post-test) and closed-ended questionnaires were used. The pre-test and post-test each comprised 30 essay questions, scored based on a rubric. The questionnaire, distributed at the final session, consisted of ten questions scored on a Likert scale. Data from the pre-test and post-test were analyzed using IBM SPSS Statistics Version 25, with a t-test conducted to identify significant differences. Questionnaire data were analyzed quantitatively using percentages. The study aimed to measure vocabulary improvement among seventh-grade students using the Duolingo Application, employing rigorous research methods to evaluate its efficacy.

FINDINGS

NO	SCORE	CLASSIFICATION	Pre-Test		Post-Test	
			Freq	(%)	Freq	(%)

The findings from the analysis of data regarding the impact of the Duolingo app on students' vocabulary

1	Score 91-100	Very Good	0	0	5	13,9
2	Score 81-90	Good	0	0	31	86,1
3	Score 71-80	Fairly	0	0	0	0
4	Score 61-70	Poor	6	16,7	0	0
5	Score less than 60	Very Poor	30	83,3	0	0
	TOTAL		36	100	36	100

improvement at SMPN 3 Candi are quite significant. Initially, the pre-test results indicated a considerable challenge in students' vocabulary mastery, with 83.3% of students receiving very poor scores and the remaining 16.7% receiving poor scores. Notably, none of the students achieved scores categorized as very good, good, or fair.

However, following the treatment with the Duolingo application, there was a notable improvement in students' abilities. The post-test results revealed that 86.1% of students received good scores, 13.9% received very excellent scores, and none of the students scored in the fairly, poor, or very poor categories. This improvement indicates the effectiveness of the Duolingo application in enhancing students' vocabulary mastery.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE_TEST	52.83	36	9.367	1.561
	POST_TEST	88.64	36	2.840	.473

Moreover, the outcomes of the students' vocabulary learning, as determined through SPSS analysis, further support the efficacy of the Duolingo application. The comparison between pre-test and post-test scores showed a significant increase in students' scores. The mean pre-test score was 52.83, with a standard deviation of 9.367, while the mean post-test score was 88.64, with a standard deviation of 2.840. This substantial increase in mean scores demonstrates the positive impact of the Duolingo application on students' vocabulary learning outcomes. Overall, these findings underscore the significance of the Duolingo application in improving the English vocabulary mastery of seventh-grade students at SMPN 3 Candi. The data indicates a clear and

substantial enhancement in students' vocabulary skills following the implementation of the Duolingo app, highlighting its effectiveness as an educational tool in this context.

The process of assessing normality using the Kolmogorov-Smirnov test and subsequent data transformations provides valuable insights into the distribution of the data and its suitability for parametric statistical tests. Initially, the Kolmogorov-Smirnov test revealed that the post-test data was not normally distributed, as indicated by a significance value of less than 0.05. This prompted the researcher to perform data transformation using the natural logarithm (Ln) form. However, even after this transformation, the data remained non-normally distributed. Subsequently, the researcher attempted another transformation using logarithm transformation (log10). Despite this additional transformation, the data still did not meet the normality assumption. Finally, recognizing that the data did not pass the normality test, the researcher opted for non-parametric statistics, specifically the Wilcoxon test. The Wilcoxon test serves as an alternative to the paired sample t-test when the data does not meet the normality assumption. The Wilcoxon test results indicated a significant difference between the average scores of the pre-test and post-test for students learning English vocabulary using the Duolingo application. This finding suggests that the use of the Duolingo application indeed impacts the mastery of English vocabulary for seventh-grade students at SMPN 3 Candi. In conclusion, despite the initial attempts to transform the data to meet normality assumptions, resorting to non-parametric statistics was necessary to accurately assess the impact of the Duolingo application on students' vocabulary mastery. The significant difference observed underscores the effectiveness of the Duolingo application in enhancing students' English vocabulary skills.

The hypothesis testing in the study aimed to evaluate the impact of the Duolingo application on English vocabulary mastery among seventh-grade students at SMPN 3 Candi. The researcher established two hypotheses: the null hypothesis (H0) stating no difference due to Duolingo and the alternative hypothesis (H1) suggesting a difference. Parametric statistical analysis, specifically paired sample t-tests, was conducted based on homogeneity and normality test results. A significance level (p-value) of less than 0.05 would reject H0 and accept H1. The study found a significant disparity in mean scores between pre-test and post-test outcomes, supporting the effectiveness of the Duolingo application in enhancing English vocabulary among the students.

The student's perceptions of the effect of the Duolingo application on seventh-grade English vocabulary mastery were assessed through a questionnaire comprising 10 closed-ended questions. The data revealed high levels of agreement and satisfaction with the Duolingo application among the surveyed students. Specifically: 86.1% strongly agreed and 13.9% agreed that they liked using Duolingo to improve vocabulary learning. 80.6% strongly agreed and 19.4% agreed that Duolingo's gamification elements enhanced learning experiences and enjoyment. 80.6% strongly disagreed, 16.7% disagreed, and 2.8% were undecided about the assertion that learning vocabulary with Duolingo was challenging. 86.1% strongly disagreed and 13.9% disagreed with the idea that Duolingo application use in the classroom is not recommended. 83.3% strongly agreed, 13.9% agreed, and 2.8% were undecided about Duolingo improving vocabulary memorization. 83.3% strongly agreed and 16.7% agreed that Duolingo was accessible at all times and locations. 86.1% strongly disagreed and 13.9% disagreed with the notion that Duolingo creates boredom during vocabulary learning. 80.6% strongly agreed, 16.7% agreed, and 2.8% were undecided about Duolingo making homework assignments easier. 83.3% strongly agreed, 13.9% agreed, and 2.8% were undecided about Duolingo aiding understanding of teacher-provided learning material. 86.1% strongly disagreed and 13.9% disagreed with the statement that Duolingo's assessments are extremely difficult. Overall, the data indicates a strong positive perception of the Duolingo application's effectiveness and usability among seventh-grade students at SMPN 3 Candi for improving English vocabulary mastery.

DISCUSSION

The enthusiasm of students during the teaching and learning process utilizing the Duolingo Application serves as evidence of this. This is proven by an increase in the post-test score which was 93 and the lowest score was 83. The average result was 88.64 with a standard deviation of 2.840. Before using Duolingo, the minimum pre-test score was 33 and the maximum score was 63. The mean value found was 52.83 with a standard deviation of 9.367. It cannot be argued that there is a significant difference in mean scores between the pre-test and post-test learning outcomes, which means that there is " Duolingo application has an effect on the student's mastery of English vocabulary at seventh-grade students of SMPN 3 Candi". According to the "Paired Samples Test" output table, if the Sig. (2-tailed) is 0.000<0.05, H0 is rejected and H1 is approved. Because the Duolingo application contains so many fun elements, students are extremely

motivated to learn vocabulary and take it very seriously. The Duolingo application's motto is "learning while playing".

Students overwhelmingly view the Duolingo application favorably, as evidenced by their significant agreement with statements highlighting its advantages. This positive perception underscores the app's effectiveness in engaging and benefiting students. Students showed significant agreement with statements highlighting the advantages of the Duolingo application (items 1, 2, 5, 6, 8, and 9). Students strongly disagree with statements that list the drawbacks of the Duolingo application. This suggests that students do not perceive significant negative aspects associated with using Duolingo for language learning. Students strongly disagreed with statements that listed drawbacks of the Duolingo application (items 3, 4, 7, and 10). Students strongly disagree with statements that list drawbacks of the Duolingo application. This suggests that students do not perceive significant negative aspects associated with using Duolingo for language learning.

CONCLUSION

The use of the Duolingo application has demonstrated significant effectiveness in enhancing students' vocabulary skills. based on the evidence presented suggests that the Duolingo app offers a promising path for educators seeking innovative ways to improve students' vocabulary skills. Its combination of entertainment and educational value makes it a valuable asset in encouraging

Based on the data from student responses supports the notion that the Duolingo application is well-received and effective for language learning, particularly in improving vocabulary proficiency, as perceived by seventh-grade students at SMP Negeri 3 Candi. The positive feedback and lack of perceived drawbacks highlight the app's potential as a valuable educational tool in language instruction.language acquisition and engagement among students.

SUGGESTION

The recommendations for integrating Duolingo into English language learning are as follows: For Teachers: Encourage students to engage with Duolingo's user-friendly interface to enhance accessibility and enjoyment in learning English vocabulary. Integrate Duolingo activities into lesson plans to complement traditional teaching methods and provide additional opportunities for vocabulary reinforcement.

For Students: Utilize Duolingo to make learning English vocabulary more accessible and enjoyable, taking advantage of its interactive features. Embrace Duolingo activities as part of the curriculum to supplement traditional learning approaches and engagingly reinforce vocabulary.

For Researchers: Recognize Duolingo's user-friendly interface as a tool to enhance the learning process for students and investigate its impact on language learning outcomes. Consider integrating Duolingo activities into research methodologies to explore its effectiveness as a supplementary tool in language education and provide valuable insights into its impact.

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