DUOLINGO APPLICATION IN IMPROVING STUDENTS'

ENGLISH VOCABULARY MASTERY

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ABSTRACT

The purpose of this research is to determine the effectiveness of the Duolingo application as a media for improving students' English vocabulary mastery at seventh grade of SMP Swasta Muhammadiyah 19 Pematangsiantar. This research used a quantitative approach with a quasi-experimental design. The population of this research consisted of seventh-grade students, with two classes as samples: one experimental class (VII-3) and one control class (VII-1), each consisting of 24 students. The technique of collecting data was pre-test and post-test, and the data were analyzed using SPSS version 27.0. The result of the research showed that Tcount (3.212) > Ttable (1.684) at the significance level α = 0.05 with degrees of freedom (df) = 46. This indicates that H0 is rejected and Ha is accepted. Based on the findings, the post-test score was higher than the pre-test score. It can be concluded that there was a significant improvement in students' vocabulary mastery after the treatment using the Duolingo application. Therefore, the researcher concludes that the Duolingo application is effective in enhancing students' English vocabulary mastery. Duolingo offers gamified learning, interactive practice, and user-friendly features, making vocabulary learning more engaging and accessible. Students found it enjoyable and motivating, which supports vocabulary retention and development in an effective way.

Keywords: Duolingo Application, Vocabulary Mastery, Learning Media, English Language Teaching, Quasi-Experimental Design

I. INTRODUCTION
The Background of Research

In the digital era, technology has transformed education, offering more flexible, interactive, and engaging learning experiences. In language learning, particularly English, technology supports independent skill development and enhances students' understanding through multimedia formats. Vocabulary, as the foundation of the four main English skills—listening, speaking, reading, and writing—is crucial for effective communication. However, many seventh-grade students struggle with vocabulary mastery due to monotonous teaching methods and limited real-life language use. To overcome these challenges, integrating educational technology like Duolingo is seen as a promising strategy. Duolingo adopts a gamification-based approach that increases student motivation through interactive tasks, point systems, and immediate feedback. Its accessibility and engaging format help learners retain vocabulary and apply it in everyday situations.

This study was inspired by the researcher's personal observation of a younger sibling who significantly improved English vocabulary through Duolingo. Motivated by this experience, the researcher aimed to examine the app's effectiveness in a school setting. SMP Swasta Muhammadiyah 19 PematangSiantar was selected as the research site, as the Duolingo app had not been previously used in its English instruction. Therefore, this research investigates the implementation of Duolingo to improve students' vocabulary mastery and provides insight into integrating innovative digital tools in language education.

The Problem of Research

As for the problems mentioned in the background above, the researcher proposes the major topic that will be the focus of the discussion in this thesis, as follows: "How is the Duolingo application in improve students' vocabulary Mastery in grade seventh of SMP Swasta Muhammadiyah 19 Pematangsiantar?''.

The Objective of Research

In discussing this title, the researcher will present the following as the major aims of the research:

"Duolingo Application is effective to improve students' vocabulary mastery in grade seventh of SMP Swasta Muhammadiyah 19 Pematangsiantar."

II. THE REVIEW OF LITERATURE

The definition of Duolinggo

Duolingo is a technology-based language learning platform that helps users learn various languages, including English. The application was founded in 2011 by Luis von Ahn and Severin Hacker. Duolingo offers free language learning through a mobile app or website. according to its website, Duolingo also has a motto of "Free language education for the world". Duolingo has around 500 million users worldwide. In Indonesia, the number of active users has increased significantly, with annual growth reaching 40%. One of the most popular languages to learn on Duolingo is English.

The Concept of Duolingo in Learning English Vocabulary

Teaching and learning English hold a significant role in today's globalized world, where English is widely used in almost every aspect of life. As an international language, English is recognized and utilized as an official language in many parts of the world. In Indonesia, English occupies an important status as a foreign language. One crucial aspect of learning English is building a strong vocabulary. Mastering vocabulary is essential for effective communication because, to communicate, individuals must have a broad vocabulary. Communication itself involves conveying messages and information to receive feedback from others (Daulay, 2019).

The implementation of Duolingo as a tool to improve vocabulary aims to motivate students to expand their vocabulary. One of the features that supports this is the gamified learning process offered by the application. By engaging with games in English, students are introduced to new words they may not have encountered before. The features in Duolingo inspire students to try various activities in a fun and interactive way, making learning enjoyable and helping them combine education with entertainment

III. THE METHOD OF RESEARCH

The Research Design

This research was conducted using a quantitative approach with a quasi-Experimental Design. Quasi-experimental design is a research method that is almost similar to a true experiment, but without random division of groups. This means that in this study, the experimental and control groups are pre-existing, for example in the form of classes at school. Because there is no randomization.

Quantitative research allows researchers to describe the relationship between variables more accurately and can produce findings that can be generalized to a larger population. One of the characteristics of the quantitative approach is the strict control of the variables under study, which allows researchers to isolate the influence of certain variables on other variables, (Fraenkel and Wallen (2006). With this approach, researchers can obtain data that is more structured and easily measured, so that the results are more accountable.

The Location of Research

This research was conducted at SMP Swasta Muhammadiyah 19 PematangSiantar.

Source of the Data

Data

The data in this study is quantitative, obtained from students' pre-test and post-test scores. These scores reflect the vocabulary mastery of seventh-grade students at SMP Swasta Muhammadiyah 19 Pematangsiantar before and after the use of the Duolingo application. The data was collected in the form of numerical values that represent students' understanding of vocabulary topics taught during the research period.

Source data

The source of data in this research is primary data, collected directly by the researcher from the seventh-grade students during the academic year 2024/2025. The main instruments were pre-tests and post-tests given to both the experimental and control groups. To support the findings, additional data were obtained through classroom observations, questionnaires, and informal interviews with students and the English teacher to explore their motivation, challenges, and experiences during the learning process with and without Duolingo.

The Technique of Collecting Data

The technique of collecting data involved three main stages: pre-test, treatment, and post-test. In the pre-test, students were assessed to determine their initial vocabulary mastery. Then, the experimental group was given treatment by using the Duolingo application for six meetings, while the control group continued using conventional learning methods. After the treatment phase, a post-test was administered to both groups to evaluate their vocabulary improvement. The test consisted of 30 items: 15 multiple-choice questions, 5 fill-in-the-blank, 5 matching, and 5 anagram tasks. The structure and content of both tests were aligned with the learning materials and Duolingo features, ensuring consistency in assessment.

The Technique of Analyzing Data

The data collected was analyzed using SPSS version 27.0. Several steps were applied in the analysis process: first, the frequency analysis was conducted to determine how many students met the Minimum Mastery Criterion (KKM). Then, descriptive statistics were used to measure the mean, median, standard deviation, and variance. The Kolmogorov-Smirnov test was employed to check the normality of the data distribution. A homogeneity test followed to assess whether the variance between both groups was equal. Finally, a t-test was used to test the hypothesis. If the t-count was greater than the t-table at the 0.05 significance level, it would indicate that the Duolingo application significantly improved students' vocabulary mastery compared to conventional methods.

IV. ANALYSIS OF DATA

Data Analysis

Data analysis in this study was carried out to determine the effectiveness of the Duolingo application in improving students' English vocabulary mastery. After collecting the data from the pre-test and post-test, the researcher processed and analyzed the results using SPSS version 27.0. The analysis began with descriptive statistics, where the mean, median, standard deviation, minimum and maximum scores were calculated to describe students' vocabulary performance. This step helped the researcher to observe the overall trend and distribution of scores in both experimental and control groups.

Following this, a normality test was conducted using the Kolmogorov-Smirnov formula to ensure that the data distribution met the assumptions for parametric testing. If the significance value was higher than 0.05, the data was considered normally distributed. After confirming normality, the homogeneity test was carried out to determine whether the variances between the two groups were equal. This step was essential to validate the appropriateness of using an independent sample t-test.

The final step in the data analysis was the hypothesis testing using the independent sample t-test. This test compared the post-test scores of the experimental and control classes. The result was then interpreted by comparing the t-count and t-table values at a significance level of 0.05. If the t-count was greater than the t-table, it meant that the Duolingo application had a significant positive effect on the students' vocabulary mastery. This comprehensive analysis allowed the researcher to draw valid conclusions based on objective statistical evidence.

V. CONCLUSION AND SUGGESTION

Conclusion

Based on the results of the research and the data analysis, it can be concluded that the use of the Duolingo application is effective in improving the English vocabulary mastery of seventh-grade students at SMP Swasta Muhammadiyah 19 Pematangsiantar in the academic year 2024/2025. This conclusion is supported by the post-test results, where the experimental class (which used Duolingo) showed higher scores compared to the control class (which used conventional methods). The statistical analysis using SPSS version 27.0 showed that the t-count value (3.212) was higher than the t-table value (1.684) at a significance level of 0.05, which means that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This proves that there is a significant difference in vocabulary mastery between students who used the Duolingo application and those who did not. Therefore, the Duolingo application can be considered an effective media to support vocabulary learning and enhance students' engagement and motivation in English language learning.

Suggestion

The study's findings include various suggestions for students, English teachers, and researchers:

1. Students

   Students are advised to make use of digital applications like Duolingo outside of the classroom to reinforce and expand their English vocabulary. Independent practice with fun and interactive media can help improve their language skills in a more enjoyable and effective manner.

2. Teacher

   Teachers are encouraged to explore and integrate digital learning tools such as the Duolingo application in their English vocabulary instruction. Teachers should guide students in using these applications effectively in the classroom setting.

3. Future researcher

   Future researchers are encouraged to expand this study by involving a larger sample or different skills (such as grammar or speaking). They can also compare other educational apps besides Duolingo to examine their effectiveness in English language learning.

REFERENCES

Arikunto, S. (2010). Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta: Rineka Cipta.

Arikunto, S. (2010). Prosedur Penelitian: Suatu Pendekatan Praktik. Jakarta: Rineka Cipta

Arikunto, S. (2010). Prosedur Penelitian: Suatu Pendekatan Praktik (Edisi Revisi). Jakarta: Rineka Cipta.

Clark, H. H., & Clark, E. V. (1977). Psychology and language: An introduction to psycholinguistics. Harcourt Brace Jovanovich.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Pearson Education.

Creswell, J. W. (2012). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (4th ed.). Boston: Pearson.

Damanik, I. J., & Saragih, N. (2020). Bilingualism, It Is A Powering In Young Learners In Pematang Siantra Trough Teaching And Learning Process. Bilingual: Jurnal Pendidikan Bahasa Inggris, 2(1), 25-30

Damanik, I. J., Purba, R., & Tiyas, A. (2023). An Analysys Of Vocabulary Mastery Efects On Students' Speaking Ability In SMA YPK Pematangsiantar. Bilingual: Jurnal Pendidikan Bahasa Inggris, 5(2), 180-186

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). Educational research: An introduction (7th ed.). Pearson Education.

Gay, L. R., Mills, G. E., & Airasian, P. (2012). Educational Research: Competencies for Analysis and Applications (10th ed.). Boston: Pearson.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2009). Educational research: Competencies for analysis and applications (9th ed.). Upper Saddle River, NJ: Pearson.

Ghozali, I. (2016). Multivariate Analysis Application with IBM SPSS 23 Program. Semarang: Diponegoro University Publishing Agency.

Girsang, S. E. E., & Chadijah, S. (2022). The Strategies Of The Teacher In Motivating The Students In Learning English At Eleventh Class Study Of MA AL Hasyimiyah Academic Year 2020/2021. Bilingual: Jurnal Pendidikan Bahasa Inggris, 4(1), 69-74

Girsang, S. E. E., Damanik, I. J., & Sihotang, R. (2023). The Influence Of Using Peer Assisted Learning Strategies (Pals) Towards Students Achievement In Reading Comprehension At The SMPN 7 Pematangsiantar. Bilingual: Jurnal Pendidikan Bahasa Inggris, 5(2), 145-152

Girsang, S. E. E., Tangkas, I. W. D., Setiasari, W., & Mahriza, R. (2023). Comparing Digital And Manual Translation Proficiencies In English Language Education: An Analysis Of Translation Quality. Bilingual: Jurnal Pendidikan Bahasa Inggris, 5(1), 102-106

Harmer, J. (2007). The practice of English language teaching (4th ed.). Pearson Education.

Hermaningsih, H. (2020). Teaching strategies and media in language education. International Journal of Educational Practices, 7(2), 88-99.

Huang, Y., Lin, Y., & Cheng, H. (2021). The role of spaced repetition in vocabulary retention. Language Learning & Technology, 25(1), 70-86.

Jaelani, A. (2020). Duolingo: The future of language learning in the globalization era. Journal of Language Learning and Teaching, 13(2), 45-59.

Krashen, S. (1985). The Input Hypothesis: Issues and Implications. Longman.

Liang, F. (2018). The impact of Duolingo on vocabulary learning: An empirical study. Journal of Educational Technology, 15(4), 112-123.

Liu, S., Zhang, X., & Wei, T. (2018). The role of personalized feedback in vocabulary acquisition: A study on Duolingo. International Journal of Educational Technology, 19(4), 34-46.

Loewen, S., Isbell, D. R., & Spino, L. A. (2019). The effectiveness of Duolingo as a language learning app. Foreign Language Annals, 52(3), 623-640.

Matondang, M., & Damanik, I. J. (2020). Indonesia Language Influnces Shifthing In Simalungun Language. Bilingual: Jurnal Pendidikan Bahasa Inggris, 2(1), 38-42

Mayer, R. E. (2009). Multimedia learning (2nd ed.). Cambridge University Press.

Munday, P. (2016). The case for using Duolingo as part of the language classroom experience. International Journal of Emerging Technologies in Learning, 11(2), 83-87.

Nation, I. S. P. (2001). Learning vocabulary in another language. Cambridge University Press.

Nazir, M. (2014). Metode penelitian (Research methods). Bogor: Ghalia Indonesi

Pallant, J. (2020). SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS (7th ed.). London: Routledge.

Purba, A., & Girsang, S. (2022). The Effect of Using Zoom Application in English Learning for IPS Tenth Grade in SMA Negeri 3 Pematangsiantar. Bilingual: Jurnal Pendidikan Bahasa Inggris, 4(1), 62-68

Purba, B., & Saragih, J. (2022). Increasing Students' Vocabulary By Using Cartoon Technique At Seventh Grade Students Of SMP Dharmabudi Sidamanik. Bilingual: Jurnal Pendidikan Bahasa Inggris, 4(1), 54-61

Purba, R., Matondang, M. K. D., & Sinaga, P. A. (2023). Implementation Scattergories Game To Improve Vocabulary Skill Of Students' In Junior High School Yayasan Perguruan Keluarga. Bilingual: Jurnal Pendidikan Bahasa Inggris, 5(2), 116-124

Richards, J. C., & Rodgers, T. S. (2014). Approaches and methods in language teaching (3rd ed.). Cambridge University Press.

Richards, J. C., & Schmidt, R. (2010). Longman dictionary of language teaching and applied linguistics (4th ed.). Pearson Education.

Rosenberg, M. J. (2001). E-learning: Strategies for delivering knowledge in the digital age. McGraw-Hill.

Rubin, D. B. (1973). Matching to remove bias in observational studies. Biometrika, 60(1), 1-13.\

Saragih, N., Sipayung, R. W., & Sinaga, P. A. D. (2023). The Use Of Youtube As English Language Media To Improve Students Writing Skill In Procedute Text. Bilingual: Jurnal Pendidikan Bahasa Inggris, 5(2), 125-132

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Experimental and quasi-experimental designs for generalized causal inference. Houghton Mifflin.

Silalahi, T. F., & Syahyana, U. (2022). The Application Of Show And Tell (S&T) Technique In Teaching Writing At MTSS AL-WASHLIYAH Serbelawan. Bilingual: Jurnal Pendidikan Bahasa Inggris, 4(2), 134-141

Silalahi, T. F., Purba, A., & Septi, R. D. (2023). The Use Of Problem Based Learning (PBL) To Increase Students' Achievement In Reading Comprehension At The Eight Grade Of Smp Swasta Prama Artha. Bilingual: Jurnal Pendidikan Bahasa Inggris, 5(2), 107-111

Silalahi, T., & Tanjung, D. S. (2019). The Using Of Riddle Technique To Increase Students'vocabulary Mastery In Describing People At Sma Swasta Kartika 1-4 Pematangsiantar. Bilingual: Jurnal Pendidikan Bahasa Inggris, 1(2), 14-20

Sipayung, R., & Pardede, L. (2021). An Analysis Of English Teachers'strategies One-Learning Classes During Covid-19 At Smk Negeri 1 Pematangsiantar. Bilingual: Jurnal Pendidikan Bahasa Inggris, 3(2), 75-85

Sugiyono. (2015). Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif dan R&D. Bandung: Alfabeta.

Sugiyono. (2017). Educational Research Methods: Quantitative, Qualitative, and R&D Approaches. Bandung: Alfabeta.

Sugiyono. (2017). Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.

Sugiyono. (2019). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.

Sulistiyo, U. (2016). The role of media in English language teaching. Journal of Education and Learning, 10(1), 34-45.

Ur, P. (1996). A course in language teaching: Practice and theory. Cambridge University Press.

Wilkins, D. A. (1972). Linguistics in language teaching. Edward Arnold.

Wu, Q., Li, C., & Zhai, F. (2020). Motivation and task completion in gamified language learning apps: A case study of Duolingo. Language Learning & Technology, 24(1), 54-70.