

THE EFFECTIVENESS OF DUOLINGO APPLICATION ON STUDENTS' VOCABULARY MASTERY AT SMK PARIWISATA KOTA CIREBON

Aan Andriyani

Institit Prima Bangsa
aanandriyani288@gmail.com

Dwi Nopiyadi

Institit Prima Bangsa
dwinopiyadi@gmail.com

Utami Rosalina

Institit Prima Bangsa
utami.rosaline@gmail.com

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Abstract: This research aims to determine the extent to which students' English vocabulary has increased by using the Duolingo application as a teaching support tool to improve students' English vocabulary. This study will be carried out by researchers utilizing quantitative techniques. Researchers use samples in their studies. The sample in this study was 40 students from SMK Pariwisata Kota Cirebon. They were X Culinary as the experimental class, and X OTKP as the control class. Duolingo application's ability to help students acquire vocabulary that they are unfamiliar critical to their language learning process. Based on the calculation, the experimental team's post-test findings showed an average score of 14.50, while that of the control class was 5.50. This is demonstrated by the fact that the difference between the p-value ($p = 0.000 < 0.05$) and the $t_{observe}$ is bigger than the t_{table} ($12.344 > 2.0243$). Therefore, H_0 was rejected and H_a was accepted. The computation results showed that the average post-test score for the experimental class was higher, at 14.50. The result in the average score indicates a distinction in the proficiency between students who used the Duolingo program for instruction and those who didn't. There was a more pronounced rise in the experimental group. than the control group. This demonstrates the Duolingo software's success in helping users develop vocabulary mastery.

Keywords: *Duolingo, Vocabulary Mastery.*

INTRODUCTION

The usage of media in the process of instructing and learning is beneficial. Students will learn more actively with the use of educational media. as using media for learning is crucial in this day and age. According to Dhine (2012), as an intermediary (Wuladari et al., 2023), One element of the learning process is learning media. Studying media is a resource that educators may use to deliver content so that students will be interested in what they are studying. Therefore, utilising the Duolingo app is likewise rather convenient. This app may be downloaded via the Google Play store on a smartphone. Grego & Vesselinov (2012) stated that Duolingo is simple to use and suitable for users of all ages due to its straightforward setup process. Thus, Duolingo will be a more comfortable medium for teaching online classes because it is more engaging and easier to use.

As can be seen from the background information above, the author conducts a study titled "The effectiveness of Duolingo application on students' vocabulary mastery at SMK Pariwisata Kota Cirebon" and utilises the program to help students acquire vocabulary at SMK Pariwisata Kota Cirebon. Vocabulary is the core of language that one must understand before learning English. Vocabulary, according to Nurgiantoro (2016), is a language's richness that is inherent to or present in a language. One could even argue that vocabulary is the key to learning a foreign language because one's proficiency in the language is mostly determined by how extensive their vocabulary is. According to Mardianawati (2012), vocabulary skills include Meaning, Spelling, Pronunciation, and Grammar.

Variable	Indicators
<p>Dependent variable Y</p> <p>Vocabulary Mastery</p>	<ol style="list-style-type: none"> 1. Pronunciation One of the factors that greatly affects vocabulary is pronunciation. 2. Spelling Syllables or letters that make up words 3. Grammar Words include grammatical information, therefore knowing words can help children learn grammar. 4. Interpretation The more the kids consider the term and its meaning, the more probable it is that they will retain it.

An approach is required to view teaching as a collaboration between the knowledge of the teachers and how they use it in the specific circumstances or settings that they work in in their classrooms (Koehler & Mishra, 2009). Furthermore, Taopan et al. (2019) noted because the TPACK framework, with its fundamental elements, offers educators a new perspective on their teaching methods, including the use of technology. The TPACK framework provides some teaching opportunities (Bugueño, 2013). A major factor in increasing students' access to a variety of English language learning resources is information technology (IT) (Nurchaili, 2010). First and foremost, creating a successful teaching framework that incorporates technology requires an understanding of the principles of technology utilization.

The Duolingo application's ability to help students acquire vocabulary that they are unfamiliar critical to their language learning process. There are several methods for learning vocabulary in the current world, particularly ones that young learners may utilize, such as the Duolingo app Gereuw, Muntuuntu, & Sanger (2022). The Duolingo app with language learning software is equally effective for learning foreign languages. Like website translation (Garcia, 2013). Researchers found that several related studies had carried out similarities and differences. The first previous study by Zamzami (2019) entitled “The effect of using Duolingo application through students’ vocabulary mastery”. The author discovered that to observe was greater than a table (to observe) > table, precisely $4.94 > 2.00$, after comparing the two at each degree of importance. The null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, when it is observed to be greater than stable.

The second related research is by Fatah (2019) entitled “The effect of using Duolingo application to develop students’ vocabulary knowledge”. The students in the experimental class scored an average of 80.00 on the post-test, which is higher than the score of the control class of 74.25. Concurrently, data analysis demonstrates that, at the significance level $\alpha = 0.05$ (5%), t_0 (2.881) is bigger than table (1.672). Additionally, the comparison reveals that the average score of the experimental class is 13.75 points. The $t_0 > \text{table}$ indicates that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted.

The third related research is by Kusumadewi and Widyastuti (2018) entitled “The effects of using Duolingo towards student’s vocabulary mastery”. The highest score of 35 was 85, and the lowest was 35. Its value was 0.56.33. Thirty students participated in the survey, achieving

an average score of 73.33, with the lowest score being 37 and the best being 83. After that, the table was 1.70 and the count result was $5.64 > \text{table } 1.70$, meaning that H_0 was rejected based on the data used for the hypothesis test, where $n=30$ with $df = n_A + n_B - 2 = 58$.

In this case, although many studies have been carried out on this research theme. In most previous studies, it is clear that several studies related to vocabulary in research were conducted in public schools such as elementary, middle and high schools. Therefore, the purpose of this study is to ascertain how utilizing the Duolingo program might help with vocabulary acquisition in Vocational High Schools. The researcher would like to formulate the following theory “There is a significant difference in vocabulary mastery between students who received learning with the Duolingo application and students who received learning without the Duolingo application in class X SMK Pariwisata Kota Cirebon students”.

RESEARCH METHOD

This study will be carried out by researchers utilizing quantitative techniques. Researchers use samples in their studies. Research was conducted to see how utilizing the Duolingo program influenced students' language memorization skills.

Table 1: Quasi-Experimental Design

Class	Test	Treatment	Test
Control Group	Pretest	No Treatment	Posttest
Experimental Group	Pretest	Experimental Treatment	Posttest

Source: Creswell (2012).

This research will be conducted to find out what effectiveness the use of the Duolingo application has on English learning outcomes, especially in the tenth grade of SMK Pariwisata Kota Cirebon. The research will be carried out in five meetings, where each of the five meetings teaches one chapter of school lessons. Choosing sample participants who will be representative of the population is the aim of simple random sampling. Any bias present in the population will be dispersed evenly across the selected individuals. From the statement above, the author uses Class X SMK Pariwisata Kota Cirebon.

Additionally, pretest- and post-tests will be used enables the investigator to evaluate the outcomes of vocabulary knowledge in English. Pre-, treatment, and post-tests were used by

researchers to assess the effectiveness of text instruction using written retelling techniques. Compared to utilizing the posttest measure alone, a pretest-posttest comparison of attitudes toward smoking may paint a more realistic image of actual smoking behavior (Creswell, 2012). During the first meeting, students take a pre-test to ascertain their level of ability before using written retelling approaches in their writing assignments.

Using written words as questions and written answers from respondents, a questionnaire is a method used to gather data. As per Creswell (2012), a questionnaire is a survey that research subjects must finish and give it back to the researcher. Participants select the items to respond to and provide basic demographic or personal data. With this technique, researchers can find out the variables they want to measure and what is expected from respondents. In this study, students who completed the survey had their pre-test and post-test outcomes compared using a straightforward statistical technique. To identify important effects and treatments, the data will be evaluated using the t-test method; positive and significant findings from the research will be determined using Chi-Square.

RESULT AND DISCUSSION

RESULT

The distribution normality test was utilized to compare the experimental and control groups' pre- and post-test results for language proficiency. Investigating the distribution's normalcy is done with the Kolmogorov-Smirnov normality test technique. To find out if this distribution is normal, use the SPSS18 for Windows program. In the event that the calculated p-value exceeds the criterion of significance of 5% or 0.05, then the data circumstances can be considered widely distributed.

Table 2: Post-test Normality Test Experimental and Control groups

Kelas		Tests of Normality					
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Vocabulary Mastery	Kelas Eksperimen	,176	20	,107	,940	20	,243
	Kelas Kontrol	,188	20	,063	,905	20	,052

a. Lilliefors Significance Correction

The data examined by Shapiro-Wilk and Kolmogorov-Smirnov procedures has a normal distribution. This is demonstrated by the p-value, which is more than the 5% significance level

(0.05). The post-test significance value for the experimental group was 0.107 ($0.107 > 0.05$). The post-test significance value for the control group was 0.063 ($0.063 > 0.05$).

Post-test was conducted to see if there were differences in vocabulary mastery after receiving treatment after receiving treatment using the Duolingo application in the experimental group while not making use of the Duolingo software in the control group. The following are the post-test t-test outcomes for the groups under investigation and control understanding of the review material.

Table 3: T-test Vocabulary Mastery Post-test Scores for Experimental and Control Groups

		Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Vocabulary Mastery	Equal variances assumed	1,041	,314	12,344	38	,000	9,000	,729	7,524	10,476	
	Equal variances not assumed			12,344	34,132	,000	9,000	,729	7,519	10,481	

The $t_{observe}$ is greater than t_{table} ($12.344 > 2.0243$) with a p-value of less than 0.05 ($p = 0.000 < 0.05$), suggesting a notable difference between the experimental and control groups' post-test results. The t-test findings show that the experimental and control groups' vocabulary competence differs significantly. This indicates a difference in vocabulary competence between the two sample groups.

This is demonstrated by the fact that the difference between the p-value ($p = 0.000 < 0.05$) and the $t_{observe}$ is bigger than the t_{table} ($12.344 > 2.0243$). These computations' outcomes lead to the following conclusion. H_0 “There is no significant difference in vocabulary mastery between students who received learning with the Duolingo application and students who received learning without the Duolingo application in class X SMK Pariwisata Kota Cirebon students, rejected”. H_a “There is a significant difference in vocabulary mastery between students who received learning with the Duolingo application and students who received learning without the Duolingo application in class X SMK Pariwisata Kota Cirebon students, accepted”.

DISCUSSION

Research indicates that the experimental group used the Duolingo app scored an average of 11.0 on the pre-test, with a maximum of 19 and a minimum of 6. In the meanwhile, the post-test mean was 14.50, with 19 being the highest score and 8 being the lowest. In the meantime, the control group, which did not utilize the Duolingo program, received an average pre-test score of 7.40, with an 11 being the best and a 4 being the lowest. Meanwhile, the post-test average was 5.50, with 9 being the highest score and 3 being the lowest.

Based on a comparison the average the difference between the pre- and post-test scores in the experimental class indicated that the post-test score was greater than in the control class two groups ($14.50 > 5.50$). The SPSS 18 for Windows application was also employed to evaluate the pre-test with a t-test. Based on the difference between the pre- and post-test scores in the two groups, there was a p probability value indicating that the average post-test score in the experimental class was greater than in the control class. The t_{observe} was 4.329 with a df of 38 at 0.05 or 5% as the significance level. With a p-value of less 0.05 ($p = 0.000 < 0.05$) and a t_{observe} bigger than the t_{table} ($4.329 > 2.0243$), The post-test findings for the experimental and control groups are considerably different from one another.

The t_{observe} was more important than the t_{table} ($12.244 > 2.0243$) according to the findings of using the t-test to calculate post-assessment results. The P-value is less than 0.05 ($0.000 > 0.05$). This shows that the vocabulary mastery post-test results for the experimental and control groups differed significantly. The Duolingo app was not used by the control group, while the experimental group did not get any treatment using the Duolingo application, differed significantly in their vocabulary knowledge, according to the t-test findings. The results of the t-test reveals a substantial difference in the experimental and control groups' language ability control groups. This suggests that the two sample groups' language competences differ from one another. After a pretest was distributed to the groups in control and experimentation the two groups received distinct learning.

The effectiveness is it to use the Duolingo app in the classroom to master vocabulary. The t-test examination of the experimental group's vocabulary mastering ability revealed that, with $df=19$, t_{observe} was more than t_{table} ($6.362 > 2.0243$) and the p-value was less than $0.000 < 0.05$, which is the significance threshold. These results show a noteworthy distinction between the experimental group's pre-test and post-test results comprehension of review content using the Duolingo app. In addition, the mean the experimental group's pre-test and post-test scores grew at a different rate than those of the control group. The mean scores from the pretest and the posttest increased by 3,500 for the experimental group and no more than 1,900 for the control group. The variations between the control and experimental groups' increases in average scores indicates that vocabulary mastery is efficiently taught through the Duolingo application.

In contrast to the group under control, the experimental group's average score was greater. This demonstrates how successful the Duolingo app is in enhancing vocabulary mastery.

CONCLUSION

This is demonstrated by the findings of the experimental group's vocabulary competence as determined by information from the t-test and post-test, indicating that the p-value was below the significance limit of 0.05 ($0.000 < 0.05$) and that the t_{observe} was greater than the t_{table} ($6.362 > 2.0243$) with $df = 19$. According to these results, the control group, which does not utilize the Duolingo software, and the experimental group, which makes use of the application, are very different. Following then, both the experimental group's and the control group's average scores rose. The pre- and post-test results for both groups were analyzed using the t-test, and the results indicate that the experimental group's average score rose to 3,500. Conversely, the control group's average score increased by a mere 1,900 points.

Mastering vocabulary should be achieved by implementing several strategies to motivate students and actively engage in learning. English subject teachers must increase the creativity of their instruction to help pupils learn a language and prevent boredom in the classroom. One strategy to motivate and activate Students is utilising the Duolingo app to gain vocabulary mastery. Instructors are fortunate to have access to a wide range of relevant materials that they may utilize to enhance the quality of their instruction.

REFERENCE

- Azzahara, T., Muliati, A. & Sakkir, G. (2023). The effect of using the Duolingo application as a medium in improving students' vocabulary mastery. *Journal of Technology in Language Pedagogy (JTechLP)*. Vol. 2, No. 3.
- Borang, K.A., Maru, M.G. & Rorimpandey, R. (2023). The use of duolingo application to increase students' vocabulary mastery. *SoCul:International Journal of Research in Social Cultural Issue*. 3.1.
- Creswell, John W. (2012). *Educational Research : Planning, Conducting, And Evaluating Quantitative And Qualitative Research Fouth Edition*. Boston : Pearson Education, Inc
- Dhine, Nurbiana, dkk. (2012). *Metode Pengembangan Bahasa*. Jakarta: Universitas Terbuka.
- Fatah, C.A. (2019). *The effect of using Duolingo application to develop students' vocabulary knowledge*. Skripsi. Syarif hidayatullah state islamic university: Jakarta.

- Garcia, I. (2013). Learning a language for free while translating the web. Does Duolingo work?. *International Journal of English Linguistics*, 3(1), 19.
- García, O. (2013). From diglossia to trans glossia: Bilingual and multilingual classrooms in the 21st century. In C. Abello-Contesse, P. M. Chandler, M. D. López-Jiménez, & R. Chacón-Beltrán (Eds.), *Bilingual and multilingual education in the 21st century: Building on experience* (pp. 155–175). Bristol, UK: Multilingual Matters.
- Gereuw, B., Muntuuntu, M., & Sanger, M. (2022). The use of song to increase students' vocabulary at seventh grade of SMP negeri 1 siau timur selatan. *JoTELL : Journal of Teaching English, Linguistics, and Literature*, 1(1), 144-156
- Hafriana, N. (2019). *The Influence of direct method in teaching vocabulary of the thenth grade studens at SMA 11 Kabupaten Wajo*. Skripsi. Muhammadiyah university of Makasar.
- Kusumadewi, H. & Widyastuti, M. (2018). The effects of using Duolingo towards students' vocabulary mastery. *IJET*. Volume. 7, Issue 2.
- Nurchaili. (2010). Pengaruh Media Pembelajaran Berbasis Teknologi Informasi Dalam Proses Pembelajaran Kimia Terhadap Peningkatan Hasil Belajar Siswa. *Jurnal Pendidikan Dan Kebudayaan*, 16(6), 648–658.
- Nurgiantoro, B. (2016). *Sastra anak: pengantar pemahaman dunia anak*. UGM PRESS.
- Rouhani, M & Pourgharib. B. (2013). The Effect of Games on Learning Vocabulary. *International Research Journal of Applied and Basic Sciences*. 4(11)
- Vesselinov, R. & Grego, J. (2012) *Duolingo effectiveness study: Final report*. Queens College, City University of New York. Google Scholar.
- Zamzami, M.F. (2019). *The effect of using Duolingo application through students' vocabulary mastery*. Skripsi. Syarif hidayatullah state islamic university: Jakarta.