

# THE EFFECTIVENESS OF USING DUOLINGO AS LANGUAGE LEARNING APP TO IMPROVE STUDENTS' VOCABULARY MASTERY ON THE TENTH GRADE OF SMK NEGERI 1 SAPURAN IN THE ACADEMIC YEAR OF 2022/2023

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## Abstract

Duolingo is a popular language learning application that can be used via internet connection. The presence of Duolingo can assist learners in expanding their vocabulary mastery by using the gamification method. The aim of this research is to find out whether it is effective or not using Duolingo in teaching vocabulary on the tenth grade of SMK Negeri 1 Sapuran in the academic year of 2022/2023. The subject of this study were 36 students of X AK 2 and 36 Students of X TO 2 at SMK Negeri 1 Sapuran. This research method is an experimental research Method, which consists of 2 classes. The instruments used in each class was vocabulary test. This research uses quantitative data. Quantitatively, data was obtained from student test scores. The finding of this research shows that the computation of the Sig. (2- tailed) was 0.00. It was lower than the significance level (0.00<0.05) It means that the hypothesis alternative was accepted. The mean of the experimental group was 75.36 and the mean of the control group was 65.16. It means that the score of the experimental group was higher than the mean of the control group. The result of this research shows that Duolingo is effective to improve students' vocabulary mastery.

Keywords: Effectiveness, Improve, Vocabulary Mastery

## 1 INTRODUCTION

Language is the identity of a country as a means of communication. Everyone needs language when interacting [1]. Without the presence of language, humans will not be able to build modern civilization as it is today. With language humans are also able to express experiences, anger, sadness, and various other expressions aimed at fellow human beings.

English has been recognized by the world as a tool to unite various cultures in the world, including in Indonesia. Language has a very strong role in changing and developing various cultures and ways of life that apply in the world, including in the economic field. The world economy is also not free from the interference of languages, especially English. Starting from free trade to investing in shares in giant companies. The role of English in advancing the economy must be supported by elements of the free flow of goods, services, investment, educated labor and free capital flow. Therefore, all countries in the world, including Indonesia, must prepare human resources who have the ability to speak English. Global economic growth can be encouraged by English Communication Ability (ECA). English Communication Ability absolutely 2 must be planned continuously by private companies. People who have good English Communication Ability will have the opportunity to have a higher income [2]. Responding to this phenomenon, job seekers are required to have good English Communication Ability in order to respond to globalization in the world.

The quality of education in a country has an important role in preparing the nation's next generation who have various abilities in all sectors. English proficiency is needed to make this happen because many sources of knowledge such as books, journals, articles are in English. Therefore, people in Indonesia need to master English in order to advance their own nation.

To master English, people need to master four language skills, namely speaking, reading, writing, and listening. Some students may find it difficult to practice speaking, to understand conversations in the

listening section, to understand, and to write their thoughts in reading and writing classes because of their lack of vocabulary mastery as Susanto says that "The learning of vocabulary is an important part in foreign language learning." [3].

Today, technology has developed rapidly so that it has become an important aspect in the world of education. This means that all students are forced to be able to master technological advances on the grounds that technology can facilitate and support student learning in order to improve the quality of education in Indonesia. Ahmadi & Reza state that the use of technology in and out of the classroom has become an integral aspect of the 3 learning process [4]. Almost every language lesson uses some types of technology. Language has been helped and improved through use of the technology. One of the media that can be used in technology-based learning is the Duolingo application which can provide an impressive and fun learning experience.

Muhibuddin et al., state that the use of Duolingo application will lead to the implementation of a gamification method [5]. Gamification engages people, motivates action, promotes learning, and solves issues by utilizing game mechanics, aesthetics, and game thinking. Furthermore, a study conducted by Musa & Mohamad state that apart from Duolingo, students can also practice their language skills practically and systematically by using their own learning methods [6]. Understanding the benefits of Duolingo, researcher decides to use the Duolingo application for the tenth-grade students of SMK Negeri 1 Sapuran to know whether this application really help them in understanding English.

## 2 METHODOLOGY

The type of research used in this research is experimental research. According to Sugiyono, experimental research methods are the research methods used to find the effect of certain treatments on others under controlled conditions [7]. The researcher used a quasi-experimental research design to identify the effectiveness of using Duolingo as a medium in teaching vocabulary. The researcher gave pre-test and post-test in two classes: experimental class and control class. A pre-test was used to get the initial value of the experimental class and control class before treatment Post-test was used to measure scores after treatment. Then, the results were compared after and before the treatment to get the effectiveness of the Duolingo media.

The sampling technique in this research was purposive sampling due to time and cost limitations. The population in this study were 349 students who were divided into 10 classes. The samples taken were class X TO 2 which consisted of 36 students and X AK 2 which consisted of 36 students. Pre-test and post-test were conducted to collect data.

During the first meeting, the researcher administered a pre-test to assess the students' vocabulary mastery. The treatment was then given for three meetings, with each session lasting 30 minutes. The experimental class received the treatment through Duolingo application, while the control class did not use Duolingo application. Finally, the researcher administered a post-test to evaluate the progress of the students' vocabulary mastery. The researcher scored the test using the following criteria:

**Table.1 Scoring Student's Vocabulary Mastery**

Number of question	Score each number	Total score
25	1	$\frac{\text{correct answer}}{1} \times 4$

## 3 FINDING AND DISCUSSION

### 3.1 Data Description

The data of the research were carried from 2<sup>nd</sup> until 15<sup>th</sup> May 2023. This research was conducted at SMK Negeri 1 Sapuran on the tenth-grade students in the academic year 2022/2023. In this research, the researcher takes two classes as the sample. The classes that are chosen to be sampled are X TO

2 and X AK 2 of SMK Negeri 1 Sapuran. Each class contains 36 Students. The total numbers of students are 72. The researcher collected data from the pre-test and post-test.

### 3.2 Descriptive Analysis

The descriptive analysis is used to describe the variable of this research which is the using of Duolingo in teaching vocabulary. Descriptive statistics include the measurement of central symptoms (mean, median, and mode) tendency and measurement of variation group: (range, variance, and standard deviation) [8]. The result is as follows:

**Table 2. Results of Descriptive Analysis**

	Descriptive Statistics										
	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance	Mode	Median	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Statistic
PRETEST XP	36	52.00	40.00	92.00	2242.00	62.2778	2.00183	12.01097	144.263	64.00000	64.000
POSTTES TXP	36	44.00	56.00	100.00	2713.00	75.3611	1.94412	11.66473	136.066	72 <sup>a</sup>	76.000
PRETEST CT	36	44.00	36.00	80.00	2072.00	57.5556	2.03635	12.21812	149.283	56.00000	56.000
POSTTES TCT	36	44.00	44.00	88.00	2346.00	65.1667	1.94263	11.65578	135.857	72.00000	66.000
Valid N (listwise)	36										

Based on Table 2., The Experimental Group's mean pre-test score was 62.28, while the mean post-test score was 75.36. The median of the pre-test was 64 and the median of the post-test was 76. The mode of pre-test was 64 and the mode of post-test was 72<sup>a</sup>. The standard deviation of the pre-test was 12.01, while the standard deviation of the post-test was 11.66. The variance of the pre-test was 144.26 and the variance of the post-test was 136.06. Moreover, the range of the pre-test was 52 and the range of the post-test was 44. While the Control Group's mean pre-test score was 57.56 while the mean post-test score was 65.16. The median of the pre-test was 56 and the median of the post-test was 66. The mode of pre-test was 56 and the mode of post-test was 72. The standard deviation of the pre-test was 12.21 while the standard deviation of the post-test was 11.66. The variance of the pre-test was 149.28 and the variance of the post-test was 135.86. Moreover, the range of the pre-test and the range of the post-test was 44.

The Normality Test was utilized to find out whether or not the data were distributed normally. In testing the normality of the data, the researcher used IBM SPSS 25 by Kolmogorov Smirnov Statistics. The normality testing in this research was conducted using IBM SPSS 25 can be seen in the table 3:

**Table 3. Test of Normality Kolmogorov-Smirnov Using SPSS 25**

Class		Tests of Normality					
		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Score	Pre-test Experimental	0.113	36	.200 <sup>*</sup>	0.977	36	0.643
	Post-test Experimental	0.089	36	.200 <sup>*</sup>	0.973	36	0.501
	Pre-test Control	0.089	36	.200 <sup>*</sup>	0.963	36	0.266
	Post-test Control	0.121	36	.200 <sup>*</sup>	0.961	36	0.237

According to Field (2018: 575), the data can be said normally if the significance value is higher than the significance level ( $>0.05$ ). Whereas, the data can be said abnormal if the significance value is lower than the significance level ( $<0.05$ ). The computation above showed in the Kolmogorov-Smirnov column that the significance value of the pre-test and post-test of the experimental group and control group was 0.2. The significance values of the experimental group and control group were higher than 0.05. It can be concluded that the data distribution of the pre-test and post-test experimental and control groups was normal.

After knowing the data distribution, the researcher computed the test of homogeneity using IBM SPSS 25 by applying F-test. The result of the F-test was as follows.

**Table 3. Test of Homogeneity Variance**

Test of Homogeneity of Variance						
		Levene Statistic	df1	df2	Sig.	
Score	Based on Mean	0.062	1	70	0.805	
	Based on Median	0.072	1	70	0.789	
	Based on Median and with adjusted df	0.072	1	69.400	0.789	
	Based on trimmed mean	0.058	1	70	0.810	

From table 3, the researcher found that the test of homogeneity based on the mean was 0.062. Before the experiment was conducted, the level of significance to use had been decided. The researcher used a 5% (0.05) significance level. The result from the first computation above is 0.805; it is compound with the value of T-table with the numerator was one and df of dominator was 70. Based on the table on T-table, it is known that T-value is on a significant level of 0.05. It shows that the value of T-value is higher than T-table ( $0.805 > 0.05$ ). Therefore, it means that the variance of the two scores is homogenous.

In this study, a hypothesis test is carried out to determine the effectiveness of using Duolingo in teaching vocabulary on the tenth grade of SMK Negeri 1 Sapuran in the academic year of 2022/2023. If the data has a normal distribution, the researcher relies on SPSS Independent-Samples T-Test computation. The calculating independent samples test formula to decide which hypothesis that will be accepted or rejected, the result as the table follows:

**Table 4. Result of Independent Samples Test**

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
Score		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	0.062	0.805	3.709	70	0.000	10.194	2.748	4.713	15.676
	Equal variances not assumed			3.709	70.000	0.000	10.194	2.748	4.713	15.676

From the SPSS computation, the result of SPSS shows the Sig. (2- tailed) is  $0.0 < 0.05$ . According to Field (2018: 575), if the Sig. (2- tailed) is less than 0,05, the data is significantly different. It can be concluded that there is a significant difference between the experiment and the control group of vocabulary mastery. It means that the hypothesis null (H<sub>0</sub>) is rejected, and the hypothesis alternative (H<sub>a</sub>) is accepted. Therefore, the researcher concluded that using Duolingo application is effective to improve vocabulary mastery on the tenth grade of SMK N 1 Sapuran in the academic year of 2022/2023.

### 3.3 DISCUSSIONS

According to the statistical calculations carried out by the researcher, it was found that the student's vocabulary mastery significantly improved after three meeting sessions despite the fact that the majority of their vocabulary mastery levels were previously at fairly sufficient levels. The results have successfully answered the research questions, confirming that Webtoon is effective in teaching vocabulary on the tenth grade of SMK Negeri 1 Sapuran in the academic year of 2022/2023.

The data presented in Table 4 shows that the computation of the Sig. (2-tailed) was 0.06, while the significance level used was 0.05. The Sig. (2-tailed) value was lower than the significance level ( $0.00 < 0.05$ ), indicating that the data is significantly different. According to [13], if the Sig. (2-tailed) is less than 0.05, the data is significantly different. It can be concluded that there is a significant difference between the experiment and control group data (Field, 2017: 575). This means that the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_a$ ) is accepted. It is evident from the calculations explained above that the using of Duolingo is effective in teaching vocabulary on the tenth grade of SMK Negeri 1 Sapuran in the academic year of 2022/2023.

### 4 CONCLUSIONS

Referring to the discussion findings when there were only three meeting sessions, a significant increase in students' English vocabulary mastery was found. Although most of their previous level of English vocabulary mastery was at a poor level. It can be concluded that the using of Duolingo is effective to teach vocabulary. This idea is also supported by the results of the pre-test and post-test of students' English vocabulary mastery. From the calculation of the paired test, a two-tailed significance value of 0.00 is obtained. Compared to the 5% significance level (0.05), the calculation shows that the two-sided significance value is lower than the 5% significance level ( $0.00 < 0.05$ ). Thus, the alternative hypothesis ( $H_a$ ) is accepted. This means that the using of Duolingo is effective to teach vocabulary on the tenth grade SMK Negeri 1 Sapuran in the academic years 2022/2023.

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