

## Duolingo Application as Media in Teaching Vocabulary Mastery

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### ABSTRACT

*This study aims to see how the Duolingo application affects students' vocabulary competence in the seventh grade in junior high school. Vocabulary is crucial for pupils to acquire since it helps them communicate. A quasi-experimental design was adopted, with 20 students as the experimental group and 20 as the control group. The result demonstrates that at the 5% significance level,  $t_{ob}=2.881$  is greater than  $t_{ta}=1.672$ . It suggests that utilizing the Duolingo program might improve pupils' vocabulary proficiency. Ho was refused but Ha was accepted.*

**Keywords:** Duolingo, Android Application, CALL, Vocabulary Mastery

### I. INTRODUCTION

In adolescent foreign language lessons, vocabulary is the most significant teaching instrument. As a consequence, English language classes are critical in assisting Indonesian students in learning English as a foreign language. Students must have a vast vocabulary to communicate successfully (Kholis & Aziz, 2020). As Thornbury observed, nothing can be learned without

grammar, and nothing can be learned without vocabulary (Thornbury, 2006). This statement implies that learners cannot believe that English has only four significant skills. Truly, without us realizing it, vocabulary is included in that four-part indirect skill set (nur Aziz & Rohmah, 2022). The world's importance is evident in every aspect of language; it's present in every

skill. A vocabulary grows and evolves with age and is an essential tool for communication and learning.

One of the most crucial aspects of obtaining all four language talents is the teaching of vocabulary. Jordan also feels that teaching vocabulary is critical in learning English since the desire to acquire new words is strongly tied to all language acquisition and is necessary for all four language talents (Jordan, 1997). One of the most common components of teaching English as a second language is vocabulary education (nur Aziz & Rohmah, 2022). Issues will develop for instructors throughout the teaching process. They need help teaching students how to achieve a satisfactory outcome. The teacher must determine the appropriate method that students will utilize. A skilled teacher must be aware of the most recent methods.

Another method of increasing vocabulary is through technology. Recently, CALL has been a popular learning approach (Computer Assisted Language Learning). Language instructors were popular in the late 1970s and early 1980s who possessed desktop computers and an interest in tinkering began to create simple programs that would support their students' learning (Arshavskaya, 2018). Over time, this

enormous number of language instructors and their support personnel would gather at language conferences devoted to language teaching, establishing the area of CALL, commonly defined but not universally, as Computer Assisted Language Learning.

One of the CALL programs that learners utilize in the future of language learning and worldwide communication is the Duolingo Application (Jašková, 2014). Because it is akin to a video game, Duolingo is suggested for use in classrooms to engage pupils while they study. It is advantageous while learning a second language. The Duolingo application's learning process differs from traditional classroom instruction. When pupils merely remember and write the language, they get bored with vocabulary acquisition. Though vocabulary is the starting point for mastering English (Muddin, Addal, 2018). Teachers may employ media such as LCD, sound, and a laptop to facilitate vocabulary acquisition in the classroom while utilizing the Duolingo program.

As a fundamental aspect of learning a language, vocabulary is important for junior high school students to master (Yuliansyah & Fitrawati, 2016). However, most junior high pupils struggle with language mastery. The kids' lack of vocabulary was one of the

explanations (Kusrimi, 2012). There are many problems in learning vocabulary by the students; some still have difficulties memorizing the meaning of the words and they do not know how to recognize spelling a word and find the meaning of vocabulary based on the text, finding synonyms and antonyms (Sipayung, 2019).

Based on the concepts mentioned above, the goal of this research is to determine if using Duolingo programming will boost students' vocabulary acquisition. The use of Duolingo programmers is designed to solve problems and may aid students and teachers in the learning process, notably vocabulary development.

## II. LITERATURE REVIEW

### *A. Understanding of Vocabulary Mastery*

One of the English components described as the total quantity of words in a language is vocabulary. Large vocabularies enable us to communicate our thoughts accurately, vividly, and without repetition in writing (Burton & Humphries, 1992). Furthermore, it is necessary for success in understanding the language effectively, speaking better, or writing well; it is estimated that learners must enhance their vocabulary by roughly 1000 words each year (Nation, 1990). Vocabulary is essential since it may list the words used in a business, as

well as a language user's understanding of words and the system of methods or symbols used as a way of expression (as in arts and crafts); "he introduced a vast vocabulary of techniques." The collection of terms they are acquainted with in a language is sometimes called their vocabulary. A vocabulary expands and changes with age and is a helpful and vital instrument for communication and information acquisition (Wardani, 2015).

Vocabulary is the study of pieces of words that provide clues to the meaning of full words. Vocabulary is essential to language ability, forming the foundation for how effectively a student talks, listens and reads, writes (Richards et al., 2002). There are two types of language: active and passive. Active vocabulary refers to terms the student knows, pronounces properly, and uses constructively in speech and writing. Passive vocabulary, on the other hand, refers to terms that pupils identify and comprehend when reading or listening to someone talk. Still, they do not utilize the words in speaking or writing (Finocchiaro, 1964).

Students must grasp vocabulary to speak and comprehend the language. Vocabulary competence is required to convey our views and comprehend what others say, including understanding the

words, their meanings, and how they are used in context (Furqon, 2013). According to River, vocabulary mastery refers to a high level of proficiency in digesting words in a language. It is a personal accomplishment and property (Rivers, 2018).

According to Krashen and Teller, language knowledge is essential for learning. The acquisition is heavily reliant on understandable input. The capacity to understand the meaning of crucial aspects in the sentence directly influences comprehensibility (S. D. Krashen & Terrell, 1983). A lack of vocabulary knowledge may harm the teaching-learning process of a language. Furthermore, good vocabulary mastery is essential for language learners (Putri, 2013, p. 9). According to the experts, vocabulary mastery is the capacity or skill of pupils in grasping the meaning of a word in a language based on characteristics that are matched to their grade level or aptitude.

The process of conveying knowledge or information from the instructor to the pupils is known as teaching (Brown & Payne, 1994). Vocabulary training for English language learners is crucial to a student's language development, but getting the most out of it takes careful preparation.

Wallace states that four techniques can be considered in teaching vocabularies (Wallace, 1998, p. 25): 1) To explain the difficult words, that is, by giving the translation or explanation, 2) To lead the students to check the target words in their dictionary, 3) To get the students creative in raising some questions about the words, 4) To get students to guess or infer the meaning of words by using the clues given.

The characteristics of students are complex. So it makes the teacher difficult to engage with them. Before the teacher taught the students new words, they hoped to understand the characteristics of their students. For students' vocabulary achievement through object and action, the teacher has to do a great deal of talking and acting to establish some link in learners' minds between what is said and what is done.

#### *B. Teaching Vocabulary for Junior High School*

Vocabulary acquisition is critical in junior high school English instruction (Yuliansyah & Fitrawati, 2016, p. 24). Words, according to Bowman, are the instruments we use to access our prior information, communicate ideas, and learn about new concepts (Kame'enui & Baumann, 2012, p. 56). Vocabulary is one of

the most crucial talents in a language (Schmitt & Schmitt, 2020, p. 40). It indicates that one of the keys that students must grasp to thoroughly understand the four language abilities is vocabulary.

One of the most crucial components of learning a new language is vocabulary. When a person's vocabulary is restricted or lacking, they will have difficulties comprehending what they are saying, reading, listening to, and writing. It is conceivable that learning a foreign language without comprehending the vocabulary is impossible. Students were still having difficulty expanding their vocabulary and recalling the term. They would lose interest in studying if they did not know how to broaden their vocabulary. One of the reasons was that they learned language in inefficient and uninteresting methods. Similarly, in the case of teaching vocabulary to junior high school kids, the most difficult aspect is the pupils' tendency to get bored quickly. According to (Harmer, 2001) individuals between the ages of eleven and fifteen loose attention after around 10 minutes.

### *C. Computer-Assisted Language Learning (CALL)*

Language learning is now more accessible thanks to technological advances. Technology aids not only government, social,

and everyday life human supports, but also language acquisition. It is possible to assess how much and how well technology is currently interwoven into language acquisition. When a teacher or lecturer teaches their pupils about a material topic, they now utilize computers and tools such as Powerpoint presentations to communicate the subject's substance without having to exhaust themselves by writing on the whiteboard. They merely show the pupils the PowerPoint and explain it straight to them. As a result, pupils may concentrate on the screen, which displays the slide, while their instructor explains the content. They are bored of writing and do not have to write it in their books. Many academics believe that integrated technology aids pupils in their language acquisition (Sujana, 2019).

According to Grimes, CALL provides students with a platform to study a new language independently with little direction from the instructor (Grimes, 1977). Computer-Assisted Language Learning (CALL) is a modern language teaching technique that has boosted students' autonomy, creativity, productivity, and group work. Graham defined computer-assisted language learning (CALL) as a language teaching and learning approach that uses a computer to help with

presentation, reinforcement, and assessment, with a significant interactive component (Graham, 2017).

#### *D. Duolingo Application*

Duolingo is a free program launched in November 2011 by Luis Von Ahn and Severin Hacker. Its tagline is "World Language Education for Free" (Munday, 2016). Duolingo is a mobile or computer application. It is one of the market's most well-known and highly regarded language-learning software. It has received several accolades and is accessible for Android, iOS, Windows Phone, and the web. It works simply and is highly valuable for individuals learning English and other languages such as Spanish, Italian, German, and Turkish (de Castro, Ana Paula et al., 2016).

Duolingo is a program for learning a foreign language. The goal of Duolingo is for the user to comprehend and utilize a language (Muddin, Addal, 2018). Teachers and students may both utilize Duolingo. Teachers may assess each student's strengths and shortcomings and assist them in improving their language skills. Users will recognize whether Duolingo focuses on vocabulary mastery in the other half of the learning process. Based on this, Duolingo may be used to help pupils enhance their vocabulary. Teachers utilize it in the

classroom to assist their pupils in mastering language.

Duolingo may assist pupils in expanding their vocabulary of English terms. Students must be proficient in vocabulary development. It is possible to gain at least three favorable advantages. To begin, Duolingo assists pupils in increasing their motivation and making this program more enjoyable. Second, since students may immediately look at the appealing visuals and wider features while studying a new vocabulary, Duolingo can help students effortlessly grasp new words. Students may also use the Duolingo program to learn the definition of the term.

After instructors have delivered information, Duolingo programs may be played separately in the classroom. Students may acquire new terminology via practical, logical procedures. Teachers may choose and alter materials based on the government curriculum in class. There are various stages to teaching vocabulary using the Duolingo app: 1) Provide pupils with content based on the English textbook without using the Duolingo app. 2) After pupils have mastered the vocabulary, offer them some activities. Students may be asked to locate textual terms and details. 3) After the materials have been provided to the students, they should

be ready to learn a new vocabulary using the Duolingo program.

Teachers may begin sessions in the classroom by providing materials based on English novels and instructions on how to utilize Duolingo programs. The pupils may next be asked to identify the word's meaning. As a result, the initial pupils obtained a broad grasp and new vocabulary. Following that, students may begin by utilizing the Duolingo program and selecting a provided subject or freely selecting that topic within their topic.

### III. METHOD

This included two classes with distinct treatments between the control and experimental groups. The writer was taught in the controlled class without using the Duolingo program. Another class was the experimental class used with the Duolingo application treatment. The sample was divided into two classes: 7 A comprised 20 students who received therapy using the Duolingo program, and 7B consisted of 20 students who received treatment using traditional methods.

This study's instrument data is a test. Because a research instrument should be dependable and valid. The data would then be evaluated to determine each item's validity, reliability, difficulty level, and discriminating power. Following the

collection of data from the pre-test and post-test by the writer. The writer contrasted the results of the pretest and posttest scores. The data was then examined and assessed statistically using the t-test procedure with a 5% degree of significance and obtained scores. In this research, the T-test was employed to determine whether or not there is a significant difference in the mean difference score between the experimental and control groups.

### IV. FINDING

Furthermore, the acquired score is the difference between each experimental and controlling group's pretest and posttest scores. Gain scores are used to assess whether or not a score has increased or decreased, as well as the program's success. However, before doing the tests, the hypothesis must first examine the precondition tests, namely the distribution of normality and homogeneity tests.

Using an independent t-test procedure, the author examined the students' scores from the experimental and control groups. To look at the significant level difference before computing the T-test result, it was important to know the data's normality and homogeneity value. The normality test was required to evaluate whether or not the data was normally distributed. The homogeneity

test was then required to determine whether or not the data was homogenous.

### 1) NORMALITY TEST

This test is performed before computing the t-test. It seeks to determine if the data is regularly distributed or not. The writer used Kolmogorov-Smirnov, as shown in Table 4.3. Because the significance is greater than = 0,05 (5%), the data is regularly distributed. The end result is as follows:

	Group	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pretest	Experiment	.176	20	.107	.902	20	.043
	Control	.178	20	.097	.926	20	.131

<sup>a</sup> Lilliefors Significance Correction

Table 1 Normality Test of Pre-test and posttest

The findings of Shapiro Wilk and Lilliefors' tests are shown in the table above. P value (sig) Lilliefors on an experiment group of  $0.107 > 0,05$  and a control group of  $0.097 > 0,05$  and data from each group with a normal distribution according to Lilliefors test. Shapiro Wilk's test P value of  $0.043 > 0,05$  on the experimental group and  $0.131 > 0,05$  on the control group Because all of the  $> 0,05$ ,

both groups are appropriately distributed according to Shapiro Wilk's test.

The post-test displays the outcomes of the Shapiro-Wilk and lilliefors tests. P value (sig) Lilliefors on experiment group of  $0,120 > 0,05$  and control group of  $0,036 > 0,05$  and data from each group with a normal distribution according to Lilliefors test. Shapiro Wilk's test P value of  $0.071 > 0,05$  on the experimental group and  $0.053 > 0,05$  on the control group Because all of the  $> 0,05$ , both groups are appropriately distributed according to Shapiro Wilk's test.

### 2) HOMOGENEITY TEST

Following the normal test, the writer performed a homogeneity test using the Levene statistic to determine if the data were homogenous or not. If the computation result is more than = 0.05, the data is homogenous. The end result is shown in the table below:

Levene Statistic	df1	df2	Sig.
.299	1	38	.588
.882	1	38	.354

Table 2 Homogeneity Test Result of Pre-test and posttest

The significance of the results from the pre-test between the experimental and controlled groups was found to be 0.588. As a result, the pretest data were homogenous since it was more than  $= 0.05$  ( $0.588 > 0.05$ ). The posttest difference between the two groups was 0.354, which is more than  $= 0.05$  ( $0.354 > 0.05$ ). It implies that the post-test data was homogenous.

### 3) T-TEST

As the obtained data demonstrated its normality and homogeneity, the author employed an independent t-test to determine the significant differences in students' vocabulary competence between experimental and controlled groups. After evaluating the data, the t-test results provide answers to the research topic of whether or not Duolingo apps are beneficial in this study. The data recapitulation is shown below:

	group	N	Mea n	Std. Deviation	Std. Error Mean
Posttes t	Experim ent	20	80.00	6.689	1.496
	Controll ed	20	74.25	5.911	1.322

Table 3 T-test Result of Post-test Scores

The table above shows the mean or common denominator of each group, with

the experiment value of 80.00 being lower than the control group's value of 74.25.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Post test	Equal variances assumed	.882	.354	2.881	38	.006	5.750	1.996	1.710	9.790
	Equal variances not assumed			2.881	37.433	.007	5.750	1.996	1.708	9.792

Table 3 Independent Samples Test

Based on the description above, it is clear that the data from an independent sample test demonstrates that  $t$  ( $df = 38$ ) = 2.881 and  $sig. (2-tailed) = 0.006$ . Because the  $sig. (2-tailed)$  0.006 is less than 0.05 (5%), the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_a$ ) is accepted because the standard significance used by researchers is 0.05 (5%). It indicates that utilizing the Duolingo program to increase pupils' vocabulary proficiency is beneficial.

#### 4) THE EFFECT OF SIZE

The author utilized Cohen's  $d$  to determine the effect size level of the research. The means and standard deviations of the post-test in the experimental and controlled groups, acquired from the group descriptive statistics table, are needed in the computation. The information is as follows:

	N	Min	Max	Mean	Std. Deviation
Post-test of Experiment	20	70	90	80.00	6.689
Post-test of Control	20	65	90	74.25	5.911
Valid N (listwise)	20				

Table 4 Descriptive Statistics

According to the table above, the mean score of the experimental group is 80.00, whereas the controlled group is 74.25. Meanwhile, the experimental group's standard deviation is 6.689, whereas the control groups are 5.911. After obtaining the findings, it is clear that the size impact is 0.91. According to Cohen's  $d$  effect size criterion, the Duolingo program has an impact on the students in the experimental group and improves their vocabulary proficiency

#### V. DISCUSSION

##### The Effect of Duolingo Application Media on Students' Vocabulary Mastery

The data from 20 pre-test and post-test groups had a pretest mean of 66.25 before executing the therapy using the Duolingo program. The average pretest score was then raised to 80.00 after therapy. As a result, the students "means that the experimental value in a post-test group was higher than the experimental group in a pre-test."

The significance of data from an experimental and controlled group in both pre-test and post-test was normally distributed after the normality tests were calculated using IBM SPSS statistics version 20. The pre-test results reveal that the experimental group's Kolmogorov-Smirnov data is 0.107, whereas the control group's data is 0.097. Meanwhile, the post-test results reveal that the experimental group's data from Kolmogorov-Smirnov is 0.120, whereas the control group's data is 0.036. It is possible to infer that both classes are more than  $= 0.05$  (5%), indicating that the findings are regularly distributed.

The data from the experimental and controlled groups were found to be homogenous based on the findings of the homogeneity test. The significant value of the

pretest between the experimental and control groups is 0.588 more than = 0.05 ( $0.588 > 0.05$ ). The post-test significance for the experimental and control groups is thus 0.354 greater than = 0.05 ( $0.354 > 0.05$ ). This indicates that the experiment and controlled classroom results were homogenous in both before and post-tests.

Furthermore, data analysis utilizing an independent sample t-test reveals statistically significant impacts of Duolingo apps throughout treatment periods. The statistics evaluated show that the findings of  $t$  ( $df = 38$ ) = 2.881 and  $sig$  (2-tailed) are 0.006 lower than = 0.05 (5%). It indicates that alternative hypotheses ( $H_a$ ) were accepted, whereas null hypotheses ( $H_0$ ) were rejected. As a result, it was shown that utilizing the Duolingo program influences improving students' vocabulary achievement. Consequently, the impact size is 0.91, indicating that the Duolingo program has a modest influence on the study.

The writer may infer from the data analysis above that the usage of Duolingo can greatly impact students' vocabulary accomplishment since the value of the vocabulary test after the writer did greater treatment than before being taught by the Duolingo application. Furthermore,

although this program may be used for any topic, based on the student's values, it implies that utilizing the Duolingo application has a beneficial influence on pupils, particularly those in the seventh grade of Junior High.

Duolingo is a free language learning software available in the Google Play store. "Duolingo develops a world with free education and no language barriers," according to their website. Users may study languages for free while translating online content" (Jašková, 2014). Duolingo offers a wide range of languages for students to learn. There are options for English, Arabic, Spanish, French, Dutch, and other languages (Gustavo García Botero et al., 2018). It also offers an educator's forum where people may exchange subject and topic information as either a teacher or a student to learn (Gafni et al., 2018). It may assess learners' accomplishments and devotion in fun ways. The software displays statistics such as the number of points won, the overview tree, the streak, and the amount of time spent (S. Krashen, 2014). There are several methods available to help beginning learners acquire a new language. The applications are simple, and the processes and tasks are straightforward. Duolingo aims to be user-friendly for people of all ages, including

children, teens, parents, and others (Bustillo et al., 2017). According to (Munday, 2015), Duolingo is chosen over traditional assignments and media because of its ease. It implies that Duolingo is easier to use and more fascinating; thus, it will be more comfortable to be one of the media used in classroom education.

## VI. CONCLUSION

Based on the previous chapter's ideas, teaching vocabulary in class using the Duolingo program is suitable. The t-test result of the post-test demonstrates this; pupils scored 80.00 in the experimental class, which was higher than 74.25 in the controlled class. Meanwhile, data analysis shows that  $t_0$  (2.881) is greater than that (1.672) at a significance level of = 0.05 (5%). The impacts of Duolingo apps used throughout treatment periods are statistically visible in data analysis utilizing independent sample t-tests. The statistics evaluated show that the findings of  $t$  ( $df = 38$ ) = 2.881 and  $sig$  (2-tailed) are 0.006 lower than = 0.05 (5%). As a result,  $t_0 > t_{table}$  indicates that the alternative hypothesis ( $H_a$ ) is accepted and the null hypothesis ( $H_0$ ) is rejected. It demonstrates that students have excellent results in vocabulary study after being taught using the Duolingo program. As a consequence of the data analysis above, it is

possible to infer that there is a considerable difference in student success before and after being taught using the Duolingo program. Furthermore, the Duolingo program is more successful and engaging than traditional teaching methods in teaching English vocabulary to pupils, particularly in junior high school.

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