



## THE EFFECT OF USING DUOLINGO APPLICATION ON STUDENTS' ENGLISH LEARNING MOTIVATION AND VOCABULARY ENRICHMENT : AN EXPERIMENTAL RESEARCH AT SMKN 1 PADANG

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### Article History

Accepted: 2023-08-28

Published: 2023-08-28

### Abstract

This research aimed to determine the effect of using Duolingo application on English learning motivation and vocabulary enrichment for the 10th grade students at SMKN 1 Padang. This research used a Quantitative Research Method which is pre-experimental. The population of this research was the 10th grade students at SMKN 1 Padang, which was X TKP A is the experiment class and the total sample was 22 students. The data collection techniques were motivation questionnaire and vocabulary enrichment test. The results of the study used IBM SPSS Statistics 29.0.1.0. and also Paired Sample T-Test formula was used by researcher to analyze the data. The Mean score for motivation before using Duolingo is 47.86 and after using it is 81.82. Then, the mean for vocabulary enrichment students before using Duolingo is 48.91 which is higher than the mean score after using it is 82.50. The result shows there is a positive effect of English learning motivation and vocabulary enrichment students through using Duolingo. Thus, both of the sig. score = < .001 which means it is smaller than  $\alpha$ .005. So, the alternative hypothesis ( $H_a$ ) for English learning motivation and vocabulary enrichment for the 10th grade students were accepted and those null hypothesis ( $H_o$ ) were rejected in this research. In addition to this result, using the Duolingo Application had significant effect for the 10th grade students on English learning motivation and vocabulary enrichment in teaching-learning activities in classroom.

### Keywords:

Duolingo, English Learning, Motivation, Vocabulary Enrichment

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**How to Cite:** Nasrul, Vinni dan Fatimah, Sitti. (2023). The Effect of Using Duolingo Application on Students English Learning Motivation and Vocabulary Enrichment : An Experimental Research at SMKN 1 Padang. Journal of English Language Teaching, Vol. 12 (No.3): pp. 933-952, DOI: [10.24036/jelt.v12i3.125020](https://doi.org/10.24036/jelt.v12i3.125020)

## INTRODUCTION

### BACKGROUND OF RESEARCH PROBLEM

In Indonesia, English is as a foreign language for students at several levels of education, they learn it from middle school to university. Specifically for the 10<sup>th</sup> grade students of SMKN 1 Padang, English is also a compulsory subject that has

used in *Kurikulum Merdeka*.<sup>1</sup> (Balitbangbuk, 2022). In the Appendix of Balitbangbuk it is said that the Kurikulum Merdeka also contains the vision that Indonesian students must have a Pancasila Student's Profile, one of the focuses in teaching English is facilitating students to become skilled in using technology (technological literacy), so they can improve their ability to seek and develop digital information-based knowledge that is adapted to the conditions students often experience at school and at home. It aims to help their carriers after graduating vocational senior high school in which they can speak and write English to apply job easily. Learning English aims to make students willing and able to apply good and correct English skills, so students have satisfying learning outcomes. There are several factors that can impact the learning process outcomes in schools, which include students' internal and external factors. Internal factors include factors within students such as: student abilities, attention, motivation, talents, interests, attitudes, ways of learning, and others. While external factors include factors from outside students such as teacher abilities, learning atmosphere, learning facilities, learning methods used in class, learning media used, school environment, and others (Slameto, 2013, p. 54).

Based on the researcher's observations when doing teaching practicum in a vocational technical senior high school where she was conduct her research, the students' low mastery towards English subject matter especially in vocabulary enrichment was due to the students' low motivation to learn English. It could be seen by the students' lack of enthusiasm in attending to the lessons. The classroom learning atmosphere was no longer *student-centered learning* but more *teacher-centered learning*. The teacher still taught in a conventional way, starting from delivering material, giving assignments and other things. It was still limited to writing on the blackboard or just dictating to students and forcing students to remember things that were conveyed and written on the blackboard/whiteboard without measuring the extent of students' interest, motivation and level of basic knowledge in English especially in knowing English vocabulary. As a result, most students did not pay attention to the teacher's explanation properly and were lazy to rewrite the subject matter delivered by the teacher. In fact, there must be changes in the management of learning activities in class, such as by using innovative learning models that could increase learning motivation and student learning outcomes. One learning model that could be applied is to utilize interesting learning media. Without learning media, communication in the learning process was not be able to take place optimally. (Daryanto, 2010: p. 5). Then, According to Tafani (2009) students and teacher have been provided creative and practical ideas by media. Furthermore, teachers who wish to teach should already use digital media in accordance with the direction of achievement in learning English and the curriculum because today students cannot be separated from digital everywhere. From the researcher's experience teaching of the 10<sup>th</sup> grade students at SMKN 1 Padang they were more interested in playing games than learning English. They thought that they cannot and

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<sup>1</sup> This is the name of new curriculum launched in 2020 by The Minister of Education and Culture of The Republic of Indonesia. This name remains to be written in Bahasa Indonesia in order not to make the meaning bias.

were not motivation to learn English because it was not as interesting as the games they played, so that the English mastery of the 10<sup>th</sup> grade students at SMKN 1 Padang was still low. The low students mastery of English subjects could be seen from the low student learning outcomes and the enrichment of their vocabulary. Only a few students scored were above KKM 60. As a result, students' motivation depended on whether the learning activities were interesting and fun for them, so students could succeed in learning foreign languages because of motivation.

Dörnyei (2009) argues that motivation is an important concept in language education, which is commonly used to explain student failure and success in learning. Students that are motivated to learn will pay attention and reread the lessons presented until they can understand and use specific learning strategies that support their progress. Thus, learning motivation shows learning goals and strategies related to achieving these learning goals (Brophy, 2004, p. 94). Motivation to learn a language is determined not only by attitude but also by other motivational goods. In addition, according to Deci & Ryan (2000), motivation is divided into extrinsic and intrinsic motivation. If intrinsic motivation is a situation where students learn the target language because of internal factors that exist within them such as interest or the nature of learning is fun.

The conventional tradition of teaching English must slowly be shifted by technological products in the era of globalization so that it can support an effective and quality education process. One example is that teachers can use several applications which related to their learning activity and could facilitate teachers and students in carrying out the learning process, especially in learning English. According to Harmer (2007) and Gencler (2015), teachers are asked to assist students in activities with digital technology to successfully learn languages. Teachers must also be able to use tools and media to improve the quality of the learning process with the right technological resources for students. In this case, the researcher wanted to implement the Duolingo application as a tool to measure the effect of using this application on the students' English learning motivation and vocabulary enrichment of the 10<sup>th</sup> students at SMKN 1 Padang.

Duolingo is a gamification application. Kapp (2012) states that Gamification is discovery in learning using game-based learning mechanics to solve problems. Gamification is seen as a game element that has an idea other than the game itself (Marczewski, 2013). It could be downloaded on Playstore by students if they want to learn language, especially English. This application contains learning English that students can access in a very simple way because this application is interesting and fun to use. "The Duolingo Method combines research-backed teaching methods with engaging content to create effective learning experiences" (Duolingo, 2021, para. 1). Users can learn languages for free on everyday English subjects or topics. Can measure students enthusiasm with a pleasant appearance. Duolingo provides data such as points, topic trees, lines and times. Duolingo is an easy application for novice users or those with low basic English when use the application to learn languages. This app aims to welcome individuals of all ages from children to adults.

Several previous research on Duolingo had been conducted such as (eg, Vesselinov & Grego, 2012, Muhammad Faiq Zamzami, 2019) 35 students learned Spanish for 2 months with *Duolingo* through websites and online applications. These results suggest that the majority of students are motivated to learn independently from time to time using these applications without external sources or assistance. Then, the research that has been conducted by faiq on grade 8 students at MTSN 3 Jakarta for the 2018/2019 academic year, Faiq has researched Duolingo as a medium to increase students' knowledge of English vocabulary. The research results obtained show the significance of learning outcomes and vocabulary mastery in students after using Duolingo. Moreover, (Yusda, 2020) in the grade 10<sup>th</sup> students at SMA Yadika Bandar Lampung. It was found that *Duolingo could* improve students' vocabulary mastery in learning English.

This study wanted to see students' motivation and vocabulary enrichment after they use *Duolingo* as an English learning application at SMKN 1 Padang.

**FORMULATION OF RESEARCH**

Whether the *Duolingo* application had any effect on the English learning motivation and vocabulary enrichment of the 10<sup>th</sup> grade students at SMKN 1 Padang?

**METHOD**

The method in this research was quantitative method. Thus, the researcher applied a pre-experimental research which used X TKP A as sample in experimental group. The group would do pre-post test and questionnaire to know the differences value before and after using Duolingo with IBM SPSS Statistics 29.0.1.0 for windows. Then, it was to know the effect of using Duolingo application on the students' Learning motivation and vocabulary enrichment of the 10<sup>th</sup> grade Students at SMKN 1 Padang. This research had 7 meetings to give treatment with using Duolingo application in English learning at the class. The research design is as follows :

<b>Pre-Test</b>	<b>Treatment</b>	<b>Post-Test</b>
<b>O1</b>	<b>X</b>	<b>O2</b>

**Tabel 1. Research Design**

In this research, data were collected using 42 vocabulary test questions and 20 motivational questionnaire statements which both of the instruments have validated and strong reliability for this research. In the vocabulary assessment test, the researcher asked students to choose answers from questions in the form of filling in the blanks, matching words, multiple choice, and answering the vocabulary asked in the questions. Then in the motivational questionnaire students have number stage of their motivation that related to their feelings or opinions, for this questionnaire used Likert scale.

### ***Validity and Reliability***

#### **1. Validity**

Validity test was carried out on each item of the vocabulary test and questionnaire through try out activities in class X who are not a research sample, namely class X TKP B. The method used in testing the validity of the work attitude observation sheet instrument is the Pearson's Product Moment Correlation method in SPSS 29. For vocabulary test, the correlation coefficient for all test items ranged from 0.468 to 0.590. in question numbers 9, 12, 14, 15, 16, 18, 20, 23, 24, 25, 27, 30, 31, 32, 33, 36, 38, 41, 44, 50, 52, 53, 61, 63, 64, 67, 69 and 70 are invalid. this was indicated by a positive  $r_{xy}$  value greater than  $r_{table}$  (0.46 and 0.590). Thus, 42 questions were declared valid and could be used in collecting research data. Moreover, for motivation questionnaire showed the result was valid. This was indicated by a positive  $r_{xy}$  value greater than stable (0.444 and 0.561). Thus, 20 statements were declared valid and could be used in collecting research data.

#### **2. Reliability**

The instrument reliability test in this study used the Alpha Cronbach in SPSS 29. The results of the reliability test can be seen in the following table. For questionnaire, the Cronbach's Alpha value on the English Learning motivation is  $> 0.600$ . Thus, the test items are declared reliable with a Cronbach's Alpha value of 0.965 and can be used in research data collection. Furthermore, for vocabulary test also the Cronbach's Alpha value on the vocabulary test is  $> 0.600$ . Thus, the test items are declared reliable with a Cronbach's Alpha value of 0.925 and can be used in research data collection.

After did the validity and reliability, the data analysis used questionnaire results about students' English learning motivation and test about vocabulary enrichment, which was processed using a paired sample t-test through IBM SPSS Statistics 29.0.1.0 for windows. The steps taken in the use of statistical data processing are normality test and hypothesis test.

## **RESULT AND DISCUSSION**

### ***Data Description***

There were three variables of this research; Duolingo, Student's English Learning Motivation and Vocabulary Enrichment. Duolingo was an independent variable that affected the dependent variable. Student's English Learning Motivation and Vocabulary Enrichment were dependent variable that was Duolingo. The data of this research were collected from Motivation questionnaire and Vocabulary test that were conducted at the 10<sup>th</sup> grade students of SMKN 1 Padang. Motivation questionnaire was given to measure the level of students' English Learning motivation and vocabulary test was given to measure the vocabulary enrichment students. The students were given questionnaire before they got the treatment in experimental class. After that, the students in experimental class were treated by using Duolingo. After six (7) meetings, the students were given questionnaire and

test to find if there is any effect after using Duolingo application or not. The result of the research described as follows:

**1.1 For Motivation Questionnaire**

**a. Before Using Duolingo**

The data of students' English learning motivation were taken from the result of questionnaire which consisted of 20 statements. The questionnaire was distributed before the treatment began. The result of students' English learning motivation before using Duolingo could be seen as follows:

Description	N	Minimum	Maximum	Sum	Mean
Students' motivation before using Duolingo	22	20	100	1053	47.86

**Tabel 2. The Summary of Students' English Learning Motivation Questionnaire Before Using Duolingo**

The data from the table above showed that the highest students' English learning motivation questionnaire before using Duolingo in X TKP A was 100 and the lowest was 20. The mean score in control class was 47.86. It meant the students that the average students are still less motivated in speaking English before using Duolingo.

**b. After Using Duolingo**

The result of students' English learning motivation after using Duolingo could be seen as follows:

Description	N	Minimum	Maximum	Sum	Mean
Students' motivation after using Duolingo	22	60	100	1800	81.82

**Tabel 3. The Summary of Students' English Learning Motivation Questionnaire After Using Duolingo**

The data from the table above showed that the highest students' English learning motivation questionnaire after using Duolingo in X TKP A was 100 and the lowest was 60. The mean score in control class was 81.82. It meant the the students have been motivated after using Duolingo.

**1.2 For Vocabulary Test**

**a. Pre-Test**

The results showed that from 70 items of the Vocabulary test that were validated by the respondents of this research, only 42 questions were valid and reliable, so 18 questions is omitted because invalid. All of items of the vocabulary

test represented all of the indicators of vocabulary theories and it was already to be distributed to the experimental class. The pre-test was distributed before the treatment began. The result of vocabulary enrichment students before using Duolingo could be seen as follows:

Description	N	Minimum	Maximum	Sum	Mean
Students' Vocabulary Enrichment Before Using Duolingo	22	14	98	1076	48.91

**Tabel 4 The Summary of Students' Pre-Test**

The data from the table above showed that the highest students' vocabulary test before using Duolingo in X TKP A was 98 and the lowest was 14. The mean score in control class was 48.91. It meant that the average student is still lacking in enriching English vocabulary before using Duolingo.

#### **b. Post-Test**

The post-test was distributed after the treatment or after implementing Duolingo application. The result of Vocabulary Enrichment Test after using Duolingo could be seen as follows:

Description	N	Minimum	Maximum	Sum	Mean
Students' Vocabulary Enrichment After Using Duolingo	22	36	100	1815	82.50

**Tabel 5 The Summary of Students' Post-Test**

The data from the table above showed that the highest students' English vocabulary enrichment test after using Duolingo in X TKP A was 100 and the lowest was 36. The mean score in control class was 82.50. It meant that on average students begin to master or enriched their English vocabulary a lot after using Duolingo.

#### **Data Analysis**

In the experimental class the researcher gave questionnaire and test to the students before and after implementing Duolingo to know their English learning motivation and vocabulary enrichment result. The data can be seen in following tables and description.

No	Name	Motivation		Vocabulary Enrichment Test	
		Before	After	Pre	Post
1.	Ababil Primason	30	84	31	82
2.	Ahmad Nadhif Azhar	57	95	85	92
3.	Anugrah Alfi Rahmad	60	60	26	97

4.	Fahnil Azima Ramles	74	78	49	93
5.	Farel Fahmi Permana	40	77	18	43
6.	Farid Darsyah	48	77	39	95
7.	Fauzan Abdullah	60	60	28	63
8.	Fauzan Aflah Nugraha	40	60	24	51
9.	Ferdi Ihsan Hakim	30	100	96	100
10.	Gabrielle Son Denowa	50	80	57	100
11.	Irwansyah	36	92	30	92
12.	M. Hanif Permata	40	88	88	97
13.	M. Al Munazil	31	76	41	88
14.	M. Alif	100	100	83	94
15.	M. Vidia Zacky	57	61	77	84
16.	M. Zafran	69	100	20	83
17.	Rangga Praditia	70	84	22	40
18.	Rezky Triandono	25	60	14	36
19.	Rhezy Fernando	21	88	90	99
20.	Ridho Saputra	64	100	36	97
21.	Sajid Human Khairi	20	100	98	97
22.	Yuni Afrianti	31	80	24	92

**Tabel 2. The Result of Test and Questionnaire**

From the table above the result of questionnaire before and after using Duolingo had different score. Then, the researcher did Paired sample t-test to know which hypothesis that had to be accepted. The data could be seen in this following SPSS result.

***1. Motivation Questionnaire***

**Normality Result Test of The English Learning Motivation**

**Descriptive Statistics**



	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Students' motivation before using Duolingo	22	20	100	1053	47.86	20.259
Students' motivation after using Duolingo	22	60	100	1800	81.82	14.566
Valid N (listwise)	22					

**Figure 1. Motivation Questionnaire Descriptive Statistics**

Figure 1 shows the number of students who took part in the experiment as many as 22 people. Motivation to learn English before using Duolingo has minimum score 20 and maximum 100, the sum is 1.053 and the mean score of students is 47.86 with a standard deviation of 20.259 or it can be said that students' learning motivation is less than 50. On the post-test score the minimum score of students is 60 and the maximum student score is 100 with the sum is 1800 and mean score of 81.82 with a standard deviation of 14,566 where the post-test scores after being given learning treatment using Duolingo mean student scores increase.

### One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual	
N		22	
Normal Parameters <sup>a,b</sup>	Mean	.0000000	
	Std. Deviation	20.16290267	
Most Extreme Differences	Absolute	.108	
	Positive	.108	
	Negative	-.087	
Test Statistic		.108	
Asymp. Sig. (2-tailed) <sup>c</sup>		.200 <sup>d</sup>	
Monte Carlo Sig. (2-tailed) <sup>e</sup>	Sig.	.716	
	99% Confidence Interval	Lower Bound	.704
	Upper Bound	.727	

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

### Figure 2. Kolmogorov-Smirnov Test Result for Questionnaire

Figure 2 describes the results of The Kolmogorov-Smirnov Test. Aslymp.Sig (2- talled) value is 0.200 greater than 0.05. According to the basis for decision making in the Kolmogorov-Smirnov normality test above, it can be concluded that the data is normally distributed. Thus, the assumptions or requirements for normality in the regression model have been met, and the next step will use the paired sample t-test and not the non-parametric test.

### Hypothesis Test of The English Learning Motivation

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Students' motivation before using Duolingo	47.86	22	20.259	4.319
Students' motivation after using Duolingo	81.82	22	14.566	3.105

**Figure 3. Paired Sample Statistic for Questionnaire**

Figure 3 explains the results of the descriptive statistical analysis of the paired-sample t-test, obtained mean score for students' motivation to learn English before using Duolingo was 47.86, the standard deviation value was 20.259 and the mean standard error was 4.319 and the mean after using Duolingo was 81.82, the standard deviation value is 14.566 with a mean standard error of 3.105. Because the learning English motivation questionnaire mean value before using Duolingo was 47.86 < the result after using Duolingo was 81.82, it means that descriptively there is a difference in the average results of the questionnaire scores of students' learning motivation before and after using the Duolingo application. In this case, it means that there is an increase in the value of students' motivation in learning English after using the Duolingo application. Thus it can be concluded that the provision of learning with Duolingo has a significant effect on increasing the value of students' motivation to learn English.

**Figure 4. Paired Samples Correlations Test for Questionnaire**

Figure 4 shows the results of the correlation test or the relationship between the two data or the relationship between the motivation variable before using Duolingo and the motivation variable after using Duolingo. Based on the output above, it is known that the Correlation is 0.097 with a significance value (Sig.) one-sided p is 0.334 and two-sided p is 0.667.

**Paired Samples Correlations**

	N	Correlation	Significance	
			One-Sided p	Two-Sided p
Pair 1 Students' motivation before using Duolingo & after using Duolingo	22	.097	.334	.667

**Paired Samples Test**

Mean	Paired Differences				t	df	Significance	
	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
			Lower	Upper				

Pair 1	Students' motivation before using Duolingo - Students' motivation after using Duolingo	-33.955	23.776	5.069	-44.496	-23.413	-6.698	21	<.001	<.001
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**Figure 5. Paired Samples T-Test Result for Questionnaire**

Figure 5 shows the output table of the results of the paired sample t-test, the value of sig. = <.001 which means it is smaller than  $\alpha$  .005, thus  $H_0$  is rejected and  $H_a$  is accepted. So it can be concluded that there is an average difference between the results of the English learning motivation questionnaire before and after using Duolingo, which means that there is an effect of using the Duolingo application on the motivation to learn English for class X TKP A students.

**2. Vocabulary Test**

**Normality Result of Vocabulary Test**

	Descriptive Statistics					
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Students' Vocabulary Enrichment Before Using Duolingo	22	14	98	1076	48.91	29.363
Students' Vocabulary Enrichment After Using Duolingo	22	36	100	1815	82.50	21.078
Valid N (listwise)	22					

**Figure 6. Vocabulary Test Descriptive Statistics**

Figure 6 shows the number of students who took part in the experiment were 22 people. The pre-test results have a minimum score is 14 and a maximum score is 98 students, with a total score is 1,076 students and Mean score is 48.91 and standard deviation value is 29,363 or it can be said that it is below with KKM of the 10<sup>th</sup> grade students with score of 60. In the post-test scores the minimum student test score was 36 and the maximum student score was 100 with Sum score is 1815 and Mean student score of 82.50 where the post test score after being given the learning treatment using Duolingo, the student's average value increased and was above of the KKM with standard deviation value is 21.078.

**One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		22
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	23.53447681

Most Extreme Differences	Absolute		.169
	Positive		.090
	Negative		-.169
Test Statistic			.169
Asymp. Sig. (2-tailed) <sup>c</sup>			.101
Monte Carlo Sig. (2-tailed) <sup>d</sup>	Sig.		.097
	99% Confidence Interval	Lower Bound	.089
		Upper Bound	.104

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

**Figure 7. Kolmogorov-Smirnov Test Result for Vocabulary Test**

Figure 7 describes the results of The Kolmogorov-Smirnov Test. Asymp.Sig (2-tailed) value is 0.101 so greater than 0.05. According to the basis for decision making in the Kolmogorov-Smirnov normality test above, it can be concluded that the data is normally distributed and the regression model data has been fulfilled, so for the next step it will use a paired sample t-test and not a non-parametric test.

**Hypothesis Test of Vocabulary Test**  
**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Students' Vocabulary Enrichment Before Using Duolingo	48.91	22	29.363	6.260
	Students' Vocabulary Enrichment After Using Duolingo	82.50	22	21.078	4.494

**Figure 8. Paired Sample Statistic for Vocabulary Test**

Figure 8 shows the results of the descriptive statistical analysis of the paired-sample t-test, the Mean score for the pre-test of students' English vocabulary before using Duolingo was 48.91, the standard deviation value was 29.363 and the mean standard error was 6.260 . The post-test mean value after using Duolingo is 82.50, the standard deviation value is 21.078 with a mean standard error of 4.494. Because the Mean score of the pre and post test results for English vocabulary before using Duolingo was 48.91 < the result after using Duolingo was 82.50, this means that descriptively there is a difference in the average pre and post test Vocabulary scores for students before and after using the Duolingo application. In this case, it means that there is an increase in students' Vocabulary test scores in learning English after using the Duolingo application. Thus it can be concluded that the provision of learning with Duolingo has a significant effect on increasing students' English vocabulary.

**Paired Samples Correlations**

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	Students' Vocabulary Enrichment Before Using Duolingo & Students' Vocabulary Enrichment After Using Duolingo	22	.598	.002	.003

**Figure 9. Paired Samples Correlations Test for Vocabulary Test**

Figure 9 shows the results of the correlation or relationship test between the two data or the relationship between the Vocabulary enrichment variable before using Duolingo and the Vocabulary enrichment variable after using Duolingo. Based on the output above, it is known that the correlation coefficient (Correlation) is 0.598 with a significance value (Sig.) one-sided p of 0.002 and two-sided p of 0.003.

**Paired Samples Test**

		Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	Significance	
					95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Students' Vocabulary Enrichment Before Using Duolingo – Students' Vocabulary Enrichment After Using Duolingo	-33.591	23.796	5.073	-44.141	-23.040	-6.621	21	<.001	<.001

**Figure 10. Paired Samples T-Test Result for Vocabulary Test**

Figure 10 shows the output table of paired sample t-test results, obtained sig. = < .001, which means it is smaller than  $\alpha.005$ . Thus,  $H_0$  is rejected and  $H_a$  is accepted. It can be concluded that there is difference results between of students' English Vocabulary Enrichment before and after using Duolingo, which means that there is an effect of using the Duolingo application on Vocabulary Enrichment learning English for class X TKP A students.

**Research Finding (tentative)**

*Finding 1*

For English Learning Motivation

$H_0$  is rejected and  $H_a$  is accepted. It can be concluded that there is significant results between of English Learning motivation students before and after using

Duolingo, which means that there is an effect of using the Duolingo application on English Learning Motivation for class X TKP A students.

### *Finding 2*

For Vocabulary Enrichment Students

$H_0$  is rejected and  $H_a$  is accepted. It can be concluded that there is significant results between of English Vocabulary Enrichment students before and after using Duolingo, which means that there is an effect of using the Duolingo application on Vocabulary Enrichment for class X TKP A students.

### *Discussion*

After conducting research, researchers know that there are slight similarities and differences that researchers find when conducting research on previous studies conducted by Vesselinov & Grego in 2012, Muhammad Faiq Zamzami in 2019 and Yusda, Nanda, Pratiwi, & Haninun in 2020. First, the similarities The results were also significant when the Duolingo application was given to vocational technical senior high school students, it also motivated them and their vocabulary enrichment skills also increased after doing treatment or implementing the Duolingo application in class. Second, related to differences in previous research, some students who already understand English felt that Duolingo is very enjoyable, even when learning using Duolingo they reach the expert chapter so that other students feel insecure and this is beyond the reach of the researcher to control their feeling.

### **CONCLUSION**

Based on the research which conducted at SMKN 1 Padang especially in class X TKP A as the sample class, this research purpose was to know about the effect of using Duolingo Application on students' English learning motivation and vocabulary enrichment. The researcher found the data from motivation questionnaire and also vocabulary pre and post test in the experimental class which have been described in each of chapter, as follows:

1. Duolingo Application made a significant effect on students' English Learning motivation and vocabulary enrichment. By using Duolingo application, students are more motivated and understood in learning English, it is seen in their value from the tests and questionnaires before using Duolingo Application and after using it in their class. It was also increased their score in vocabulary post-test and the English learning motivation questionnaire after using Duolingo. Most of the students agreed if Duolingo Application made their learning more fun, interested and enjoy than before.

2. The statistical data had mentioned that there was different value both of vocabulary pre-test and post-test and also motivation questionnaire which were given before and after using Duolingo Application by the researcher. Then, in In hypothesis test, it have been presented that there were an increasing of pre-test and post-test in each of class. It showed that in paired sample t-test for students' English Learning motivation and Vocabulary enrichment, both of the results paired sample t-test, the value of sig. =  $<.001$  which means it is smaller than  $\alpha .005$ .  $H_a$  (Alternative

Hypothesis) were accepted and Ho ( Null Hypothesis) were rejected because the sig.2 tailed were lower than alpha. It proved that there were significant effect of using Duolingo Application on students' English learning motivation and vocabulary enrichment. Furthermore, the mean score of post test and questionnaire in was higher than the mean score of pre test and questionnaire. The mean score of post-test was 82.50, meanwhile in pre-test was 48.91. The mean score of motivation questionnaire after using Duolingo was 81.82, meanwhile before using Duolingo was 47.86. As the conclusion of the whole chapters, it interpreted that the effect of using Duolingo Application on students' English motivation and vocabulary enrichment were significant for the 10<sup>th</sup> students at SMKN 1 Padang.

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