The Effect of Using Duolingo Application Towards Students' Vocabulary Mastery at the Eighth Grade of SMPN 2 Banjarsari Lebak-Banten

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Abstract: The purpose of this research was to find out the emperical evidence of The Effect of Using Duolingo Application Toward Students' Vocabulary Mastery at The Eighth Grade of SMPN 2 Banjarsari Lebak-Banten In Acaddemic Year 2021/2022. In this research, the quantitative methode was used and the research design was a quasi-experimental. To conduct the research, 76 students of eighth grade student of SMPN 2 Banjarsari Lebak academic year of 2021/2022 are choosen as the sample in this research. They were VIII A class as the experimental class, and VIII B class as the control class. Each class consisted of 25 students. This number was taken as the sample of this research by using Mr.Excel and SPSS 25. Duolingo application was used as an instrument in the experimental class while the control class uses the Hello English Application. Based on the calculation, the post-test mean scores of the experimental class was 70.12 while that of the control class was 59.36. The researcher got the result from testing with SPSS 25 t-test obtained the t-count =6.301in control class and signification value (p-value)=0.000 < a =0.05, and with t-test obtained the t-count= 6.463 in experimental class and significant value (p-value) =0.000 < a = 0.05 Ha is accepted and Ho is rejected. The result indicated that using Duolingo is effect towards students' vocabulary mastery and had a moderate effect at the eighth grade of students SMPN 2 Banjarsari Lebak in the acaddemic year of 2021/2022.

Keyword: *Duolingo, Application & Vocabulary mastery*

INTRODUCTION

Language is important in human life because, without language, human beings will not able to do anything (Ibda, 2019). Language is needed in this modern life, to communicate with other countries (Anggraini, 2016). In Indonesia, English is the first foreign language that became the subject at school that should be learned by students in formal education from the lowest to the highest level and it also examined in the national examination (Hamied, 2012; Lie, 2007; Sulistiyo, 2016).

In teaching and learning activities, English has four language skills to learn; those are listening, speaking, reading, and writing (Bailey, 2003; Banditvilai, 2016; Bozorgian, 2012; Khamkhien, 2010). The most important English learning component is comprehending the vocabulary (Anjomshoa & Zamanian, 2014; Jun Zhang & Bin Anual, 2008). vocabulary is the prior element in English that the students need to comprehend and it should be taught to them because it has a key role in every language in the whole world, in which without vocabulary we can not understand each other. According to Handayani (Kusumawati, 2018) vocabulary is knowledge of words and meanings. Based on the statement, vocabulary is all the words in a language..that are familiar and used by someone to communicate..with each other.

Vocabulary is a major concern in junior high school materials because vocabulary is a collection of several words that are combined, meaning or meaning. Successful communication or saying what you mean is dependent upon a good vocabulary base. Vocabulary is an important point in learning a language because it is the main part to begin our listening, speaking, reading, and writing (Pikulski & Templeton, 2004). Vocabulary is not a simple matter, because learning thousand of words make the students bored.

Nowadays, people have been living in the globalization era, in which the development of technology grows rapidly. Eventually, they try to find a lot of information by using the internet. They browse much information and news through the internet. The growth of technology is related to the development of English. Technology can change the method of people work, learn, interact, and spend their time. Along

with the development of the period including smartphone technology that continues to grow, in which smartphones are primer necessary for everyone especially for the students. As well as technology also has a crucial role in the process of education and learning in almost the whole world.

In this conditions, the pandemic also has changed the learning process to online. From elementary school to university, this conditions makes teachers requires to be creative in the teaching and learning process so the teacher need new media or innovations.

Along with the advancement of science and technology, it can not be denied that the ability to speak foreign languages especially English, is very important. However, not a few students whose learning achievement in English is also inadequate, the low mastery of students' English vocabulary is general influenced by several factors, including: lack of knowledge or understanding of students about vocabulary, students also have difficulty pronouncing words in English. English the use of larning media that is less attractive and uses a monotonoun learning method.

That problem also found by researchers at SMPN 2 Banjarsari Lebak, when the researcher experience practices field experience. The researcher got some problems faced by students, where students lack in understanding vocabulary. They do not know how to pronounce or express some of the words given by using the guess-guess method. In addition, the lack of variety media used in teaching English is caused by the limitations of the existing media. With these conditions, the researcher assumsed that the right strategy or media method must be chooses, because it is not an easy thing to do when teaching English in vocabulary, especially without being equipped with the right method.

The use of teaching learning media which use technology in the form of an android application, providing the students with an easier understanding of sentences and also making the learn fun and enjoyable. Therefore, the researcher wants to make an experimental research by using one of android application that easy to use by the students to learn especially in English. One of the applications for the learning English is Duolingo. Duolingo is one of those apps that facilitates mastery of a second language. Therefore, the researcher aims to help students to add new vocabulary by using Duolingo application.

Previous research related to the use of the Duolingo application in improving English vocabulary has been widely carried out. The Amalia research (2019) was carried out to find out the students' achievement in vocabulary using Duolingo Application. The research showed that using the Duolingo Application had a significant effect as media in the English teaching-learning process. The Suwandi research (2020) shows Duolingo Application has a significant effect on the student's vocabulary mastery in the seventh grade of MTs Darul Ilmi Batang Kuis. The Siregar research (2019) showed that there are Improving Students' Vocabulary Mastery Through the Duolingo Game in Ninth Grade of Mts Al-Ittihadiyah Laut Dendeng. Based on the previous related findings, the researcher then concluded that the similarity of this research and previous findings is focusing on the media's main aspect, which is using the Duolingo application as a medium. Meanwhile, the differences between the findings above and the current research. Researcher focus on the Duolingo application and vocabulary mastery that can help students, especially those who are beginners, in improving their English.

Based on the background of problem above, the researcher interest to conduct a research on tittle "The Effect of Using Duolingo Application towards Students' Vocabulary Mastery at the Eighth Grade of SMPN 2 Banjarsari Lebak."

METHOD

This research used a quantitative approach, while the method used is quasi experimental with pre-test, post-test experimental control group design. Quantitative research design is to control the connotation between an independent variable and a population dependent variable or outcome variable. Quantitative research is interested in investigating how and why phenomena, Quantitative research often use statistical models and statistics for research, producing more objective analytical data. The researcher collects mainly quantitative data for quantitative analysis. (Barnham, at Abuhamda (2021).

In this research, the researcher has implemented the Duolingo application in the experimental class, and Hello english in the control class as a learning medium. In the first meeting of the research, the researcher gave a pre-test to both the experimental class and the control class to measure the extent of students' vocabulary mastery. Then, gave treatment for two meetings and the last meeting of the research, the researcher gave a post-test to find out the final results and to prove the significant effectiveness after being given treatment using a Duolingo application in the experimental class.

In this section, the researcher used Cluster Random Sampling teaching to collect the sample. The researcher took two classes to test this study, namely the experimental group and control group. Based on the technique of collecting sample by using Cluster Random Sampling, the researcher acquire class VIII A and VIII B as Experimental and Control class. The total number of sample is 50 students.the researcher took two classes on tenth grade of the eighth grade students of SMPN 2 Banjarsari as the sample. These are VIII A as a Experiment class which has 25 students and VIII B as an Control class which has 25 students.

RESULTS AND DISCUSSION

This research used a quatitative approach and the method used quasi-experiment with pre-test and post-test designs. What is meant by this design is to give a pre-test before using the application then give a post-test after teaching several times using the application. In this recearch there are two variables, they are the independent variable(X) is the Duolingo Application and the dependent variable(Y) is the Vocabulary mastery.

This research was conducted at SMPN 2 Banjarsari Lebak, the researcher conducted research class VIII students' of SMPN 2 Banjarsari Lebak-Banten in Academic year 2021/2022. The researcher chose this place to conducted the research because found many problems in the students' vocabulary mastery. The problem is that students were lack in comperhending the vocabulary, the students find it difficult to pronounce word in English, lack of media variety that was used in teaching English and the teacher needs a creative way in teaching vocabulary.

Based on the calculation by SPSS 25 the result of the pre-test experimental class shows that the total number of students is 25, the maximum score is 75, the minimum score is 25, and the total score is 1301. Meanwhile, the result of the post-test in experiment class shows that the total number of students is 25, the maximum score is 94, the minimum score is 50, and the total is 1753. On the other hand, the result of the pre-test in control class shows that the total students are 25, the maximum score is 69, the minimum score is 25, and the total score is 1219. Meanwhile, the result in the post-test in control class the number of students are 25, the maximum score is 75, the minimum score is 38, and the total score is 1484.

1. Analysis of the Data

a. Normality

In this research, the researcher tested normality using Shapiro Wilk. This test was conducted on two groups, both pre test and post test groups. Two determine whether the distributed of the data from the sample was normaly distributed or not. In this research, the researcher using SPSS 25. The steps of calculating could be seen in appendix XI The data could be said normaly distributed if normality is by comparing the p-value with $a = 0,05$. The description of the hypotheses of the normality test is as follows:

Table 1. Test of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Result	pretestexperiment	,153	25	,133	,933	25	,103
	posttestexperiment	,127	25	,200[*]	,967	25	,563
	pretestcontrol	,157	25	,113	,943	25	,175
	posttestcontrol	,133	25	,200[*]	,947	25	,214

Based on the table above, it could be seen that p-value (0,113,0.200,0.113and 0,200) are higher than a= 0.05. it means that the score on each group is normally distributed.

b. Homogeneity

The homogeneity test was utilized to see if the varience of the data from two groups was the same. To test homogeneity of the research, the researcher used the calculation of SPSS 25. Homogeneity test was calculated by using levene test. The following table contains the results of the homogeneity test between the two classes, namely the experimental class and the control class.

The interpretation:

If levene Statistical value (sig) > 0.05, the data is homogeneous.

Table 2. Homogeneity test of Pre-test Experiment & Control Class

Levene Statistic	df1	df2	Sig.
,815	1	48	,371

Table 3. Homogeneity test of Post-test Experiment & Control Class

Levene Statistic	df1	df2	Sig.
1,058	1	48	,309

The statistic result showed that score of homogeneity of post-test between Control and Experimental class is higher than $F_{table} = 0.05$. from the table above could be seen that $F_{count} = 0.371 > F_{table} = 0.05$. It means that the data is homogeneous. On the other word, the data is from equal population.

Based on the explanation above, the researcher attach proof of Homogeneity test Pre-test and Post test Experimental & control Class the steps of calculation can be seen in appendix XI.

c. Hypotheses

After the data have fulfilled the pre-requirement of research analysis (normality and homogeneity tes), so the next step is analyzing the hypotheses. To calculate the hypotheses, the researcher used SPSS 25. According to (Dasgupta et al., 2016) the t-test is a statistical test used to compre the mean of two groups. Then, the scores is taken from the post test between the experimental class and control class as the result of the research.

The hypotheses testing of this research as follows:

a. If sig > α = 0.05, Ho is accepted and Ha is rejected.

b. If sig < α = 0.05, Ha is accepted and Ho is rejected.

Table 4. Paired Samples Test

		Paired Differences							
			Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean			Lower	Upper	T	df	
Pair 1	pre test experiment - post test experiment	-18,080	14,347	2,869	-24,002	-12,158	-6,301	24	,000
Pair 2	pre test control - post test control	-10,600	8,201	1,640	-13,985	-7,215	-6,463	24	,000

Based on the data above, so it could be concluded that :

Is there any significant The Effect of using Duolingo Application Towards Students' Vocabulary Mastery at the Eighth Grade Students of SMPN 2 Banjarsari Lebak-Banten ?

The statistical hypothesis as follows :

Ha : There is any significant Effect of Using Duolingo Application Towards Students' Vocabulary Mastery at the Eighth Grade Students of SMPN 2 Banjarsari Lebak.

Ho : There is no significant Effect of Using Duolingo Application Towards Students' Vocabulary Mastery at the Eighth Grade Students of SMPN 2 Banjarsari Lebak.

Ha: $\mu > \mu_0$

Ho: $\mu < \mu_0$

The estimations are:

If p-value >a = 0.05, (H_o is accepted and H_a is rejected).

If p-value <a = 0.05, (H_a is accpeted and H_o is rejected).

Based on the output spss 25 on table 4.7. it could be seen that significaton value (p-value) = 0.000 at pair 1 and 0.000 at pair 2. They are < a = 0.05, meanwhile, H_a is accepted and H_o is rejected. On the other word, there is significant effect of using Duolingo application towards students' vocabulary mastery.

From the findings of the research data above, Duolingo Application are significantly improved the students vocabulary mastery. Therefore the result of this study shown that there is a significant effect of using Duolingo Application towards students' vocabulary mastery. This is because Duolingo Applicationis appropiate media in teaching vocabulary.

Furthmore, from the number of students in both classes (VIII A and VIII B), there are 50 students. They are 25 students in classes VIII A and 25 class VIII B. both classes are given treatment. Class VIII A as Experimental class was given the Duolingo application in teaching process, while class VIII B as control class was given Hello English. The pre-test and post-test were given to both classess. ,The pre test post test were given to both clasess, from testing with t-test obtained a significant pair 1 (p-value) = 0.000 < 0,05 and pair 2 (p-value) =0.000 < a = 0.05 $H_{a\ is}$ accepted and Ho is rejected. There is a significant effect of using Duolingo Application towards students vocabulay mastery.

During the research, the researcher found many problems. The students were lack in comprehending the vocabulary, difficult to pronounce word in English, lack of media variety that was used in teaching English and the teacher needs a creative way in teaching vocabulary. So,the researcher used Duolingo Application to solve the students problems.

The researcher also observed that Duolingo Application was good medium to apply. The researcher recommanded this medium because Duolingo Application interested the students to get vocabulary more. So, they be more active and enjoy in learning process. They were given more opportunities to explore ideas of their ability. So, it has proved that Duolingo Application can be used as an alternative medium to learn vocabulary.

The questions in pretest and posttest were about vocabulary noun, verb and adjective and the result of the students work in most of students were easy to answer question in number 1,3,5,6,7, and 8. Because those were common word that they heard in daily life.

The research was line with previous researches by Amalia and Suwandi who found that the Duolingo Application was effective to improve students vocabulary. The students who were taught through Duolingo Application could achieve a better and the students motivated and interested in learning process.

Based on the result of data analysis, researcher concluded that Duolingo Application was enough recommended as one of media to improve students' vocabulary because in teaching vocabulary by using Duolingo Application had great benefis that may serve a variety of learning purpose. Through Duolingo Application , the students could get integrate new knowledge, simulate them in using that knowledge, and interact with the spelling, pronounciation. It also can provide students with clear understanding about the definition of the words.

From the result of the analysis of the data, could be interpreted as follow:

The research questions are whether there is a significant effect of using Duolingo Application toward students' vocabulary mastery. The result showed that there is a significant effect of using Duolingo

Application towards students' vocabulary mastery on the calculation, the students who had been taught by using Duolingo Application than the students who had not been taught by Duolingo Application.

In this section, the discussion deals with Duolingo Application and without Duolingo Application in teaching vocabulary. Although both strategies, Duolingo Application and without Hello English could be applied in teaching vocabulary mastery, the application of Duolingo in teaching vocabulary improved students' vocabulary significantly. Mean score of post test and standar deviation were analysis in this case. In experimental class, the mean score of post test was higher than the mean score of pre test (70.12>52.04). While in control class, the mean score of post test was also higher that the mean score of pre test (59.36>48.76). the researcher got the result from testing with SPSS 2 t-test obtained the t-count= 6.301in control class and signification value (p-value)=0.000 < a =0.05, and with t-test obtained the t-count= 6.463 in experimental class and significant value (p-value) =0.000 < a = 0.05 H_a is accepted and H_o is rejected.

Based on students score in pre-test, both experimental and control class had the same ability in English vocabularies before giving treatment. Nevertheless, students score of both classes in post-test were significant difference . The students score achievement taught vocabulary by using Duolingo Application was higher than without Hello English.

CONCLUSIONS

Before the researcher gave treatment both of experimental class (VIII A) and control class (VIII B), the researcher got mean score of pre test from experimental class was 52.04 and control class was 48.76. it means that the students of class VIII A and VIII B at the eighth grade of SMPN 2 Banjarsari Lebak taken as a sample of the research have relatively same both experimental class and control class. After the researcher giving treatment by using Duolingo application in experimental class and using Hello English in control class, the researcher got mean score of post-test experiment was 70.12 and control class was 59.36, it can be seen that the students' vocabuary mastery got different increse. Experimental class got higher score than control class.

The use of Duolingo application as method toeffect vocabulary mastery at the eighth grade of SMPN 2 Banjarsari Lebak. Has been showed that mean score experimental class after giving treatment got higher score than control.(70.12>59.36). The researcher got the result from testing with SPSS 25 t-test obtained the t-count =6.301in control class and signification value (p-value)=0.000 < a =0.05, and with t-test obtained the t-count= 6.463 in experimental class and significant value (p-value) =0.000 < a = 0.05 Ha is accepted and Ho is rejected. Therefore, the researcher concluded that learning using the Duolingo application has a good and significant effect towards students' vocabulary mastery at the eighth grade of SMPN 2 Banjarsari Lebak-Banten in Academic Year 2021/2022.

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