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The Effect Of Using Duolingo Application Toward Students' Vocabulary Mastery At The Second Grade Of SMPN 1 Koto Besar

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Abstrak

Penelitian ini dilakukan untuk menjawab beberapa masalah yang dialami siswa. Awalnya, siswa mengalami kesulitan dalam menguasai kosa kata. Kedua, para siswa tidak menggunakan kosa kata yang baru mereka peroleh. Ketiga, siswa kurang antusias untuk memperluas kosa kata mereka. Terakhir, selama proses pembelajaran, siswa menggunakan kamus. Sebagai hasil dari keadaan ini, peneliti mencoba menerapkan Aplikasi Duolingo sebagai cara untuk meningkatkan penguasaan kosa kata siswa. Oleh karena itu, peneliti bertujuan untuk melihat bagaimana pengaruh Aplikasi Duolingo terhadap penguasaan kosa kata siswa kelas dua SMPN 1 Koto Besar sepanjang tahun ajaran 2021/2022. Sebuah penelitian kuantitatif dilaksanakan dalam penelitian ini. Metode yang digunakan untuk mengeksplorasi dalam penelitian ini adalah desain eksperimen semu. Populasi penelitian ini terdiri dari 97 siswa kelas dua di sekolah tersebut. Ada 65 siswa secara total, dengan 32 di kelas eksperimen dan 33 di kelas kontrol. Tes kosa kata digunakan sebagai alat penelitian. Peneliti menggunakan SPSS versi 2.0 for Windows untuk menganalisis data. Selain itu, peneliti melakukan independent sample t-test untuk mengetahui dampak penggunaan Duolingo App terhadap penguasaan kosa kata siswa. Hasil penelitian menunjukkan bahwa ada pengaruh penggunaan Aplikasi Duolingo terhadap penguasaan kosa kata siswa kelas dua SMPN 1 Koto Besar tahun ajaran 2021/2022. Hal tersebut disajikan dengan menggunakan uji statistik independent sample t-test dimana kriteria H_a diterima bila nilai signifikan $< \alpha$ (0,05), sebaliknya H_0 ditolak. Berdasarkan hasil penelitian nilai signifikansi $0,000 < 0,05$. Artinya H_a diterima. Selain itu, temuan penelitian ini menunjukkan bahwa ada pengaruh yang signifikan penggunaan Aplikasi Duolingo terhadap penguasaan kosa kata siswa kelas dua SMPN 1 Koto Besar (H_a : : t-hitung $>$ t-tabel). Selain itu, terdapat perbedaan yang

signifikan antara siswa yang diajar dengan menggunakan Aplikasi Duolingo dan siswa yang diajar tanpa menggunakan Aplikasi Duolingo ($H_0: t_{\text{hitung}} < t_{\text{tabel}}$). Selain itu, penguasaan kosa kata siswa yang diajarkan dengan menggunakan Aplikasi Duolingo lebih baik daripada menggunakan strategi konvensional.

Kata Kunci: *Duolingo, penguasaan kosakata*

Abstract

This study was conducted in response to a few problems that the students had. To begin with, the students had difficulty in mastering vocabulary. Second, the students did not put their newly acquired vocabularies to use. Third, the students lacked enthusiasm for expanding their vocabulary. The last, during the learning process, the students employed a dictionary. As a result of this circumstance, the researcher attempted to apply Duolingo App as a way to improve students' vocabulary mastery. As a result, the researcher aimed to see how Duolingo Application affected students' vocabulary mastery at the second grade at SMPN 1 Koto Besar throughout the academic year 2021/2022. A quantitative research was implemented in this research. The method utilized to explore in this study was a quasi-experimental design. The population of this study consisted of all 97 students in second grade at the school. There were 65 students in total, with 32 in the experiment class and 33 in the control class. The vocabulary test was used as the research's tool. The researcher utilized SPSS version 2.0 for Windows to analyze the data. In addition, the researcher conducted an independent sample t-test to determine the impact of using Duolingo App on students' vocabulary mastery. The result of the research showed that there was effect of using Duolingo Application toward students' vocabulary mastery at the second grade of SMPN 1 Koto Besar on academic year 2021/2022. It has presented by using statistical of independent sample t-test where the criteria was H_a is accepted when the significant value $< \alpha$ (0,05), in contrast, H_0 is refused. Based on the result of the research which the significant value was $0,000 < 0,05$. It means that H_a is accepted. Furthermore, the findings of this research showed that there was a significant effect of using Duolingo App toward students' vocabulary mastery at the second grade in SMPN 1 Koto Besar ($H_a: t_{\text{calculated}} > t_{\text{table}}$). In addition, there was significant difference between the students who were taught by using Duolingo App and the students who were taught without using Duolingo App ($H_0: t_{\text{calculated}} < t_{\text{table}}$). Moreover, the students' vocabulary mastery which had been taught by using Duolingo App is better than by using conventional strategy.

Keywords: *Duolingo, vocabulary mastery*

PENDAHULUAN

Language is an important instrument for human communication. People can understand each other better if they speak the same language. Nobody knows how many languages have been spoken around the world since each country has its own national languages, as well as thousands of dialects. In present era, each country must not only speak its own language, but also understand foreign languages. In most cases, foreign languages are taught in schools. Furthermore, English is taught as a foreign language in Indonesia because it is an international language. According to the most recent Indonesian curriculum, it is initially taught in junior high school.

One of the most evident components of language that learners must master is vocabulary. Vocabulary is the foundational information and an essential component for learners to be able to communicate effectively in their daily lives. If we learn a language but do not know the words we will use or the vocabularies we will need, we will not be able to communicate with people. No matter, what language we want to speak, we must ensure that we have a sufficient vocabulary. The importance of vocabulary in learning a foreign language cannot be overstated. Learners will make significant progress if they memorize a large number of words and expressions. Even if students' grammar is great, they will struggle to communicate in English if they do not have a large vocabulary.

Vocabulary learning is an essential part to learn languages. As the meaning of words are often emphasized whether in lesson books or even in classroom. As one of language components, learning vocabulary of the language is a necessary thing to be done since a lot of words learners know then it means more understanding they will have. As Thonbury remarked, learning a language without mastering grammar allows us to acquire only a small percentage of the language, but without mastering vocabulary, we are unable to communicate (Scott Thonbury, 2002). Due to the importance of vocabulary mastery, particularly for EFL students, the teacher should devise an engaging method, technique, or media to assist students in learning English vocabulary.

For ELLs, technology can be used as a fascinating, supplemental tool to enhance learning vocabulary (Clark, Megan, 2011). Many language learners also use mobile applications (apps) to facilitate their language learning both in and out of the classroom (Klimova, B, 2001). Technology can be used to teach and learn in a variety of ways. Smartphones are the most modern form of media that almost all students own. Over the last decade, academics have paid a lot of attention to how people use smartphones and mobile phones (Alhadiah, Abdullah, 2020). Many applications, particularly for teaching and learning English, can be used as media. For teaching and learning vocabulary, we can utilize a variety of educational

smartphone and computer programs, websites, and other resources. One of the applications which can be used and that will be the focus of this research is Duolingo application.

Duolingo is a website and mobile app that consists of a variety of activities that include listening, reading, writing, vocabulary, grammar, and the option of speaking. It means that Duolingo is promoted as an educational tool that can be used in classrooms to provide students with a fresh learning experience based on material quality, feedback, and motivation. Finally, Duolingo can be utilized in the classroom as a tool for learning language that is interwoven with the syllabus's contents.

Futhermore, Duolingo is an online-based language learning tools which can be accessed freely. Users will feel as if they are playing a game rather than learning. It is believed that the users or language learners there will have a good time while learning. Duolingo, as previously stated, consists of tasks like as speaking, writing, translation, reading, vocabulary, and so on. Duolingo includes a few exercises in vocabulary acquisition, such as matching photos and answering questions about the meaning of English terms into Bahasa and vice versa. It is hoped that it will help students expand their English vocabulary.

Based on observation have done by the researcher when preliminary research at second grade of SMP Negeri 1 Koto Besar started from 31st August 2021 until 10th September 2021, the observation showed that the students have a lot of problems in learning English. The problems as bellows:

The first problem was the students had difficulty in mastering vocabulary. The students cannot name things around them. That's actually basic knowledge that they are expected to know. It happened because they had limited vocabulary. For example, when the teacher asked them to mention what things inside the class and what things in their bag, they cannot say it all.

The second was the students did not put their newly acquired vocabularies to use. It says practice makes perfect but they do not do that. They have learned the words but they found hardly to use it since they only remember the meaning not how to use it. In addition, they also easily forgot the meaning of the words they learned. They even do not remember what topic they have learned on previous meeting when the teacher asked them. It is just to make sure whether they read their English books at home or not touched since last meeting.

The third problem was the students lacked enthusiasm for expanding their vocabulary. Some of them even slept in class during learning process. Some of them do not pay attention to teacher's explanation. It happened since they feel no interest in English nor knowing its advantages. As the result, they felt that there is no use to master English especially in improving their vocabulary.

The last one was the students used dictionary in learning process. Their teacher asks them to bring it to the class but only small number of them who bring it. It means, it has not enough feedback to create a conducive learning process. It is not interesting for the students since they do not know its pronunciation correctly. So the students get difficult to pronounce the vocabularies well. It also causes them don't feel confident to speak in English. In conclusion, hope the advancement of technology could solve this issue through Duolingo application.

Therefore, teaching English has a very essential role in enabling students to master English as their foreign language (Silvia & Roza, 2022). According to Minanda nova, Language is a form of communication in which people use signs such as words and body language to communicate with one another (Minanda et al., 2020). So, Vocabulary is very important to improve one's learning such as writing, reading, speaking. Without technique in vocabulary, students can not use their opportunities to share and get information. So larger vocabulary mastery will be helpful with the students to use language being learned.

Based on the explanation above, the researcher would like to apply Duolingo application that may help students in mastering vocabulary and also would like to investigate the effect of using Duolingo application towards students' vocabulary mastery at second grade of SMP Negeri 1 Koto Besar in academic Year 2021/2022.

METODE PENELITIAN

A quantitative research was implemented in this research. The method utilized to explore in this study was a quasi-experimental design. According to Barry Gribbons, a quasi-experimental design is especially useful in addressing evaluation questions about the effectiveness and impact of programs. The research design was utilized in order to see if using of Duolingo application has an influence towards students' vocabulary mastery or if it has no impact. This research was performed at SMP Negeri 1 Koto Besar. Its location is at Jl. Pekan Jumat, Kenagarian Abai Siat, Kecamatan Koto Besar, Kabupaten Dharmasraya, Provinsi Sumatera Barat, Indonesia. The research conducted for 3 weeks (since 1st December until 24th December 2021). Populasi total of the 97 students.

HASIL DAN PEMBAHASAN

A. Description of the data

The description of the data in both of the experimental and control classes explained below:

1. The Data of Pre-Test of Experimental and Control Class

The experimental class was taught using the Duolingo App, while the control class was taught without the Duolingo App. The researcher gave the students a

pre-test before teaching both the experimental and control classes. The following table summarizes the analysis of pre-test scores obtained by the experimental and control classes:

Table The Result of Score Calculation from Pre Test

Class	N	Mea n	Std. D	Lowest Score	Highest Score
Experimental	30	34.5	12.557	12.00	68.00
Control	33	36.6	10.44611	16.00	56.00

According to the table above, the mean score of the experimental class was 34.50, whereas the mean score of the control class was 36.60. The experimental class's pre-test score is lower than the control class's, but the two are not significantly different.

2. The Data of Post-Test of Experimental and Control Class

In this research, the post test was held at the end of the meeting that was done after the treatment in experimental class and control class. There were 32 students included in the post test of experimental class. We can see that the highest score of 84.00 and the lowest score is 36.00. Then there are 19 students who got score above 60 and 13 students who got score below 60. Then, there were 33 students included in post-test of the control class. The data shows that the highest score is 64 and the lowest score is 16. Only one student, on the other hand, received a score of 60, while the rest had a score of less than 60.

The table below shows the results of the post-test for the experimental and control classes:

Table The Result of Score Calculation from Post Test

Class	N	Mean	Std. D	Lowest Score	Highest Score
Experimental	32	61.375	13.03531	36.00	84.00
Control	33	38.06	11.18576	16.00	64.00

Based on the table above, it shows that the mean score of the experimental class on post-test is 61.375 while the mean score of control class is 38.06. It signifies that the mean score of experimental class is higher than control class.

3. Normality and homogeneity test of the data

a. Normality Test

Normality was done to know that data is normal or not. Normality was measured by using SPSS 2.0. It measured the normality of pretest and posttest which if the significance of pretest and posttest > 0.05 means the data was normal but if the significance of pretest and posttest < 0.05 means the data was not normal. Moreover, the result of normality data of this research was showed on the table as below: Normality Test of pre-test for both experiment and control class

This test is used to see whether the pre-test that the researcher distributed was normal or not. It was taken from the score of the both class students's score of pre-test.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
pretest_eksperimet	.140	32	.113	.964	32	.346
pretest_control	.102	32	.200*	.965	32	.384

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

a. Lilliefors Significance Correction

Based on the result above, the significant value shows that result of control class and experiemet class is normal on Kolmogorov-Smirnov (0.113 and 0.200) then also on Shapiro-Wilk (0.346 and 0.384) test since it all is higher than alpha value (0.05).

b. Normality Test of post-test for both experiment and control class

This test is used to see whether the post-test that the researcher distributed was normal or not. It was taken from the score of the both class students's score of post-test.

Tests of Normality

	Kolmogorov-Smirnov ^a	Shapiro-Wilk
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	Stat istic	Df	Sig.	Stati stic	D f	S ig.
posttest_eksperiment	.105	3 2	.20 0*	.968	3 2	. 434
posttest_control	.139	3 2	.12 1	.959	3 2	. 253

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

a. Lilliefors Significance Correction

Based on the result above, both of experiment control class on Shapiro-Wilk which has significant value are 0.434 and 0.253. And then, on Kolmogrov-Smirnov are 0.200 and 0.121. They are bigger than 0.05. So it proves that both of the data are distributed normally.

c. Homogeneity Test

1) Homogeneity Test of pre-test for both experiment and control class

This test is used to see whether the pre-test that the researcher distributed was homogeny or not. It was taken from the score of the both class students's score of pre-test. As same as normality, homogeneity test was accepted if the significance of data was > 0.05 and refused if it was < 0.05 .

Test of Homogeneity of Variance

	Levene Statistic	d f1	df 2	S ig.
Based on Mean	.777	1	63	. 381
Based on Median	.853	1	63	. 359
Based on Median and with adjusted df	.853	1	60. 993	. 359
Based on trimmed mean	.755	1	63	. 388

Based on the result above, the result of homogeneity test shows that the pre-test of the both classes is homogeny which has significant value is bigger than alpha ($0.381 > 0.05$).

2) Homogeneity Test of post-test for both experiment and control class

This test is used to see whether the post-test that the researcher distributed was homogeneity or not. It was taken from the score of the both class students's score of post-test.

Test of Homogeneity of Variance

	Levene Statistic	df1	df2	Sig.
Based on Mean	1.377	1	63	.245
Based on Median	1.376	1	63	.245
Based on Median and with adjusted df	1.376	1	62.998	.245
Based on trimmed mean	1.386	1	63	.244

Based on the result above, the result of homogeneity test shows that the post-test of the classes is homogeneity which has significant value is bigger than alpha ($0.245 > 0.05$)

4. Hypothesis Testing

After calculating the data from pre-test and post-test in experimental and control class, the researcher tested the hypothesis in this research. There are three hypothesis in this research as follow:

a. The first hypothesis

The first hypothesis result in this research stated that there is a significant effect of students' vocabulary mastery who were taught by using Duolingo App toward at second grade of SMPN 1 Koto Besar ($H_a : t\text{-calculated} > t\text{-table}$). The researcher used t-test formula to test the hypothesis. It was found that t-calculated is higher than t-table. It means H_a is accepted and H_0 is rejected. The conclusion could be seen below:

Table The Calculation of First Hypothesis Testing

Category	Value
Degree of Freedom (Df)	$32+32-2 = 62$
Level of Significant (α)	0.05
T-Calculated	8.40
T-Table	1.645
T-Calculated > T-Table (8.40 > 1.645)	

Based on the data above, it shows that the degree of freedom (df) is 62, the level of significance is 0.05 and the t-calculated is 8.40. T-table of 62 (the close df) is 1.645. So it means that t-calculated is higher than t-table ($8.40 > 1.645$). In conclusion, the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. To make it more believable, the researcher found that the mean score of post-test which was done by the experimental class is higher than pre-test score ($61.375 > 34.50$)

b. The Second Hypothesis

In second hypothesis, there is significant difference of the students' vocabulary mastery between who were taught by using Duolingo App with the students who were not taught by the app. (H_a : t-calculated > t-table). The conclusion could be seen below:

Table The Calculation of Second Hypothesis Testing in Both Classes

Category	Value
Degree of Freedom (Df)	$32+33-2 = 63$
Level of Significant (α)	0.05
T-Calculated	7.79
T-Table	1.645
T-Calculated > T-Table (7.79 > 1.645)	

Based on the data above, it shows that the degree of freedom (df) is 63, the level of significance is 0.05 and the t-calculated is 7.79. T-table of 63 (the close df) is 1.645. So, t-calculated is higher than t-table $7.79 > 1.645$). In conclusion, the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected.

The researcher compared the data from both courses after completing the pre-test and post-test. The following is a comparison of the data from the pre-test and post-test in the experimental and control classes:

Table The Comparison of Pre-Test and Post-Test from

Experimental Class and Control Class

Test Result Class	PRE-TEST	POST- TEST
Experimental Class	\bar{x} = 34.50 SD = 12.557	\bar{x} = 61.375 SD = 13.03531
Control Class	\bar{x} = 36.60 SD = 10.44611	\bar{x} = 38.06 SD = 11.18576

Based on the table above, it can be concluded that the post-test result of experimental class is higher than pre-test result ($61.375 > 34.50$). It means that the technique used have improved students' vocabulary mastery. Then, the post-test result between experimental and control class shows that the experimental class gets higher mean score rather than control class ($61.375 > 38.06$).

c. The Third Hypothesis

In third hypothesis, it found that the students' vocabulary mastery who were taught by using Duolingo App is better than the students who were not taught by using the app. It can be seen from the improvement of mean score experimental class is 26.88 ($61.375 - 34.50$) whereas the improvement of control class is 1.46 ($38.06 - 36.60$). It showed that the improvement of the experiment class is better than the improvement of the mean score of control class ($26.88 > 1.46$). So it proves that alternative hypothesis (H_a) is accepted and null hypothesis (H_0) is rejected.

In addition it could be seen from this result of independent sample t-test as showed below:

Table t-test result

Independent Samples Test				
Levene's Test for Equality of Variances		t-test for Equality of Means		
F	Sig.	T	D	Sig.

					f	(2-tailed)
ttest	Equal variances assumed	1	.245	7.746	6	.000
	Equal variances not assumed			7.728	0.964	.000

From the t-test result, it shows that value of sig (2-tailed) is smaller than alpha ($0.000 < 0.025$). It indicates that there is significant difference of both classes.

B. Discussions

According to the result of this research that there is significant difference between experiment class and control class. There are some reasons that caused Duolingo is an effective tool to be used in learning English. The researcher found out while during the research, they are: Duolingo reassures learners that they can achieve learning goals and for those whom accomplish a daily goal, Duolingo rewards them with surprising and upbeat sounds and pictures, causing the learners feel like they have accomplished something big. Even with 10 until 15 minutes of daily practice, Duolingo makes learners to get feel that they have finished something great in their short time and makes they feel keep motivated. Duolingo's way to keep make the learners motivated is the key point because it will cause learners will never feel bored to learn language there. So, the rewards, the interesting pictures and the motivation will make learners do not realize how many times they spend there to learn since they learn there happily. And this is a good way for learners to finish their lessons there as this is also stated by Musa and Nushi. The second reason is Duolingo's gamification. By 'gamifying' learning in Duolingo, it has been able to keep the interest of learners and less self-conscious of learning that's how Duolingo makes learners are bound to spend their time to learn there since they are addicted to use it already. So, they will use it longer in period of time. Gamification can make students feel more motivated and excited to learn as also stated by Indah Sri Redjeki and R. Muhajir.

The third reason is in every lesson of each level in Duolingo, it has speaking and pronunciation part. It help students much to know how words are pronounced and

how words are spoken correctly. This is better than using dictionary which is in manual dictionary the students do not know how to say it correctly since it has no that feature as Duolingo has. That's why Duolingo is effective to be used as media in teaching English. The last reason is the great feature of Duolingo has such as *reminder notification* and *challenges*. The learners mostly forget to learn English even they forget their English homework that teacher gave after they arrived at home whereas in Duolingo, the learners will always be reminded to learn in Duolingo with motivational words to influence learners to learn English everyday as their goals on each day to be reached. Furthermore, challenges caused learners to be challenged for finishing the lessons there. This causes learners can finish their lessons faster but they do not realize that. The learners keep going and continuing to finish all challenges which have given to them until the challenges finished then they feel content.

SIMPULAN

Based on the finding and also discussion of the research about the effect of using Duolingo App towards students' vocabulary mastery, the researcher concludes that: There is a significant effect of using Duolingo App toward students' vocabulary mastery at the second grade in SMPN 1 Koto Besar. It can be seen from the improvement score in experimental class after taught by using Duolingo in four meetings. On the other hand, it was also proven by the value t-calculated of experimental class in pre-test and post-test was higher than t-table ($8.40 > 1.645$). Thus, it can be said that using Duolingo App can increase students' vocabulary mastery. There is a significant difference between the students who were taught by using Duolingo App and the students who were taught without Duolingo. This is known from the mean score of post-test of the students in the experimental class is higher than students in the control class. In the experimental class obtained a mean score 61.375 whereas the students in the control class got a mean score 38.06. In addition, the result of the t-test showed that the t-calculated is greater than t-table ($7.799 > 1.645$). It means that there is significant difference of students' vocabulary mastery who were taught by using Duolingo App with the students who were taught without Duolingo App. The students' vocabulary mastery which were taught by using Duolingo App as media better than students who were taught without Duolingo. It can be seen from the improvement score that made by experimental class was greater than control class ($26.885 > 1.46$). It means that using Duolingo is better than conventional media in improving students' vocabulary mastery. In conclusion, Duolingo App is an effective teaching media for improving students' vocabulary mastery. This conclusion gathered not only from the experts and previous researchers' ideas but also from the empirical

data that had been found by the researcher herself.

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