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The Effect Of Using "Duolingo" Application On English Vocabulary Mastery Of Grade Eighth At Smp Swasta Teladan Pematangsiantar

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan Aplikasi Duolingo terhadap penguasaan kosakata bahasa Inggris siswa kelas VIII SMP Swasta Teladan Pematangsiantar. Penelitian terdiri dari kuantitatif dan kualitatif. Metode yang digunakan dalam penelitian ini adalah metode kuantitatif. Dengan demikian, peneliti mengumpulkan data empiris. Peneliti menerapkan penelitian eksperimen yang menggunakan dua kelompok sampel, kelas kontrol dan kelas eksperimen. Penelitian ini dilaksanakan di SMP Swasta Teladan Pematangsiantar Jl. Singosari No. 3 Pematangsiantar, Kecamatan Siantar Barat. Penelitian ini dilakukan pada semester gasal tahun ajaran 2022/2023. Peneliti menggunakan total sampling karena populasi diambil sebagai sampel penelitian ini karena siswa dibagi menjadi 2 kelas. Untuk mengumpulkan data penelitian ini menggunakan pre-test dan post-test. Pre-test diberikan kepada kelas eksperimen dan kontrol sebelum menerima perlakuan untuk mengetahui pengetahuan awal siswa tentang kosa kata. Berdasarkan temuan, pengajaran kosa kata dengan menggunakan Duolingo layak untuk diterapkan di kelas. Hal ini terlihat dari nilai rata-rata posttest siswa kelas eksperimen sebesar 75,6 lebih tinggi dari kelas kontrol sebesar 63,3. Berdasarkan temuan penelitian, nilai t-tabel pada taraf signifikansi (5%) lebih kecil dari nilai t-test (3,55). Hal ini menunjukkan bahwa hipotesis nol (H_0) ditolak dan hipotesis alternatif (H_a) diterima. Setelah penjelasan perhitungan sebelumnya, diketahui bahwa nilai t-test lebih tinggi dari nilai t-tabel, yang berarti 3,55 lebih tinggi dari 1,67. Akhirnya, peneliti menyimpulkan bahwa penggunaan Duolingo efektif melalui penguasaan kosa kata siswa, khususnya untuk siswa kelas delapan di SMP Swasta Teladan Pematangsiantar.

Kata Kunci: *Aplikasi Duolingo, Kosakata, Bahasa Inggris*

Abstract

The research is to find out the effect of using Duolingo Application on English vocabulary mastery of grade eight students at SMP Swasta Teladan Pematangsiantar. Research consist a quantitative and qualitative, The method used in this research was quantitative method. Thus, the researcher collected the empirical data. The researcher applied an experimental study which used two groups of sample, control class and experimental class. This research was conducted at SMP Swasta Teladan Pematangsiantar at Jl. Singosari No. 3 Pematangsiantar, West Siantar District. This research was conducted in the odd semester of the 2022/2023. The researcher was using total sampling because, the population were taken the sample of this research since students were devided into 2 classes. To collected the data this research used pre-test and post-test. Pre-test was given to experimental and control class before received the treatments in order to know the students' prior knowledge of vocabulary. Based on the findings and discussion in chapter IV, teaching vocabulary by using Duolingo is appropriate to be implemented in the class. It can be seen from the students average score of post-test in the experimental class 75,6 which was higher than the controlled class 63,3. Based on the research findings, the value of t-table at level of significance (5%) which was less than the value of t-test (3,55). It indicated that the null hypothesis (H0) was rejected and the alternative hypothesis (Ha) was accepted. Following the explanation of the prior calculation, it was discovered that the t-test value was higher than the t-table value, which translates to 3,55 being higher than 1,67. Finally, the researcher summarized that using Duolingo is effective through students' vocabulary mastery, specially for the grade eight students at SMP Swasta Teladan Pematangsiantar.

Keyword: *Duolingo Application, Vocabulary, English*

INTRODUCTION

Curriculum in Indonesia often changes from year to year. This is due to many factors such as changing community needs, new insights into the teaching and learning process, political issues, industrial and technological developments (Nursyamsiah, 2021). The main objective of this change is to improve the quality of teaching and learning processes and learning design in schools. Curriculum development is considered as a determinant of the nation's future (Mortazavi et al., 2021). Therefore, it is hoped that a good curriculum can be applied in Indonesia which will produce bright children of the nation in the future which has implications for the progress of ideas (Amalia, 2016).

The 2013 curriculum pays attention to student attitudes (behavior), knowledge, and skills. Curriculum is the planned interaction of students with content, materials, resources, and learning processes to evaluate achievement of educational goals. In another sense, the curriculum is total learning experience provided by the school. This includes course content (syllabus), methods used (strategy), and other aspects, such as norms and values, which relate to the way schools are organized (Bahjet Essa Ahmed, 2016).

English is one of the international languages. Learning English is very important in this globalization era to get involved in the development of scientific and technological information worldwide (Gesing et al., 2021). Therefore, introducing English as early as possible is necessary. Indonesian government has determined English as the first foreign language that should be taught as one of the subjects studied by the students from elementary up to university level.

The aim of teaching English at elementary school, junior high school, and senior high school is that students are able to achieve four language skills, such as: listening, reading, speaking, and writing. The curriculum is one of the important components in the implementation of education to achieve educational goals. The curriculum is a plan that is used as a guide or guide in teaching and learning activities (Robiatul & Rahmawati, n.d.).

When talking about language or language learning, students always think of vocabulary development by learning the "words". Vocabulary, in addition to grammar and pronunciation, is one of language elements considered necessary for language mastery. In addition, Vocabulary is a total number of words which with rules for combining them make up a language. Based on the expert opinion above the researcher can concluded that vocabulary is basic element of learning English. This is an important factor in reading, listening, writing and speaking (Widyastuti & Kusumadewi, 2018).

Nowdays, as mobile phones are practically everywhere, the majority of people have smartphones for their daily tasks and to communicate with other people no matter how old they are, including the junior high school students (Shortt et al., 2021). However, the utilization of technology in teaching and learning process is still lacking where a smartphone is mostly seen as a means of communication or entertainment, despite its potensial in aiding students to develop their skills and to learn a new vocabulary of a foreign language, esppecially English. In Indonesia, esppecially in the junior high school stage, vocabulary is not just of English teaching, but it is included as the component of the English subjects.

Based on the researcher's internship program experience with SMP Swasta Teladan Pematangsiantar eighth grade, the problems were identified as follows : The First, students were lack of vocabulary. The Second, they only think that it's difficult to study vocabulary. The Third, they were not interested in expanding vocabulary from the dictionary because it's a hassle to read from dictionary. The Fourth, teachers teach based solely on textbooks. It's boring for students. The Fifth, students were difficult to identify about action verb in sentence. The Sixth, many students do not understand the benefits of technology.

Therefore, teachers are needed to solve this problem, and the proper and wise use of smartphone technology for maximum results is also a challenge (Hardiyanti et al., 2019).

To overcome that problem, teachers should have some kinds of teaching technique or media, so the students can enjoy the English learning, especially in mastering vocabulary. Connolly et al. (in Lovantika, 2022) , stated that educators might be able to use gamification. By using free gamification incorporated software for foreign language instruction, students can use it even when they are at home on any personal computer or mobile device. One of the well-known software or site that uses gamification to learn foreign language is "Duolingo". With its nature gamification, Duolingo can help students to increase their vocabulary mastery. It is an educational mobile application and also a website that consists of many activity with a mix of listening, reading, writing, vocabulary, grammar, with the option for speaking (Rifdinal, 2021).

A research conducted by Rachels et al. (2021) showed that Duolingo has a good effect on student's language achievement. More evidence of Duolingo's positive impact comes from a study reported by Guaqueta et al (in Raeisi-Vanani et al., 2022), where it was proved to help learners increase their vocabulary and developed a better attitude for language learning due to the fun and dynamic nature (Jocius et al., 2021).

From the background above, the researcher use Duolingo to facilitate students in learning vocabulary and conduct research entitled "The Effect of Using "Duolingo" Application on English Vocabulary Mastery of Grade Eighth at SMP Swasta Teladan Pematangsiantar".

RESEARCH METHOD

Research consist a quantitative and qualitative. Quantitative research is the research that applied in population and using the sample as the participants, qualitative research on the other hand does not applied in population and sample (Sanjarbek, 2022). The method used in this research was quantitative method. Thus, the researcher collected the empirical data. The researcher applied an experimental study which used two groups of sample, control class and experimental class.

In addition, this research design was categorize as a quasi – experimental study. The researcher prefer to used quasi – experimental study because it used the existin organize group sample. The researcher believes that quasi – experimental study was more suitable to used in this research because the researcher cannot artificially created groups for the experiment. This research focused on two variables, Duolingo application as the independent variable and students' vocabulary mastery as dependent variable.

This research used design of non-randomized control group, pretest–posttest design. Ary, Jacobs, and Sorensen (in Merlin & Toneva, 2022) argued that non-randomized control group, pretest–posttest design was used in a typical school situation, in which schedules cannot be disrupted nor classes reorganized to accommodate a research . In such a case, one uses groups already organized into classes or other preexisting intact groups.

This research was conducted at SMP Swasta Teladan Pematangsiantar at Jl. Singosari No. 3 Pematangsiantar, West Siantar District. This research was conducted in the odd semester of the 2022/2023. The population of this research was students of grade Eight at SMP Swasta Teladan Pematangsiantar whose address at Jl. Singosari No. 3 Pematangsiantar, West Siantar District. The sample is part of the number and characteristics possessed by a population (Gao et al., 2020). The researcher was using total sampling because, the population were taken the sample of this research since students were divided into 2 classes.

To collected the data this research used pre-test and post-test. Pre-test was given to experimental and control class before received the treatments in order to know the students' prior knowledge of vocabulary. After giving pre-test, the researcher gave the treatments to experimental class in order to learn new vocabulary through Duolingo application, yet the control group did not received any treatments. Therefore, the researcher used two classes. First class was 8-7 as experimental class or treatment group and second class was 8-8 as control class.

RESULT AND DISCUSSION

This research was conducted into two classes; experimental and controlled class. Class consist of 30 students (Experimental Class) and 30 students (Controlled Class). The experimental class was given treatment of Duolingo Application while conventional method such as using lecturing and giving an assignment was implemented in the controlled class. Afterward, test was used as the instrument of this research specially multiple choice.

Pre-test and post-test were given in the both of the class. Pre-test was given before the treatment had been started and post-test was given in the last meeting after the treatment had finished (Koval, 2019). This research was conducted in SMP Swasta Teladan Pematangsiantar. The sample were taken VIII-B as the experimental class and VIII-A as the control class. After this research took place, the data was collected to find out the result of the tests (pre-test and post-test). The researcher made a table to describe the students' score.

The data given to the students was a vocabulary test. The results of the data were pre-test and post-test as these following results:

Table 1. Scores of Pre-Test and Post-Test in Experimental Group

No.	Students	Pre-Test	Post-Test
1	AD	50	80
2	AW	40	60
3	AG	45	80
4	AM	50	80
5	AML	35	65
6	AR	45	70
7	AS	40	80
8	AU	30	85
9	AF	30	70
10	BG	45	75
11	CD	40	80
12	CL	45	75
13	GK	60	75
14	GR	30	80
15	HZ	35	75
16	IK	25	75
17	IW	30	70
18	IY	25	80
19	JN	40	65
20	JH	65	75
21	LA	50	70
22	HR	60	85
23	RF	50	80
24	RE	35	75
25	RV	60	80
26	RSL	25	60
27	ST	40	80
28	SR	65	80
29	TH	35	80
30	YM	65	85

Total	1290	2270
Mean	43,00	75,667

Based on the table above, the lowest pre-test score in experimental group was 25 and the highest pre-test score in experimental group was 65. There were three students who got 25. There were four students who got 30. There were four students who got 35. There were five students who got 40. There were four students who got 45. There were four students who got 50. There were three students who got 60. There were two students who got 65. The average score of pre-test in experimental group was 43.

The lowest post-test score in experimental group was 60 and the highest post-test score in experimental group was 85. There were two students who got 60. There were two students who got 65. There were three students who got 70. There were seven students who got 75. There were twelve students who got 80. There were three students who got 85. The average score of post-test in experimental group was 75,6.

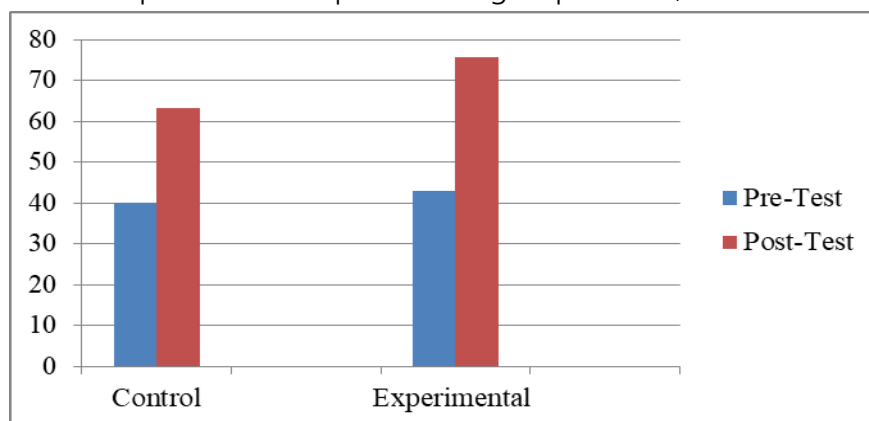


Figure 1. Improvement in Experimental and Control Group

The figure above described about the progress of students' ability in vocabulary by using Duolingo Application. It showed that the pre-test of experimental group was higher than pre-test of control group. Then, after the treatment, it showed that the experimental group got improved by 32,6 point and the control group got improved by 23,3 point. The improvement of experimental group was higher than control group.

Table 2. Variance Post-Test in Experimental Class

No.	Students	Experimental Class			
		x	\bar{X}	$(x - \bar{X})$	$(x - \bar{X})^2$
1	AD	80	75,6	4,4	19,36
2	AW	60	75,6	-15,6	243,36
3	AG	80	75,6	4,4	19,36

4	AM	80	75,6	4,4	19,36
5	AML	65	75,6	-10,6	112,36
6	AR	70	75,6	-5,6	31,36
7	AS	80	75,6	4,4	19,36
8	AU	85	75,6	9,4	88,36
9	AF	70	75,6	-5,6	31,36
10	BG	75	75,6	-0,6	0,36
11	CD	80	75,6	4,4	19,36
12	CL	75	75,6	-0,6	0,36
13	GK	75	75,6	-0,6	0,36
14	GR	80	75,6	4,4	19,36
15	HZ	75	75,6	-0,6	0,36
16	IK	75	75,6	-0,6	0,36
17	IW	70	75,6	-5,6	31,36
18	IY	80	75,6	4,4	19,36
19	JN	65	75,6	-10,6	112,36
20	JH	75	75,6	-0,6	0,36
21	LA	70	75,6	-5,6	31,36
22	HR	85	75,6	9,4	88,36
23	RF	80	75,6	4,4	19,36
24	RE	75	75,6	-0,6	0,36
25	RV	80	75,6	4,4	19,36
26	RSL	60	75,6	-15,6	243,36
27	ST	80	75,6	4,4	19,36
28	SR	80	75,6	4,4	19,36
29	TH	80	75,6	4,4	19,36
30	YM	85	75,6	9,4	88,36
$\Sigma (x-\bar{x})^2 = \Sigma da^2$					1336,8

The following is the standard deviation of post-test in experimental group:

$$sa = \sqrt{\frac{\Sigma da^2}{Na - 1}}$$

$$sa = \sqrt{\frac{1336,8}{30 - 1}}$$

$$sa = \sqrt{\frac{1336,8}{29}}$$

$$sa = \sqrt{46,09}$$

$$sa = 6,78$$

Explanation :

sa : Standard deviation experimental class

Σda^2 : Variance of experimental class

Na : Number of students experimental class

Finding out t-test:

$$t_{test} = \frac{\bar{Xa} - \bar{Xb}}{SE(Xa - Xb)}$$

$$t_{test} = \frac{75,6 - 63,3}{3,46}$$

$$t_{test} = 3,55$$

Explanation :

\bar{Xa} = Mean of Post Test in Experimental

\bar{Xb} = Mean of Post Test in Control

$SE(Xa - Xb)$ = Standard error

Finding out the degree of freedom (df) as follow:

$$df = (Na + Nb) - 2$$

$$df = (30 + 30) - 2$$

$$df = 60 - 2$$

$$df = 58$$

The result of the data analysis by using statistic of t-test formula is 3,55 with the degree of freedom (df) in calculating two-tailed test is 58. The t-table at 5% of level significance is 1,67. Based on formula of hypothesis which was designed before, Null hypothesis is rejected if t-test is higher than t-table. The hypothesis can be constructed as follow:

$$t\text{-test} > t\text{-table of } 5\%$$

$$3,55 > 1,67$$

Based on the calculation of hypothesis testing above, it is concluded that the value of t-test is higher than the value of t-table. Therefore, the Alternative Hypothesis (H_a) is accepted and the Null Hypothesis (H_o) is rejected. It can be concluded that using Duolingo application teaching media is more significant than traditional teaching media to vocabulary mastery of grade eight students of SMP Swasta Teladan Pematangsiantar.

Findings

The researcher found that using Duolingo application teaching media is more significant than traditional teaching media to vocabulary mastery of grade eight students of SMP Swasta Teladan Pematangsiantar. This can be seen from the research findings below.

1. The mean score in experimental class from pre-test to post-test are 43 and 75,6.
2. The mean score in control group from pre-test to post-test are 40 and 63,3.
3. The improvement as the experimental group got in post-test was 32,6
4. The improvement as the control group got in post-test was 23,3
5. The sum of standard deviation in experimental group was 6,78
6. The sum of standard deviation in control group was 9,94
7. The degree of freedom (df) is 58 and the t-table at level of significant 5% for two tailed test is 1,67
8. Testing hypothesis shows that t-test (3,55) is higher than t-table (1,67) at 5% of level significance. Alternative Hypothesis (H_a) is accepted and Null Hypothesis (H_0) is rejected.

Discussion

Based on the research findings, the value of t-table at level of significance (5%) which was less than the value of t-test (3,55). It indicated that the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted. Following the explanation of the prior calculation, it was discovered that the t-test value was higher than the t-table value, which translates to 3,55 being higher than 1,67. It was demonstrated that there was a significant effect on the students' vocabulary mastery scores on the pre-test and post-test when they were in the experimental group (Alsalem, 2019).

During the treatment, the using of Duolingo application on students' vocabulary mastery showed that the students enjoyed and they felt easier to improve their vocabulary bank through the use of the Duolingo application (Anarjanovna, 2021). This is supported by the improvement of the score of the test administered to the experimental group. It showed that the mean score of pre-test was 43 and the mean score of post-test was 75,6. It got improved by 32,6. It indicated that the using of Duolingo Application has significant effect on students' vocabulary mastery of grade eight students at SMP Swasta Teladan Pematangsiantar (Bavi, 2018).

During the process of the research, the researcher came across a few issues that need more research. The first issue was that the students expressed feeling nervous whenever they attempted to utilize Duolingo. When it came to the teaching activities hour, they were not accustomed to using smartphones. On the other side, there were students who did not

own smartphones. These students were also present (Gunawan, 2019). It is strongly suggested that the teacher make advantage of the resources provided by the school's computer laboratory. The second concern was the availability of an internet connection in the classroom as well as the scheduling of activities (Widya et al., 2020). When the researcher entered the classroom for the first time and began implementing the Duolingo Application, the slow internet connection was highly disruptive to the time management process (Ackermann et al., 2020). Some of the students who had connections to the internet that were significantly quicker than the rest had finished the homework far more quickly. Because there is a WiFi connection that can be used, utilizing the computer laboratory is a safer option to consider (Ross et al., 2020).

CONCLUSION

The purpose of this research is to find out the empirical evidence of the effect of Duolingo application teaching media to the English vocabulary mastery of grade eight students at SMP Swasta Teladan Pematangsiantar.

Based on the experiment which has been processed in teaching vocabulary by using Duolingo application in experimental class and without using Duolingo application in controlled class. Based on the findings and discussion in chapter IV, teaching vocabulary by using Duolingo is appropriate to be implemented in the class. It can be seen from the students average score of post-test in the experimental class 75,6 which was higher than the controlled class 63,3. Based on the research findings, the value of t-table at level of significance (5%) which was less than the value of t-test (3,55). It indicated that the null hypothesis (H₀) was rejected and the alternative hypothesis (H_a) was accepted. Following the explanation of the prior calculation, it was discovered that the t-test value was higher than the t-table value, which translates to 3,55 being higher than 1,67.

Finally, the researcher summarized that using Duolingo is effective through students' vocabulary mastery, specially for the grade eight students at SMP Swasta Teladan Pematangsiantar.

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