THE EFFECT OF USING DUOLINGO APPLICATION TO STUDENTS' MASTERY VOCABULARY

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ABSTRACT

This research was intended to find out the empirical evidence of the students' achievement in mastery vocabulary by using Duolingo application at the X grade of MAN Tanjungbalai. This research was quantitative research. The population of this research was all the students of class X of MAN Tanjungbalai. Samples of this research were taken from 30 students of experimental group (class X 1) and 30 students of control group (class X 2). The instrument for collecting data was a test. After analyzing the data, the writer got; (1) The students' achievement in mastery vocabulary by using Duolingo application got the mean 81,33 and standard deviation was 5,04; (2) The students' achievement in mastery vocabulary by using conventional method got the mean 78 and standard deviation was 4,51. The value of t-observed was 2,729 and that of t-table was 2,009. So, the value of t-observed was higher than that of t-table, it means that there was significant effect of using Duolingo application on students' achievement in mastery vocabulary.

Keywords: Duolingo, Vocabulary, Word

INTRODUCTION

Vocabulary is not only the goal of English instruction in Indonesia, especially in junior high schools, but it is also a part of the English curriculum. In addition, there are numerous measures of the required number of words. However, Michael West's General Service List (GSL) of English Words is a well-known vocabulary list that includes two thousand high-frequency words. Nation argued that the teacher should be concerned about making special time for the students to learn those high-frequency words because they were so crucial. Knowing that it is our responsibility as educators to assist students in meeting that standard is a significant responsibility. However, many issues arise alongside the obligation.

Based on my experience teaching researchs to class X students at MAN Tanjungbalai, learning vocabulary can be challenging for a number of reasons. The first issue is that students struggle to utilize vocabulary. Because they only remember what they mean rather than how to use them in a sentence, once they

have mastered a few words, it is difficult for them to put them into practice. Additionally, it is more challenging to expand one's vocabulary due to the abundance of synonyms. The students' decreased focus in class is the second issue. The majority of English instruction consists of teacher explanations and lack of student movement. In this instance, they are doing nothing more than sitting in their chairs and listening to their teacher. Students lose focus and struggle to comprehend the vocabulary taught because learning is relatively passive and repetitive.

Students should be able to enjoy learning English, especially when it comes to mastering vocabulary, so teachers should use a variety of teaching methods and media to address this issue. Winkel stated that teachers play a crucial role in educational institutions and can have a significant impact on the achievement of high-quality learning. We can use media to make learning vocabulary fun and interesting. In teacher-centered instruction, media is typically utilized as an additional support. We can select from a variety of media, including text, audio, video, and visual. Computers and smartphones with applications for teaching and learning English are the most recent. To benefit from cutting-edge media, we can utilize numerous educational smartphone and computer applications, websites, or both. Duolingo is one application that can be used to teach vocabulary. This is an educational website and mobile app that offers a variety of activities that include speaking, listening, reading, writing, vocabulary, and grammar.

In addition, the focus of this study will be on how well students use the duolingo application to learn English vocabulary. As a result, the " The effect of using Duolingo application to student's mastery vocabulary at grade tenth of MAN Tanjung Balai, 2022 – 2023 Academic year." will be the subject of this study's research.

METHODE

This research method used experimental method with quantitative approach. There are two groups of sample namely Experimental Group and Control Group. This research consists of two variables and two groups. This design focuses on treatment and outcome. The data was collected from pretest and post test in order to know using Duolingo application is effective in teaching mastery vocabulary. This design of this research is below;

Table 1 Two Groups Pre-test Post-test Design

Group	Pretest	Independent Variable	Post Test
E	Y1	X	Y2
C	Y1	-	Y2

Note:

E   : Experimental Group

C   : Control Group

Y1   : Pre-test

Y2   : Post-test

X   : Treatment

The operational definition will be used to describe the characteristic of the variable that investigated by the research.

1. Independent variable (X)

    Independent variable of the research is Duolingo.

2. Dependent Variable (Y)

    Dependent variable of the research is Mastery Vocabulary.

The population of this research was all students of grade X which consists of 11 classes in MAN Tanjungbalai in 2022/2023 Academic Year.

According to (Sugiyono.) stated that " Sample is a portion of the amount and characteristics possessed by the population". It means that this research is used cluster random sampling where the sample is used to determine when the object to be examined or data source is very large.

The sample of this research was X-PMIPA 1 and X-PMIPA 2, where students of X-PMIPA 1 were as the experimental class and students of X-PMIPA 2 were as the control class.

Table 4 The Sample of Grade X in MAN Tanjungbalai in the 2022/2023 Academic Year

X-PMIPA 1	30 Students	Experimental Group
X-PMIPA 2	30 Students	Control Group

In teaching presentation, the sample was divided into two groups. First group is coutrol group was taught without using Duolingo application. Second group is experimental group was taught by Duolingo application

Pre-test was conducted to find out the students mastery in vocabulary before having experiment. The pre-test was given to the group and their task was scored. The result of the pre-test was considered as preliminary data.

In treatment, the students was divided into 2 groups each group was given material about vocabulary using different way. In the experimental group was applied Duolingo application in teaching learning, and the control group was not applied Duolingo application.

After the teaching presentation, the students of both experimental group and control group was given post-test. This post-test was used to know the effect of questioning.

Data Collection Technique and Validity of the test, The istrument is said to be valid if the instrument is used to measure what intendts to measure (sukardi, 2010). It was said vocabulary mastery was conducted by using Duolingo application to measure the vocabulary knowledge. Focus on the level of students' knowledge.

The formula to measure validality test (Arikunto, 2010)

$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{(n\sum X^2 - (\sum X)^2(n\sum X^2 - (\sum Y)^2)}}$$

Where :
R   = The correlation between two variables.
N   = Total of the Data
X   = the mark in the pre-test
Y   = The mark in the post-test
XY   = Sum of multiplication X and Y
X^2 =   Square of X
Y^2 = Square of Y

Validity test is a tool that shows how far an instrument has presicion and accuracy in performing the measuring function.

Valid instrument means measuring instruments which use to get data (measures) are valid. Valid means the instrument can be used to measure what should be measured (Sugiyono agus, n.d.). To measure wheter the test had good validity or not, this reserach used the test form content validity and construct validity.

This research was used Richardson (KR-20) formula to analyze the reliability of test instrument from students' grammar mastery. According to Sugiyono (in Sarif 2018:31) the formula that was used is as follows:

$$r_{11} = \frac{2r_{xy}}{1 + r_{xy}}$$

Where:
r11   = reliability
rxy   = correlation between the two halves

There are two versions of Duolingo, one for teachers and one for students. It displays grammar and vocabulary exercises and quizzes organized by context for the student. The teacher version of Duolingo (*Guide for Leaders in Education*, n.d.) includes management of students and the English curriculum, assignment creation, monitoring of class activities, and online testing, assessment, and feedback.

The teacher benefits greatly from these characteristics. To begin, we can shorten the amount of time spent on assessment tasks. Duolingo is a lot faster to use than standard paper-based assessments, and students can get feedback right on their phone screen or monitor after they finish the test.

The second concern is the content restriction. We can manage the materials we give to the students with Duolingo because there is a curriculum page that lists what will be on the test. It demonstrates the material's purpose, and posting it requires our approval. Then, in terms of how effectively students manage their time, we can specify the exact time and duration of the test.

Figure 1 User Interface of *Duolingo* (Skill Tree in the computer and in the mobile phone)

Figure 1. depicts the skill tree for each language that Duolingo supports. It divides the course into several topics and maps them out. Beginning with the fundamentals, students advance to more complex skills that build on one another. The students gain access to the subsequent lessons and units after completing the tree successfully. It will not progress until the previous abilities are mastered. The objective is to complete all of the language mastery tree's lessons and skills.

Figure 2. User Interface of *Duolingo(Decription)*

As on figure 2. It shows 5 parts in the UI in the *Duolingo*. The firstpart (1) consists of user's profile, it can be found account setting, help, andlog out. Beside of it are performance and lingot, it is for buying an item in the shop. The part (2) shows the topic of the material which is tested. Thereare some levels inside of each topic. The (3) part is unit. It shows level ofour performance in answering each topic. When the user levels up a skill, user earns a unit, and the types of exercises will get harder gradually. The (4) part shows user's daily goals in using *Duolingo*. It can be set depend onthe user need. The last part (5) is the task which given by the teacher, it willshow checklist on the task if it is already done.
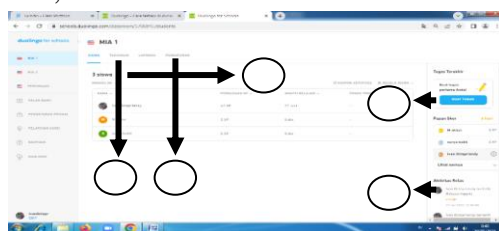
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Figure 3 User interface of *Duolingo* classroom

Figure 3 is the user interface of *Duolingo* classroom. The (1) part shows the member of the *Duolingo* classroom, their activities, and their gained experience. We can also manage the classroom member by inviting more students or remove them. The (2) part is used for the teacher to give the assignment to the students. They can arrange the deadline and the material which is going to be tested. The (3) part is the EnglishCurriculum. It shows the whole material that is available in *Duolingo*. The materials are divided into three levels, beginner skills, intermediate skills, and advance skill. The students cannot access the higher level if they have not done the lower skill or without teachers' permission. The teacher can review it first to find the suitable material for the learning before giving it to the students in the class activities.The (4) part is. The student's activities in the class. The (5) part consists of classroom setting. There are a set up for class password, merge classroom, and also the teacher can download setup instruction for them who is just begin using *Duolingo* classroom.

Considering the teaching steps discussed above, the teacher implement the use of *Duolingo* application into English teaching activities as follows:

1. Firstly the research choose the specific material of vocabulary that was given to the students. It is available in the curriculum menu as it is seen on the figure 4 below.
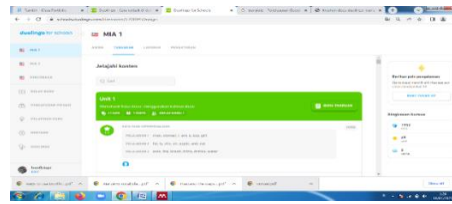
Figure 4. *Duolingo Curriculum*

2. The research gives the students a brief explanation about the generic structure of descriptive text and how to describe something.
3. The students log in to their Duolingo account and enter the task that the teacher prepare for them
4. They will find an assignment box in the middle right of the page and the deadline of it (see figure 2.2). The assignments are "memahami frasa dasar dan mengubah kalimat dasar".
5. The students do the assignment. If their answer is wrong, then the question in which they get mistaken will be repeated until they find the right answer (direct corrective feedback). In the end, they will get an "exp" according to their correct answer.
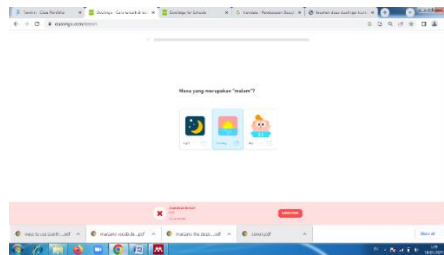
Figure 5. *Duolingo* Feedback

6. After they are done practicing using *Duolingo*, they are required to make a different sentence and paragraph from the vocabulary that they got from *Duolingo*.
7. In the end of the lesson the students are recommended to use *Duolingo* at their home by themselves.

    The advantages of using Duolingo application are (Tuti Hidayati & Sari Diana, 2019) :
    a. The Students felt positive in using Duolingo because they can learnt English vocabulary using the application at home easily.
    b. Duolingo application made them better in understanding the material

The disadvantage of using Duolingo application (Tuti Hidayati & Sari Diana, 2019) is: They felt Duolingo was difficult to use when there was no internet connection.

RESULT AND DISCUSSION

This study was conducted on March 2023. The data were collected by giving test. In this study, the sample is divided into 30 students. The data of this study purpose to find the effect of using Duolingo application to student's mastery vocabulary. In this study, the sample is divided into two groups namely experimental group and control group. Experimental group and control group is given the similar test.

The data of this study purpose to find out the significant effect of using Duolingo application on students' achievement in mastery vocabulary. This study was conducted at the tenth grade of MAN Tanjungbalai. Students at tenth grade of MAN Tanjungbalai as an experimental group and control group. The sample of each group was consisted of 30 students in the tenth grade of MAN Tanjungbalai.

This tables below showed the students' scores in pre-test and post-test in experimental group and control group at the tenth grade of MAN Tanjungbalai.

Table 5. The Sore of Pre-test and Post-test of Experimental Group

NO	Students' Names	Score of Pre-test (X)	Score of Post-test (Y)	X^2	Y^2	XY
1.	ADRI YASYFA FAUZA	65	75	4225	5625	5625
2.	AHMAD FARHAN MUNTHE	70	90	4900	8100	6300
3.	BUNGA NADIA ADHA	75	85	5625	7225	6375
4.	FITRIA ROHIMA	70	80	4900	6400	5600
5.	JENITA NURAFIFIA	65	75	4225	5625	4875
6.	JIHAN PUTRI ANDANI TAMPUBOLON	75	85	5625	7225	6375
7.	KHAIRIL AMAR	70	80	4900	6400	5600
8.	KHAIRIL DWI UTAMA	75	80	5625	6400	8000
9.	KHAIRUL AKBAR	75	80	5625	6400	6000
10.	KHALIDA RIZKA	70	85	4900	7225	5950
11.	MELI HANDAYANI	65	75	4225	5625	4875
12.	MHD DAFFA AYYUSAL	60	80	3600	6400	4800
13.	MHO RAFFLI MANURUNG	80	95	6400	9025	7600
14.	MUHAMMAD NAFIS	65	75	4225	5625	4875
15.	MUHAMMAD RIZKI AKBAR	60	75	3600	5625	4500

16.	MUHAMMAD YUDA KURNIAWAN	70	85	4900	7225	5950
17.	MUNAWAR ALFARIZI	70	80	4900	6400	5600
18.	MUTIARA HATI SIAGIAN	80	90	6400	8100	7200
19.	NADYA ULYA KHALISA	70	75	4900	5625	5250
20.	NAUFAL ADIEL BARIO	75	80	5625	6400	6000
21.	NAYLA AFRILIA RAMADHANI	75	85	5625	7225	6375
22.	NAYLA AZURA PANJAITAN	75	80	5625	6400	6000
23.	NAZWA KHODILA NASUTION	75	85	5625	7225	6375
24.	RAHMADHANI	75	85	5625	7225	6375
25.	RAHMIATI	70	85	4900	7225	5950
26.	REISI RINOLA NASUTION	75	85	5625	7225	6375
27.	REZA ARDIANSYAH	65	75	4225	5625	4875
28.	SAFIRA LUBIS	75	85	5625	7225	6375
29.	SELVI AFRILLA	65	80	4225	6400	5200
30.	SINTYA SAHARANI	70	80	4900	6400	5600
	Total	$\Sigma x = 2125$	$\Sigma y = 2440$	$\Sigma x^2 = 151325$	$\Sigma y^2 = 200850$	$\Sigma XY = 176850$

Table 5. The Sore of Pre-test and Post-test of Control Group

NO	Students' Names	Score of Pre-test (X)	Score of Post-test (Y)	X^2	Y^2	XY
1.	AFRIDA	70	80	4900	6400	5600
2.	ALYA RAHMI FAZIRA	65	75	4225	5625	4875
3.	ANANDA ALI SAHBANA DALMUNTHE	65	75	4225	5625	4875
4.	ANISA KURNIA FITRI	60	75	3600	5625	4500
5.	AULIA PUTRI	65	80	4225	6400	5200
6.	AWI AZUHRI NASUTION	55	70	3025	4900	3850
7.	DAFFA IHSANI HARAHAP	75	90	5625	8100	6750
8.	DANY SATRIA	70	80	4900	6400	5600
9.	DARMA JULIANDA	75	85	5625	7225	6375
10.	YODINDA AULIA SIREGAR	70	80	4900	6400	5600
11.	ONA NAZWA RHABYA	50	75	2500	5625	3750
12.	ELSA SALSABILA SIRAIT	75	80	5625	6400	6000
13.	FITRAH ADITYA	65	70	4225	4900	4550
14.	MELFA FITRIA AZHARI	75	85	5625	7225	6375
15.	MHD FADLY	55	75	3025	5625	4125
16.	MUHAMMAD ARIF PRATAMA CHANIAGO	65	75	4225	5625	4875

17.	MUHAMMAD RAYHAN HARAHAP	70	75	4900	5625	5250
18.	MUTHYA SIHAB	70	75	4900	5625	5250
19.	NAFIS ACHMAD NASUTION	75	80	5625	6400	6000
20.	NAZLA SAFIRA	60	75	3600	5625	4500
21.	NAZWA AZZAHIRA	75	80	5625	6400	6000
22.	NURUL ADHA PANJAITAN	70	75	4900	5625	5250
23.	NURUL MAULIDA RAHMADANI	65	75	4225	5625	4875
24.	RAFLY	75	85	5625	7225	6375
25.	RAIN SELFIA PANE	70	80	4900	6400	5600
26.	RENOLD SYAHPUTRA	65	75	4225	5625	4875
27.	RINDIYANI	65	80	4225	6400	5200
28.	RIZA AGUSTIARA LUBIS	70	85	4900	7225	5950
29.	SALISA PUTRI	70	80	4900	6400	5600
30.	SIFA AULIA	50	70	2500	4900	3500
	Total	$\Sigma x = 2005$	$\Sigma y = 2340$	$\Sigma x^2 = 135525$	$\Sigma y^2 = 183200$	$\Sigma XY = 157125$

Hypothesis testing is done determine whether the hypothesis can be accepted or rejected. To determine the hypothesis, the independent sample t-test was used. With the basis of decision making in the independent sample t-test, as follow: compare t count (t_h) with t table (t_t)

1. If $t_h \geq t_t$ with a significance level of 0.05, then Ho is rejected and Ha is accepted.

2. If $t_h \leq t_t$ with a significance level of 0.05, then Ho is accepted and Ha is rejected.

After analysing the data into t-test, it was found that the value of t count (th)= 2.729. If this was adjusted to the critical score of the product moment of degree of freedom (df) n1 + n2 - 2 or 30 + 30 - 2 = 58, the value of t table with the significant 0.05 (t_t)= 2.002. Therefore, the calculated t count (t_h) value the greater than t table (t_t) value= (2.729≥2.002). Than Ho is rejected and Ha is accepted.

Therefore, the research was successfully, Ha accepted and revealed that there is significant effect of using Duolingo application on students' vocabulary mastery of Madrasah Aliyah Negeri Tanjungbalai in 2022/2023 Academic Year. Because students learning outcomes used Duolingo application got a higher score than without the Duolingo application.

CONCLUSION

This study used quantitative research methods, including the total sample approach for sampling such as pre-test and post-test for data collecting which

students had been given the test multiple choices. In their achievement on their task papers, show that the students feel enjoyable when they are reading the text in this case especially vocabulary mastery and this technique can provide encouragement in the teaching and learning process. Based on the result of the previous chapter's data analysis, it shows that Ha is approved, and Ho is refused which suggest that the Duolingo application significantly effects on students achievement in mastery vocabulary at the tenth grade of MAN Tanjungbalai. The study's findings support the Duolingo application effectiveness improve the student's achievement in mastery vocabulary. This study concludes that the Duolingo application can make teaching and learning process exciting more that it bases on the data analysis. The learning process will be enjoyable for the students and students do not feel bored. Students become interactive and enthuastic more as a result of this technique.

Based on the analysis above, it can be seen that the students' scores in the post test is higher than pre-test but there is no significant effect to the students' scores. Meanwhile, the mean of differences score between pre-test and post-test in control group is 335.

After doing this study, the data can be calculated that the score of experimental group is higher than control group, so the students have an ability to mastery vocabulary with using Duolingo application. It is means that Duolingo application is effective to students' achievement in mastery vocabulary. There are several affected the successful of students as following below:
1. The Students' motivation to study is high

2. The students are interesting come to school
3. The students are interactive in the class
4, The students always study again at home by using Duolingo application
5. The students more focused in the class
6. The students give attention and listen the advice from the teacher

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