

THE EFFECTIVENESS OF DUOLINGO IN IMPROVING STUDENTS' SPEAKING SKILL AT MADRASAH ALIYAH BILINGUAL BATU SCHOOL YEAR 2019/2020

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Abstract

Duolingo is a great example of straightforward language application. Duolingo can help someone to develop his or her speaking skill in communication. By using Duolingo application as an efficient media to develop the speaking skills of students. The purpose of this study is to proof the effectiveness of using Duolingo in improving students' speaking skills. This study is a kind of quasi-experimental which the population of this study was the tenth grade of Madrasah Aliyah Bilingual Batu. The samples are consist of 20 students from X IPS 2 as the experimental group and 20 students from X IPS 1 as the control group. The experimental group got the treatment by using the Duolingo application and the control group taught with conventional technique or textbook-based. The research instruments were the Questions and Answers test and rubric of speaking. The data of the resarch were analyzed by using a t-test. Based on the statistical calculation with the significance level of 0.05 (5%), it presented that $t_0 = 2.881$ is higher than $t_t = 1.672$. The result of this study shows that the use of Duolingo is significant to improve students' speaking skills at tenth-grade students in MA Bilingual Batu school year 2019/2020.

Keywords: Duolingo, Speaking Skill.

INTRODUCTION

As English becomes the global language in the world, people's demand for mastering English gradually increasing. The use of English as as foreign language or a second language considered as hard case in the educational system in almost worldwide. In Indonesia where English is not first language, certainly it needs more concern in it. It should be taught in school and become an important subject. English is also needed to be criteria to pursue higher education. Richard, Platt, & Weber (1985:93) said that English in classroom aims to be the media of instruction, not as the media of communication within nation activities. As the main goal of learning English is to interact and communicate with other people, speaking skills take the highest place as the most essential skill to master (Bright & McGregor, 1970). Speaking becomes a crucial skill that should be acquired by the learners since it is really needed in everyday activities. According to Lazarton (Kurniawati, 2013), speaking is

communication between two listener and speaker in order to construct and transfer message in the form of vocabulary, fluency, pronunciation, structure, and mastery as well.

In this era, technology grows rapidly in most aspects of life. People try in using technology to find a lot of information through the existence of technology for example by using the internet. The development of English is said to the expansion of technology also. Today, many schools have applied technology as a learning media in their process of study. The application of English curriculum needs technology as the media. It is an essential part to support the process of transferring knowledge to make it more enjoyable and interesting. The use of the internet or technology is popularly mentioned as CALL (Computer Assisted Language Learning). Nowadays, the internet can be accessed accordingly thru mobile devices. Another term is MALL, Hulme and Shield (2008) define MALL as access to wireless device network, which will transfer with such networks increase.

There are many applications used in learning English. One of the applications of technologies that popular is Duolingo. Duolingo can be accessed by everyone who needs in helping the teaching and learning process. In Duolingo application, users can know the mistake that they created which is automatically analyzed by the system. Then it collect the data and identified by the patterns in it. The users may have the Duolingo application on their mobile phone or PC/Laptop; therefore, the user can practice it anytime and anywhere. The users of the application should follow the step in order to get higher level, just similar to computer game. Once the learner has mastered the previous lesson, the next lessons will be unlocked. Learners can complete many kinds of exercises including writing, multiple-choice, and speaking through using microphone.

Mahmudah (2015) and Bermudez (2017) have been conducted their study about Duolingo. The similarity of these two studies used descriptive qualitative on the study about Duolingo. In Mahmudah's research, the field of her research was pronunciation while Bermudez's research was about showing the possible effects of Duolingo implementation for English learning. Another previous study comes from Vasselinov of Queen College University and Grego of the University of South Carolina (2012) entitled "Duolingo Effectiveness Study" shows that the use of Duolingo is effective for language tests because it can measure learning time every hour to improve language. The result of this study shows that Duolingo can be used as a medium for language tests that can measure students' ability in language competence, they are listening, reading, listening, and speaking as well.

Further research conducted by Ishikawa Lynn et al (2016) with the title "The Duolingo English Test and Academic English" revealed that Duolingo used for the TOEFL IBT test also gave significant value statistically. This study also explains 2 (two) purposes of using Duolingo in speaking skills, namely first to assist students in oral communication, secondly to provide valuable opportunities for teachers to know their students in learning and provide more meaningful support while on campus.

The researcher conducted to Senior high X grade students that have a different subject from other researchers. Besides, the researcher used a Self-Introduction topic as the instrument in conducting this research. The purpose of this research is to study effectiveness of using the Duolingo application in improving students' speaking skills by conducting experimental research.

METHOD

RESEARCH DESIGN

This research used quasi-experimental. Experimental research has been chosen because this study is dealt with revealing the effect of teaching methods, in this case the media "Duolingo application" towards the students' speaking skill. The researcher used a pretest-posttest design because of the limited students during the pandemic covid-19 era.

RESEARCH SETTING

The research conducted in MA Bilingual Batu at X IPS 1 and X IPS 2 in 2019/2020 school year, Pronoyudo Street Dadaprejo, Junrejo, Batu.

POPULATION AND SAMPLES

The research population was all tenth-grade students of MA Bilingual Batu. The researcher used the purposive sampling to take the research's sample. The researcher based on the English teacher's permission chose the subject of the research. Formerly it can be concluded that both class X IPS 1 grade and X IPS 2 grade will be the two samples, which is selected from all population tenth-grade classes, which amounted 40 students.

VALIDITY TEST

The items of the test are constructed to measure students' speaking skills. The tests are based on indicators of a syllabus that can establish content validity. Content validity of the test was measured directly by the expert judgments. It means the researcher ask the English teacher in MA Bilingual Batu to give judgment of the test. The expert judgment considered the improvement of test before trying it out to the students. Same topics are

used in pre-test and post-test. The try-out test consists of 25 questions. Construct validity is used to measure the validity of item tests. An item test is claimed valid if the significant value (p) is below 0.05, and if the significant value (p) is above 0.05 means an invalid item test. The results of the calculation of the validity test of the instrument from 25 questions there are 20 questions are valid, and 5 questions are invalid. Around of the invalid questions occurred because many students answered incorrectly. Therefore, there are 20 questions were tested.

RELIABILITY TEST

The instrument reliability was estimated by using Cronbach Alpha reliability test. The reliability analysis could be done by administering try out. The calculations were done using a computer program SPSS version 19.0.

Table 1. The Result of Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.846	20

Based on table 1, it presented that all the questions were valid with the reliability of Cronbach's alpha coefficient α was 0.846. Thus, the test was considered reliable because the reliability was higher than 0.60. It indicates that this test has a high level of reliability.

DATA ANALYSIS

Quantitative data were gained from the results of the pre-test and post-test. Pre-test and post-test scores compared to see whether there is a significant effectiveness or not in using Duolingo on the students' speaking skill. Furthermore, after the data of pretest and posttest were gained, the pre-test and post-test were manually calculated (Total correct answer*100/20). If the students spoken fluently and there is no mistakes, the value is 5, and if there is no answer from the students, the value is 0. Then, the data processing and analysis using the level of significant α 0.05 carried from Independent sample t-test in SPSS program.

RESULT AND DISCUSSION

The Result of Data Analysis

The result of data analysis presented there was a significant of the students in speaking skill by using Duolingo application.

The researcher used Kolmogorov-Smirnov to know whether the data is normally distributed or not.

Table 2. Normally Test of Pre-test

	GROUP	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	Experiment	.176	20	.107	.901	20	.043
	Control	.178	20	.097	.926	20	.131

From Table 2 above, the significance of the data in Kolmogorov-Smirnov from experimental class is 0.107 and control class is 0.097, which means the data of pre-test is normally distributed.

Table 3. Normally Test of Post-test

	GROUP	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Post-test	Experiment	.173	20	.120	.912	20	.071
	Control	.200	20	.036	.906	20	.053

From Table 3 above, the Kolmogorov-Smirnov indicates that the result of the data from post-test in the experimental class is 0.120 and the control class is 0.036. It can be concluded that both classes are higher than $\alpha = 0.05$, which means the posttest result is normally distributed.

Once the researcher obtained the results of the normality test, the researcher used Levene statistic in testing homogeneity to determine if the data was homogeneous or not.

Table 4. Result of Homogeneity in Pre-test

Homogeneity Test Result of Pre-test			
Levene Statistic	df1	df2	Sig.
.299	1	38	.588

From the table above, it presented the significant of the data from pre-test between experimental class and control class was 0.588. Therefore, the data of pre-test was homogeneous because it was higher than $\alpha = 0.05$ ($0.588 > 0.05$).

Table 5. Result of Homogeneity in Post-test

Homogeneity Test Result of Post-test			
Levene Statistic	df1	df2	Sig.
.882	1	38	.354

From Table 5 showed the significance of post-test between both of classes was 0.354, which is higher than $\alpha = 0.05$ ($0.354 > 0.05$). It means the data of posttest was homogeneous.

As the collected data have been proved it is normally and homogeneity, the researcher used t-test in order to know the significant difference between students' speaking skill in experimental and control classes. After examining the data, the t-test result gives answer to the research question on whether or not Duolingo application is effective way to improve students' speaking skill in this research. It can be seen the recapitulation of the data as follows:

Table 6. Result of T-test in Post-test Speaking scores

Group Statistics					
Group	N	Mean	Std. Deviation	Std. Error Mean	
Experimental Group	39	80.00	6.689	1.096	
Control Group	39	74.25	5.911	1.322	

Independent Samples T-test									
	Language Used for Frequency of Violation	F	Sig.	Statistical Parameters					
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval for Difference
Equal variances assumed		.002	.954	2.881	38	.006	5.750	1.496	1.760 9.739
Unequal variances assumed				2.881	37.435	.007	5.750	1.498	1.760 9.739

From the table above, it indicated that there was significant difference between the mean score from the experimental class that is 8.00 while the control class is 74.25. The standard deviation in experimental class is 6.689 and control class is 5.911. Meanwhile, the standard error of mean from experimental class is 1.496 and control class is 1.322.

The data of independent sample t-test indicates the result of t ($df = 38$) = 2.881 and p-value or sig (2-tailed) is 0.006. The researcher used $\alpha = 0.05$ (5%) as the standard of significant, as a result, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted since p-value or sig (2-tailed) 0.006 in data is lower than $\alpha = 0.05$ (5%). It means that the using Duolingo application has effectiveness in improving students' speaking skill.

In this research, the researcher used the calculation by Cohen's d to know the effect size level of study. The calculation of means and the standard deviations of posttest from experimental and control classes are required, which have been gained from group descriptive statistics table as follow:

Table 7. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Post-test of Experiment	20	70	90	80.00	6.689
Post-test of Control	20	65	90	74.25	5.911
Valid N (listwise)	20				

$$d = \frac{(\text{Mean of group A} - \text{Mean of group B})}{\text{pooled Standard Deviation}};$$

$$\sigma_{\text{pooled}} = \frac{\text{Std. Deviation 1} + \text{Std. Deviation 2}}{2}$$

$$(1) \sigma_{\text{pooled}} = \frac{6.689 + 5.911}{2} = 6.3$$

$$(2) d = \frac{80.00 - 74.25}{6.8} = 0.91$$

Table 7 above shows mean score of experimental class is 80.00 while of the control class is 74.25. Meanwhile, the standard deviation of experimental class is 6.689 and the control class is 5.911. After obtaining the results, it can be seen that the effect of size is 0.91. Based on the basis Cohen's d effect size criteria, it indicates that the students in experimental class affected by Duolingo application that their speaking skill is enhanced.

By seeing the result of post-test that the researcher got from the experimental and control class, it concluded the t_0 (2.881) is higher than the t_{table} (1.672) in the significance level of $\alpha = 0.05$ (5%). Then, the $t_0 > t_{\text{table}}$, which means that the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. Therefore, it indicated that the using of Duolingo application is effective to improve students' speaking skill tenth grade in MA Bilingual Batu.

DISCUSSION

From the data description of the calculation above, the data is normally distributed and homogeneous. At the tenth grade students of MA Bilingual Batu, the students' speaking skill is improved, especially by using Duolingo application. The result of the data was taken from 40 students in an experimental class and a control class of pre-test and post-test.

After calculating the normality test by using IBM SPSS Statistic Version 20, it can be shown that the significance of the data from pre-test and post-test were distributed normally. The pre-test score presented the data of Kolmogorov-Smirnov in the experimental class is 0.107 and the control class is 0.097. Meanwhile, score in posttest also showed that the data of Kolmogorov-Smirnov in the experimental class is 0.120 and the control class is 0.036. It can be concluded that both classes are higher than $\alpha = 0.05$, which means the result is normally distributed.

The homogeneity test' result showed the data from the experimental and controlled classes were proved as homogeneous. It can be seen that the significance from the pre-test between the experimental and control classes was 0.588 which is higher than $\alpha = 0.05$ (0.588 > 0.05). Then, the significance from post-test of both experimental and control class was 0.354 which is higher than $\alpha = 0.05$ (0.354 > 0.05). It means that the data from experimental and control classes in pre-test and post-test were proved as homogeneous data.

In addition, the data analysis that used an independent sample t-test proved statistically the effect of using Duolingo application used during the treatments period. It can be seen the statistical significance is shown by the analyzed post-test data that the result of t ($df = 38$) = 2.881 and p-value or sig (2-tailed) is 0.006, which is lower than $\alpha = 0.05$ (5%). It concluded the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. Therefore, it was proved that using the Duolingo application has an effect in improving students' speaking skill. Moreover, the result of the effect size is 0.91 that indicates the using Duolingo application is a moderate effect in this research.

By the data analysis, the researcher can be decided Duolingo gives a significant effect on students' speaking skill because the score in speaking test after the researcher doing treatments was higher than before using Duolingo in teaching learning. On the other words, using the Duolingo presented a positive effect to be implemented for students especially for the tenth grade in MA Bilingual Batu.

CONCLUSION

According to the research finding and discussion, teaching speaking by using Duolingo application is appropriate to be applied at class. It is proven by the students' average score of post-test 80.00, which was higher than the control group 74.25. In data analysis, it can be proved that the t_0 (2.881) is higher than the t_{table} (1.672) with the significance level of $\alpha = 0.05$ (5%). In addition, as can be seen from the comparison between the averages gained score of experimental class was 13.75 points, higher than the average gained score of control class was 8.75 points. Therefore, the $t_0 > t_{table}$ which means the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected.

In conclusion, the researcher has proven that the answer of research question that Duolingo application is effective to enhance the speaking skill of tenth-grade students at MA Bilingual Batu.

RECOMMENDATIONS

In view of the importance and impact of using Duolingo application in the learning process, the researcher suggested that schools at senior high level may be provided opportunity of training for teachers in order to know the media use in classrooms effectively. The teacher should introduce many kinds of applications teaching and learning process. By using this application, students are easier and more interested in learning English. The education institution or schools should put more emphasis on the learning activities for teacher in addition to theory i.e. teaching methods and instructional technology. Therefore, it can be concluded that using of Duolingo application as a media technology may implemented in the schools.

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