

CHAPTER IV

RESEARCH FINDINGS AND DISCUSSION

- A. Research Finding
 - a. Description of The Data

In this section, the researcher discusses the result of the research. The chapter describes some findings and discussion about the effectiveness using Duolingo application on students' vocabulary mastery at the seventh grade of junior high school MTsN 3 Tulungagung. The aim of this research is to find out the effectiveness of using Duolingo application to teach vocabulary mastery. The researcher obtained two kinds of data; the score of pre-test and post-test.

To investigate the students' vocabulary mastery before and after taught by Duolingo application. The researcher conducted pre-test and post-test. In this research, the researcher chooses one class as the sample. The instrument was given to the VII A students of MTsN 3 Tulungagung which consisted of 25 students. The students' score of pre-test and post-test could be seen in table 4.1 below:

4.1 Students score of pre-test and post-test

Name	Pre-test	Post-test
ADM	50	70
AMZ	40	70

AFD	60	90
BAP	60	60
BFEA	70	80
DOF	50	70
ERAA	60	70
GAR	40	80
JPP	60	70
KPH	60	60
MRW	80	90
MAR	60	80
MAWF	50	70
MAD	60	70
MFAR	70	100
MFA	40	80
MNN	70	70
NRA	30	50
NWKW	50	60
NIM	50	60
NFAK	70	70
RG	40	70
SIAP	70	80
SNS	60	90
WF	60	60

There were 25 students are respondents of this research. Based on table 4.1 above, the highest score of students' pre-test was 80 and the lowest was 30. While the highest score of post-test was 100 and the lowest score was 50.

After got the students' score of pre-test and post-test the researcher organized the result of statistic and the frequency of the students, scores in pre-test by using IBM Statistic 16. The following tables 4.2 and 4.3 showed the result of statistic and frequency of students' score in the pre-test.

Table 4.2 the result of statistics

Statistics			
		pretest	posttest
N	Valid	25	25
	Missing	0	0

Table 4.3 Frequency of Score in Pre-test

		pretest			Cumulative Percent
		Frequency	Percent	Valid Percent	
Valid	30	1	4,0	4,0	4,0
	40	4	16,0	16,0	20,0
	50	5	20,0	20,0	40,0
	60	9	36,0	36,0	76,0
	70	4	16,0	16,0	92,0
	80	1	4,0	4,0	96,0
	90	1	4,0	4,0	100,0
	Total	25	100,0	100,0	

Based on the table above, can be seen that 1 of 25 students got a very poor score. The students got to score 60 are nine students, that means the students have good achievement in vocabulary. Then, four students got to score 70 it means the students belongs to very good criteria in vocabulary.

The researcher organized the result of the statistical frequential frequency and percentage of the students' scores in post-test by using IBM SPSS 16. Table 4.4 and 4.5 showed the result of statistics and frequencies of the score in post-test. The table can be seen below:

Table 4.4 the result of statistics

		Statistics	
		pretest	posttest
N	Valid	25	25
	Missing	0	0

Table 4.5 frequency of score post-test

		posttest			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50	1	4,0	4,0	4,0
	60	5	20,0	20,0	24,0
	70	10	40,0	40,0	64,0
	80	5	20,0	20,0	84,0
	90	3	12,0	12,0	96,0
	100	1	4,0	4,0	100,0
Total		25	100,0	100,0	

Based on the table above, can be seen that one student got 50 scores, it means that the students get poor score it indicates that the students, vocabulary was not clear, less of new vocabulary and the meaning is not suitable with the word. The students got 80 scores are five students, it means that five students belong to very good in vocabulary. Then the students got to score 90 are three students, it means that the scores are high but the achievement of the students is very good in vocabulary. Then the student got score 100 is one student and it is the maximum score and the students are very good in vocabulary.

Therefore, there are differences between before and after the treatment process done. The data showed that there is significant progress. It means that using Duolingo application is effective in increasing the students' vocabulary mastery.

b. Normality and Homogeneity

- a. The result of normality testing. Normality is to know whether the data is normal distribution or not. According to Rohmah (2016). Normality of the data is important because if the data were in the normal distribution, the data are considered to be the representative of the population. In this research, the researcher used one of the methods of normality testing was done towards both tryouts of pre-test and post-test score. The researcher used SPSS IBM 16 One sample Kolmogorov-Smirnov test by significant value 0,05 the result could be seen in the table as follows:

Table 4.6 normality testing

One-Sample Kolmogorov-Smirnov Test		pretest	posttest
N		25	25
Normal Parameters ^a	Mean	57.20	72.80
	Std. Deviation	13.699	11.733
Most Extreme Differences	Absolute	.181	.234
	Positive	.179	.234
	Negative	-.181	-.166
Kolmogorov-Smirnov Z		.905	1.172
Asymp. Sig. (2-tailed)		.386	.128

a. Test distribution is Normal.

Based on table 4.6 the significant score is 0.386 and 0.128 > 0.05, it means that residual score is a normal distribution. Bluman states that t-test is a statistical test for the population mean, and is used when the population is normally distributed or approximately normally distributed, σ is unknown, and $n > 30$ (1998:378).

a. The result of homogeneity testing.

Homogeneity testing is conducted to measure whether the data has homogenous variance or not. The researcher used the Test of Homogeneity of variances with SPSS by the value of significance (α) = 0,05 the result can be seen below:

Table 4.7 homogeneity testing**Test of Homogeneity of Variances**

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Levene Statistic	df1	df2	Sig.
.390	1	48	.535

Based on table 4.7 above, the sig. Value is 0.535 and it was bigger than 0.05, it means that H_0 is rejected and H_a is accepted. It can conclude that data is homogeneity.

B. Data Analysis

Data analysis was done to know the difference score before and after doing the test, and after doing the test and found the score before the test and after the test. The researcher used a statistical test using the Paired Sample Test on IBM SPSS statistics 16 to ensure the effectiveness of teaching vocabulary used Duolingo application. The result is shown as follows:

Table 4.8 descriptive statistic for pre-test and post-test

Descriptive Statistics								
	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
pretest	25	60	30	90	1430	57.20	13.699	187.667
posttest	25	50	50	100	1820	72.80	11.733	137.667
Valid N (listwise)	25							

From table 4.8 above, it could be seen that the mean of the post-test score (72.80) was larger than the mean of pre-test score (57.20). It means that the used of Duolingo application has caused in improving students vocabulary. While N for each other is 25. Meanwhile, the standard deviation of the pre-test is 13.6 and standard deviation of post-test is 11.7.

Table 4.9 Paired Sample Statistics

Paired Samples Correlations			
	N	Correlation	Sig.
Pair 1 pretest & posttest	25	.543	.005

Based on the table above, the output of the Paired Sample Correlation showed the large correlation between samples, where can be seen that numeral both correlations are 0.543 and numeral of significance is 0.005. if the sig.>0.05, means that Ho is accepted in another word if the sig.<0.05, it means that Ho is rejected. The table above showed that sig. 0.005 it is lower than 0.05 it means that Ho is rejected and Ha is accepted. From the result above, can be concluded that there was a significant difference between the students' score between pre-test and post-test.

Table 4.10 Paired Sample T-Test

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pretest - posttest	-4.240	3.218	.644	-5.568	-2.912	-6.588	24	.000

Based on the table above, it can be seen that T-count is 6.355 with the df is 24 standard mean error 1.56000 the lower different 20.6666 the upper different 10.5333 and the sig. (2-tailed) is 0.000.

The way to test the null hypothesis can be rejected or not was by comparing p-value with the standard level of significance, 0.05. table 4.10 shows that the p-value was less than 0.05 ($0.000 < 0.05$). It means that the null hypothesis could be rejected and it could be concluded that the use of Duolingo application was effective in improving students' vocabulary mastery.

C. Discussion

From the data analysis, the objective of the research is to know if there is an effect in applying Duolingo application in teaching vocabulary mastery at the first grade of junior high school of MTsN 3 Tulungagung academic 2018/2019.

Based on the research method, the researcher conducted the first step, giving pre-test on the students'. It means that to know the students' vocabulary mastery before being taught by Duolingo application. Secondly, the researcher gave the treatment to the students, the treatment here was applying Duolingo application. Thirdly, after the researcher gave the treatment to the students, then the researcher gave the posttest to the students. It means that to know students' vocabulary mastery after being treated by the Duolingo application.

Based on the result of the statistical computation using a t-test, the result shows that there is any significant difference between pretest and post-test. The result t-test is 6.355, if the t-test is compared to t-table with the degree of freedom 25 as stated hypothesis testing, the T-test 6.355 is higher. Based on the hypothesis testing, H_a is accepted and H_o is rejected. It means that there was a significant difference between mean scores of pre-test and post-test. It can be concluded that the students get good achievement in mastering vocabulary after being taught by Duolingo application. The students' vocabulary achievement improves significantly, so teaching vocabulary by using Duolingo application is effective to improve students' achievement on vocabulary.

D. Previous Related Study

The advantages of the use of Duolingo application give a positive effect on students' vocabulary mastery. It has been verified by the result of the data analysis that there are significant differences between students' vocabulary mastery before and after being taught using Duolingo application is effective toward students' vocabulary mastery because it can help the students' to improve their new words at the first grade of MTsN 3 Tulungagung.

The study about using Duolingo application was conducted by Laila Mahmudah (2015) and Natanael Mauricio Méndez Bermudez (2017).

The differences between this research and these two previous research are Laila Mahmudah used descriptive qualitative approach and the field of her research was pronunciation. And, Natanael Mauricio Méndez Bermudez also used a qualitative approach. Her research was about showing the possible effects of using Duolingo as a compliment for English lessons. Whereas, in this research, the researcher used the quantitative approach with a quasi-experiment type. The purpose of this research is to know the effectiveness of using Duolingo application in Madrasah Ibtidaiyah Darul Ilmi and how Duolingo can improve the students' vocabulary. There was significant difference in students' vocabulary by using and without using Duolingo application of the sixth grade at Madrasah Ibtidaiyah Darul Ilmi Banjarbaru. Using Duolingo application is effective with

high category of Cohen's D Effect Size Category. Without using Duolingo application in control class, it was not better than using Duolingo application in experiment class.

Based on the result of the post-test, there are significant differences between the highest and the lowest score. The highest score of the test students' vocabulary who used Duolingo application was 100 with 5 students who got score 100. The highest score of the test of the vocabulary students who did not use Duolingo application was also 100 but only 2 students who got score 100. Then the lowest score of the vocabulary of students who used Duolingo application was 80. The lowest score of vocabulary students who did not use Duolingo application was 40.

When students have fun, they are more likely to take risks; make mistakes without having a feeling of failure, and try to overcome the initial confusion when they find new words and patterns (Paul, 2007: 49). Moreover, games help to create a context in which students' attention is focused on the completion of a task without necessarily realizing that language items are being practiced (Toth, 1995:6).