

Duolingo Application as A Mean to Deepen Understanding of English Vocabulary by Students of English Educational Department Timor University

Desta Gloria Siahaan *

English Educational, Timor University, Kefamenanu,85611
destagloria9aan@gmail.com

*Corresponding author


Maria Hendrika Kristen

Indi Nahak

English Educational, Timor University, Kefamenanu,85611
Indychristine2001@gmail.com

Edmundus Bouk

English Educational, Timor University, Kefamenanu,85611
edmundusbouk@gmail.com

 Submitted: 2024-11-21; Accepted: 2024-12-01; Published: 2024-12-06

Abstract—this study aimed to explain the role of the Duolingo application in improving English vocabulary comprehension and to provide valuable insights for educators regarding the potential of digital applications in English language learning. The Duolingo application is expected to help students of the third semester from English Educational Department at Timor University to deepen their understanding of English vocabulary. This research used a qualitative approach, the instruments used in this research were a vocabulary test and a questionnaire. The results of the vocabulary test showed that students who used the Duolingo application had a better understanding of vocabulary. The average test score was 76.7, with the highest was 93.38, indicating that the use of this application was able to provide a deep understanding of vocabulary, the lowest score was 66.7. The results from the questionnaire revealed that 50% of students strongly agreed and 50% agreed that Duolingo helped them quickly correct mistakes after each exercise. However, 60% of students felt that the application's features had a minimal effect on improving their learning experience, while 30% strongly disagreed. In terms of engagement, 60% of students regularly used the Duolingo application to learn English, while 40% did not. Furthermore, 80% of students felt that learning English became easier with Duolingo, while 20% agreed. 50% of students strongly agreed that the features within the application assisted in the learning process, while the other 50% agreed. 50% of students felt more enthusiastic about learning with this application, and the other 50% also agreed. The engagement and flexibility of the application were recognized as motivating factors for students to continue learning, with 50% strongly agreeing and 50% agreeing. However, there were challenges related to the use of community features. Only 20% of students strongly agreed that they were engaged with community features such as forums or study groups, while 40% disagreed and 40% strongly disagreed. On the other hand, 60% of students felt that motivational elements such as rewards and challenges influenced how

often they used the application to study. In conclusion, the Duolingo application proved to be effective in deepening English vocabulary comprehension among third semester students of the English Educational Department at Timor University. This research provided valuable insights into the effectiveness of the Duolingo application as a tool for learning English vocabulary among students.

Keywords— Duolingo Application, Vocabulary, Unimor

I. INTRODUCTION

Vocabulary learning is an important part of learning a foreign language because the meaning of new words is emphasized very often, both in books and in the classroom. As one of the components of a language, learning vocabulary is necessary because the more words students know, the better the chance to understand. The purpose of mastering vocabulary is so that students can gain a good understanding of the language. With an enhanced vocabulary, students grow in verbal fluency, writing, and comprehension skills (Siahaan et al, 2022). Acknowledging the importance of vocabulary through language learning, *Wilkins* (2019) stated that without mastering grammar, there is only a small part of the language that can be acquired, but without vocabulary, there is nothing we can convey. This meant that vocabulary is the basis of language and must be mastered first. According to the Oxford Advanced Learners Dictionary, vocabulary can be defined as all words that a person knows or uses or all words in a particular language word that people use when they talk about a particular subject. As one of the elements of language, vocabulary can help a person to understand clearly in communication. Through the process of recognizing words in English, students acquire information easily based on their own words. As students build vocabulary mastery, they can more effectively communicate their ideas, knowledge, and voices, as they learn vocabulary

with practices that are useful for individual needs and English language development skills. Based on the definitions described above, it can be concluded that vocabulary is part of language learning and is very important in the acquisition of a second and foreign language. Without knowing a lot of vocabulary, students will not be able to convey their ideas. In addition, vocabulary must be taught to young students who learn English first. In other words, vocabulary is the key that students understanding English subjects such as students can speak English fluently and can listen write or read English easily.

Therefore, mastery of English vocabulary is essential for self-improvement and the country. However, many people face difficulties in deepening their understanding of the English language. Some problems in general can be obstacles to learning English directly, factors that affect English comprehension for adults and children. To adults like many people who are busy with work and other activities, it is difficult to take a structured English course. Likewise, for children learning style mismatches are often a problem, every teacher has a different learning style. Limited time can also be an obstacle for teachers in delivering material more deeply and adequately (Siahaan, 2022). E-Learning is essential to support the success of learning at home (Siahaan, 2024)

II. METHODOLOGY

Duolingo is the most popular English learning application, can be accessed easily via online learning on any mobile device and is flexible for adults and children according to their level, for children's level. This application is very fun with features that allow children to learn and feel like playing so it is easier for children to solve each problem. This application offers many features, such as practicing speaking, listening, reading, and writing skills in English. Duolingo is easy to use because the procedure for using it is simple, so Duolingo can be used for all ages. It means that Duolingo is easy to use and more interesting, so it will be convenient as a medium that we use in teaching online classes. This is in line with previous research that shows that students feel satisfied and happy learning a language using Duolingo (Grego & Vesselinov, 2022) The researchers wanted to find out how to improve the skills of the students by using Duolingo as a technology-based learning medium. The use of Duolingo application in an educational context to improve the effectiveness and efficiency of the learning process. The use of this application can also be used by teachers as an evaluation of student progress, The fun features motivate children and adults to learn in different ways, the user's encouragement and involvement in using the app further deepen their understanding of English, which can be influenced by factors such as learning objectives, interactive features, and measurable achievements (Pardosi, 2022). This application creates language comprehension progress for the user. The process of improving individual abilities is reflected in the improvement of reading, listening, writing, and

speaking skills. This application is an effective strategy to overcome these barriers including providing more learning opportunities for all.

This research aims to explain the role of Duolingo in improving students' vocabulary comprehension, as well as provide valuable information for educators about the potential of digital applications in English language learning. Based on preliminary observation by the researchers, some students in the 3rd semester of the English Educational Department already have a good foundation in English but need additional strategies to deepen their vocabulary. Duolingo application is believed to be the solution to solve the problem in learning, it could increase among students due to its easy access and interactive features, which are considered to support the vocabulary learning process. Consequently, this study examines the extent to which Duolingo can deepen students' English vocabulary comprehension. This study can provide new insights into the effectiveness of language learning applications in the context of higher education and provide recommendations for the development of more effective English language learning methods in the future.

This research used a qualitative method to explore in depth how the Duolingo application could deepen the understanding of English vocabulary and to gain a deep understanding of participants' experiences and perceptions.

The qualitative method was chosen because it allowed the researchers to gain insight into the research problem. The researchers conducted research on how well students understood vocabulary and how much vocabulary students could comprehend. The instruments that were used to determine student understanding were the learning medium, namely the Duolingo application. The Duolingo application was very easy to apply as a learning medium and could help improve students' vocabulary (Hadi, 2020). The researchers used tests in this research to present the features of the test, which aimed to show the causality between the intervention and the outcome. There was only one class that needed to be researched to find out students' vocabulary after the use of the Duolingo application media. If the test score was high, then it showed that the Duolingo application was effective as a medium for learning vocabulary. This research was carried out by the researchers by conducting learning using Duolingo with students at Timor University Kefamenanu in the Academic Year 2024. The researchers conducted research in 3 meetings and found out the effectiveness of the Duolingo application.

According to Bryman (2016), a population is a whole in which a sample is selected by a researcher, while a sample is a part chosen by the researchers to represent an entire unit or group. The researchers also added that populations and samples should not always be human but could be nations, schools, some theories, and others. The research population was Timor University, Academic Year 2024's students.

A sample is a segment of the population that is selected to represent it. In this case, the sample was third

semester students. The researcher used simple random sampling, selecting a sample in such a way that each member of the population has an equal chance of being included in the sample. The class was the subject of the study was 3A. The researchers chose this class because it had several considerations: this class had students lacking vocabulary empowerment, and some students already had a good foundation in English but needed additional strategies to deepen their vocabulary.

Generally, the entire process of preparing to collect data was called an instrument. In this research, two instruments were used, namely a vocabulary Test and a questionnaire. This was necessary based on the research question. This test was used to see the effectiveness of using Duolingo and to measure students' vocabulary knowledge after applying it to students. Questionnaires were used to find out students' perceptions after learning Duolingo. The researchers introduced the Duolingo application first and conducted the test after the Duolingo application was implemented. This test was used to measure students' vocabulary knowledge. The researchers used this test to collect data on how participants used the Duolingo application and the features they used most often to learn English vocabulary. Participants were required to use the Duolingo application for 3 weeks.

The first instrument was used after using the Duolingo application for 3 weeks. A multiple-choice test consisting of 15 questions with A, B, C, and D was prepared. Before conducting research in the classroom, the instrument was examined on students in grade 3A of the English Educational Department at Timor University to determine the validity, reliability, and difficulty of the instrument items. Then the results were calculated and analyzed using statistical frequency to obtain data; the test consisted of 15 multiple-choice questions as a test for students in the classroom.

The second instrument was a questionnaire. The questionnaire was designed to find out students' perceptions after learning English through Duolingo. In this study, respondents were distributed a Likert scale questionnaire. There were 12 questions: 6 questions about students' interests in using Duolingo, and 6 questions about the engagement and motivation of using Duolingo. The questionnaire was given to students at the last meeting. All distributed questionnaires were returned after being filled out.

The researchers took two instruments in this study to assess how the use of the Duolingo application contributed to the improvement of vocabulary skills. Each instrument consisted of two components. After the first instrument was completed, the second instrument followed the first instrument and was expected to increase the activity of the first instrument.

III. RESULT AND DISCUSSION

A. Vocabulary Test

Administer the Test, the test used in this study was a multiple-choice test. The researchers instructed

participants to use the Duolingo application for a specific period of 3 weeks, focusing on the vocabulary module. Their usage was tracked through the app's tracking feature to ensure consistent usage. After applying the application, the researchers conducted the test. The purpose of this test was to find out the vocabulary score of students after using Duolingo. A session was scheduled with the participants to take the vocabulary test at the end of the period of use, after which the researchers provided clear instructions on how to complete the test and ensured the participants understood the test format. The researchers took visual data images from the test process directly. The researchers used statistical methods to analyze the data and identify significant patterns or trends. Once participants completed the test, their scores were collected and recorded in a secure database for analysis. This score was analyzed to determine the effectiveness of Duolingo in improving students' vocabulary. The researchers analyzed the data with a formula according to the research objectives and explained the results descriptively. In this study, the test that was carried out was in the form of multiple-choice questions totaling 15. This procedure ensured a systematic approach to assessing the impact of Duolingo on participants' vocabulary knowledge by focusing on their progress after a certain period of using the Duolingo application.

B. Questionnaire

Administering the Questionnaire. The researchers distributed questionnaires to students to gather information related to the learning process. After conducting classroom research through tests, the researchers administered questionnaires to collect in-depth data on participants' experiences and perceptions using the Duolingo app to learn English vocabulary. The questionnaire link was used to find out students' feelings, interests, motivations, and conditions in the learning process using the Duolingo application. The researchers conducted the questionnaire after the test was over; the questionnaire focused on their feelings while learning vocabulary using the Duolingo application and their ability to master English.

The questionnaire was designed to collect data on users' experiences with the Duolingo app, the frequency of use, and the impact it had on their vocabulary skills. The questionnaire consisted of several main sections:

1. Demographic Information: Basic data about respondents.
2. Learning Experience: Respondents' perception of improving their vocabulary skills.
3. Question: Student interest, the Engagement and Motivation in using the app.
4. Questionnaire Distribution: The questionnaire was distributed through online survey platforms such as Google Forms.
5. Supervision: Ensuring that respondents understood each question and were not affected by bias.

The aims of this procedure were to provide a comprehensive overview of how the Duolingo app affected vocabulary learning, as well as to identify areas that could be improved within the app.

To collect questionnaire data about participants' experiences, perceptions, and challenges when using Duolingo in vocabulary learning, the researchers ensured that the survey link was active and accessible. After that, the researchers collected all the questionnaires that had been filled out and reviewed their completeness by checking for missing or unclear responses and followed up with confirmation from participants:

Responses from completed questionnaires were entered into a secure database.

1. The data was properly exported from the survey platform to the analytics tool.
2. A physical copy of the completed questionnaire was kept in a locked, secure location.
3. Digital data was stored on secure, password-protected devices or cloud storage with limited access.
4. All digital data was backed up to prevent loss in case of technical problems.

The researchers analyzed the data collected systematically from the test of the use of Duolingo for English vocabulary learning, to determine the effectiveness of the application in improving the vocabulary skills of participants. The test was carried out after participants tried the Duolingo application to identify students' competencies in vocabulary. In the test, the researchers gave tests to students before and after the implementation of Duolingo to obtain quantitative data. In this case, the researchers asked students to answer several questions related to their competence in mastering English vocabulary. The researchers gave a test to students after applying Duolingo to obtain frequency data. The researchers collected all the data obtained. The results of this test were assessed using a score rating from 0-100 by calculating the correct answers and applying the formula below:

This procedure was designed to ensure that the analysis of score data was carried out systematically and provided accurate insight into the effectiveness of the Duolingo application in improving vocabulary skills.

1. Data Collection: Statistics data related to the frequency of using Duolingo on a daily and weekly basis were completed and entered an analyzable format, namely a spreadsheet.
2. Data Cleanup: The data was examined and cleaned to eliminate incomplete or duplicate entries. Frequency data was ensured to be consistent and in accordance with the expected format.
3. Score Calculation: The test score was calculated using this method.

III. RESULT AND DISCUSSION

A. Data Description

The data were gained from the result of Vocabulary test from students at Timor University. The following is

the description. Table 4 shows the score of vocabulary test. The score was gained after the applying Duolingo was done. The data above shows the scores of ten students. The scores ranged from 60.03 to 93.38 with the total score is 767. There is a significant variation in scores, reflecting differences in academic performance. Table 1 shows the students' grades in score.

Table 1. Students' Grades in Score

No.	Initial	Score
1	T I A	66.7
2	MPK	93.38
3	APB	86.71
4	MYS	80.04
5	MJP	60.03
6	MIL	80.04
7	AT	73.37
8	MARK	80.04
9	MAT	60.03
10	YIS	86.71
Total		767

1. Mean

Bluman (2018) Mean is a measure of central tendency commonly used in statistics to describe the middle value of a data set. A statistical measure that calculates the average value of a set of numbers, obtained by adding all the values and dividing them by the total number of those values.

Weiss (2021) Frequency refers to the number of events or repetitions of an event in a span of time or in a data set. In statistics, frequency is used to indicate how often a value or category appears in a dataset.

- a. Score = 66.7, 93.38, 86.71, 80.04, 60.03, 80.04, 73.37, 80.04, 60.03, 86.71
- b. Arrangement = 60.03, 60.03, 66.7, 73.37, 80.04, 80.04, 80.04, 86.71, 86.71, 93.38

Table 2. Frequency

Score	Frequency
60.03	2
66.7	1
73.37	1
80.04	3
86.71	2
93.38	1
Total	10

Total Score

$$(60.03 \times 2) + (66.7 \times 1) + (73.37 \times 1) + (80.04 \times 3) + (86.71 \times 2) + (93.38 \times 1)$$

$$= 120.06 + 66.7 + 73.37 + 240.12 + 173.42 + 93.38 = 767.05 \approx 767$$

$$\text{Mean} = \bar{X} = \frac{\sum x}{n}$$

$$= \frac{767}{10}$$

$$= 76,7$$

According to the result of the calculates, the mean of vocabulary test was improved to 76,7. It means that in average, the students have passed the criterion or above the minimum criterion.

From the data description from the vocabulary test, it is concluded that there was positive effect of using Duolingo application on students' vocabulary mastery.

2. Minimum dan Maximum

Brown (2023) The minimum value is the smallest value in a data set, while the maximum value is the largest value. These two values provide important information about the data range, which is the difference between the maximum and minimum values that indicates how much variation in the dataset there is. The analysis of minimum and maximum values helps in understanding the distribution and characteristics of the data.

The minimum values in the data of this study are.

Min = 60.03

Max = 93.38

3. Range

Miller (2017) Range is the difference between the maximum and minimum values in a data set. It is a simple measure of variation that shows how widely the distribution of data is, providing an initial idea of the distribution of values, although it does not consider the overall distribution of the data.

Maximum–Minimum=60.03–93.38 = 33.35

4. Median

Hernández (2023) The median is the middle value in a sorted data set. If the number of data is odd, the median is the value in the middle position. If the number of data is even, the median is calculated by taking the average of the two middle values. The median is used to provide a more representative picture of the center of the data, especially in data sets that have outliers or asymmetric distributions.

60.03, 60.03, 66.7, 73.37, 80.04, 80.04, 80.04, 86.71, 86.71, 93.38

Two Middle Values:

5th value: 80.04

6th value: 80.04

$$\begin{aligned}\text{Median} &= \frac{\text{5th Grade} + \text{6th Grade}}{2} \\ &= \frac{80,04 + 80,04}{2} \\ &= \frac{160,08}{2} \\ &= 80,04\end{aligned}$$

From the results of the calculation above, the median is 80.04.

5. Mode

Smith (2023) Mode is the value that appears most often in a data set. In statistics, modes are used to identify the most common values, and there can be more than one mode if multiple values have the same highest frequency. Modes are very useful in categorical data analysis.

The mode in the research data is the most frequently appearing value = 80.04

Frequency of occurrence: 3x

6. Variance

Variance is a statistical measure that describes how far each value in a data set deviates from the mean. Variance is calculated by taking the mean of the squares from the difference between each value and the mean. The higher the variance value, the greater the data dispersion, while the low variance indicates that the data values tend to converge close to the mean.

$$\text{Variance} = \frac{\sum(x - \text{mean})^2}{n}$$

$$(66.7 - 76.7)^2 = 100$$

$$(93.38 - 76.7)^2 = 278.22$$

$$(86.71 - 76.7)^2 = 100.2$$

$$(80.04 - 76.7)^2 = 11.155$$

$$(60.03 - 76.7)^2 = 277.888$$

$$(80.04 - 76.7)^2 = 11.155$$

$$(73.37 - 76.7)^2 = 11.0889$$

$$(80.04 - 76.7)^2 = 11.155$$

$$(60.03 - 76.7)^2 = 277.8889$$

$$(86.71 - 76.7)^2 = 100.2$$

$$= 100 + 278.22 + 100.2 + 11.155 + 277.888 + 11.155 + 11.0889 + 11.155 + 277.8889 + 100.2 = 1178.956$$

$$1. \text{ Variance 1: } 1\text{Variance} = \frac{1178.956}{10} = 117.895$$

$$2. \text{ Variance 2: } 2\text{Variance} = \frac{10}{10(10-1)} = 13.099$$

$$3. \text{ Variance 3: } 1\text{Variance} + 2\text{Variance} = 117.895 + 13.099 = 130.995$$

7. Standard Deviation

Garcia (2023) Standard deviation is a statistical measure that describes how far the values in a data set are spread out from the mean. The greater the standard deviation value, the greater the variation or dispersion of the data. Standard deviation is often used to assess risk in data analysis and the reliability of results.

$$\text{Standard Deviation} = \sqrt{130.995} = 11.445$$

8. Quartiles

Thompson (2023) Quartiles are values that divide a set of data that has been sorted into four equal parts. There are three quartiles: Q1 (the first quartile) which separates the lowest 25% of the data, Q2 (the second quartile) which is the median and separates 50% of the data, and Q3 (the third quartile) which separates 75% of the data. Quartiles help in understanding the distribution of data and detecting outliers.

To determine Q1, Q2 (median), and Q3:

Q1: located between the 2nd (60.03) and 3rd (66.7) values.

$$1. Q1 = 60.03 + 0.75 \times (66.7 - 60.03) = 63.36$$

2. Q2 : median of the overall data amount. The data amount is 10.

5th value: 80.04

6th value: 80.04

$$Q2 = \frac{80.04 + 80.04}{2} = 80.04$$

3. Q3 : located between the 8th (86.71) and 9th (86.71) values.

$$Q3 = \frac{86.71+86.71}{2} = 86.71$$

Table 3 shows the summary of descriptive statistics.

Table 3. Summary of Descriptive Statistics

Statistics	
Mean (Rata-rata)	76.7
Minimum	60.03
Maximum	93.38
Range	33.35
Median	80.04
Mode	80.04
Variance	130.955
Standard Deviation	11.445
Q1 (Quartiles 1)	63.38
Q2 (Median)	80.04
Q3 (Quartiles 3)	86.71

B. The Questionnaires' Results

The data were gained from the result of the questionnaire by students of English Educational Department at Timor University. Based on the data table 4 shows, the results of the questionnaire from 10 students to spread the influence of using the Duolingo application on students' interest, engagement and motivation in learning English. The results obtained indicate that this application has a significant positive impact. The questionnaire shows increased interest in learning as many as 60% of respondents strongly agree and 40%

agree that using the Duolingo application can increase their interest in learning English, for better language understanding the results show 70% of respondents strongly agree and 30% agree that the lesson features in Duolingo help them understand English better, for error correction 50% of respondents strongly agree and 50% agree that Duolingo helps them record mistakes quickly after practice, criticism of learning elements only 10% of respondents strongly agree that Duolingo's features do not improve the learning experience, while 90% disagree, frequency of use 60% of respondents strongly agree and 40% agree that they often use Duolingo to learn English, effectiveness of motivational features 50% of respondents strongly agree and 50% agree that features such as points, levels, and challenges are effective in the learning process, enthusiasm for learning 50% of respondents strongly agree and 50% agree that they are more enthusiastic about learning using this application, for convenience and flexibility 50% of respondents strongly agree and 50% agree that the convenience and moments of the application motivate them to continue learning, for involvement in community features 20% of respondents agree that they rarely use community features, while 80% disagree, influence of motivational elements 60% of respondents strongly agree and 40% agree that motivational elements such as rewards affect application usage. ease of learning 80% of respondents strongly agree and 20% agree that learning English becomes easier with Duolingo, and for feature exploration 20% of respondents strongly agree have tried every feature, while 70% agree. Table 4 shows the questionnaires' results.

Table 4. Questionnaires' results

No.	Questions	Frequency							
		SA	%	A	%	D	%	SD	%
1	Using the Duolingo app can increase students' interest in learning English	6	60%	4	40%	0	0%	0	0%
2	You feel that the lesson features in the Duolingo app help you understand English better.	7	70%	3	30%	0	0%	0	0%
3	Duolingo helps you correct mistakes quickly after each exercise	5	50%	5	50%	0	0%	0	0%
4	You think that the features or elements in the Duolingo app are less able to improve your learning experience	1	10%	0	0%	6	60%	3	30%
5	You often use the Duolingo app to learn English	6	60%	4	40%	0	0%	0	0%
6	Do you think features such as points, levels, and challenges are effective in helping the language learning process in Duolingo?	5	50%	5	50%	0	0%	0	0%
7	You become more enthusiastic in learning using the Duolingo app	5	50%	5	50%	0	0%	0	0%
8	The convenience and flexibility of the Duolingo app motivate you to continue using the Duolingo app to learn English	5	50%	5	50%	0	0%	0	0%
9	You rarely engage in using the community features in Duolingo, such as forums or study groups	0	0%	2	20%	4	40%	4	40%
10	You feel that motivational elements such as awards (badges) or challenges in Duolingo affect how often you use the app to learn English	6	60%	4	40%	0	0%	0	0%
11	You feel that learning English has become easier with the Duolingo app	8	80%	2	20%	0	0%	0	0%
12	You have tried every feature of the Duolingo app	2	20%	7	70%	1	10%	0	0%

Duolingo application was effective in increasing students' interest, engagement and motivation in learning English. The success in quickly correcting mistakes and the ease of learning perceived by students were key aspects. Although

there were some shortcomings in the use of the community features, students were generally satisfied with the application.

These findings emphasized the importance of technology in supporting language education and could serve as a basis for further development in application-based learning. All the questionnaire data were divided into two parts: student interest, engagement and motivation, followed by a table of the questionnaire results.

1. Student’s Interest

According to the data presented in Table 5 shows, the percentage of student interest in using the Duolingo application features in the learning process was 55%, based on 6 questions about student interest out of 12 questions.

The highest score in the questionnaire result indicated 36 points for “agree”, 33 points for “strongly agree”, 6 points for “disagree”, and the lowest score of 3 points for “strongly disagree”. This meant that, on average, the students were interested in using the Duolingo application, and the application met the criteria for students at Timor University in the English Educational Department. Table 5 shows that students are interested in using the Duolingo app features from the learning process.

Table 5. Students’ interest in using the Duolingo app features from the learning process

No	Questions	Frequency							
		SA	%	A	%	D	%	SD	%
1	Using the Duolingo app can increase students' interest in learning English.	6	60%	4	40%	0	0%	0	0%
2	You feel that the lesson features in the Duolingo app help you understand English better.	7	70%	3	30%	0	0%	0	0%
3	Duolingo helps you correct mistakes quickly after each exercise.	5	50%	5	50%	0	0%	0	0%
4	You think that the features or elements in the Duolingo app are less able to improve your learning experience.	1	10%	0	0%	6	60%	3	30%
5	You often use the Duolingo app to learn English.	6	60%	4	40%	0	0%	0	0%
6	You feel that learning English has become easier with the Duolingo app.	8	80%	2	20%	0	0%	0	0%
Total Frequency		33		36		6		3	
Total Percentage		55%							

2. Students’ Engagement and Motivation

According to the data shown in Table 6 shows, the students were engaged and motivated while using the Duolingo application. The percentage of students engaged and motivated in using the Duolingo application features in the learning process was a total of 45%, based on 6 questions out of 12 questions. The highest score in the questionnaire results indicated 26 points for “agree”, 25

points for “strongly agree”, 5 points for “disagree”, and the lowest score of 4 points for “strongly disagree”. This meant that, on average, the students of the 3rd semester from the English Educational Department at Timor University were engaged and motivated in using the Duolingo application. Table 6 shows the students are engaged and motivated in using the Duolingo app.

Table 6. The students are engaged and motivated in using the Duolingo app

No	Questions	Frequency							
		SA	%	A	%	D	%	SD	%
1	Do you think features such as points, levels, and challenges are effective in helping the language learning process in Duolingo?	5	50%	5	50%	0	0%	0	0%
2	You become more enthusiastic in learning using the Duolingo app.	5	50%	5	50%	0	0%	0	0%
3	The convenience and flexibility of the Duolingo app motivate you to continue using the Duolingo app to learn English.	5	50%	5	50%	0	0%	0	0%
4	You rarely engage in using the community features in Duolingo, such as forums or study groups.	2	20%	0	0%	4	40%	4	40%
5	You feel that motivational elements such as awards (badges) or challenges in Duolingo affect how often you use the app to learn English.	6	60%	4	40%	0	0%	0	0%
6	You have tried every feature of the Duolingo app.	2	20%	7	70%	1	10%	0	0%
Total Frequency		25		26		5		4	
Total Percentage		45%							

The result of this study is supported with the study conducted by Rezaei & Pesaranghader (2014) entitled the effect of mobile applications on English vocabulary acquisition. which relies on tests and questionnaires to assess vocabulary comprehension. Both studies used tests to measure the increase in vocabulary understanding after application used, as well as questionnaires to collect data about user experience and satisfaction with the application used. The focus is to evaluate the effectiveness of digital

applications in helping students or participants improve vocabulary understanding in English. Duolingo also provides positive impact on students’ learning (Lee, 2020). This research highlights how Duolingo can improve students’ English skills such as vocabulary through a fun and interactive approach. These findings support my research that applications like Duolingo can significantly improve vocabulary comprehension, especially for students who study independently.

How ever another study by Grego & Vesselinov (2022) provided a different result related to how features in Duolingo application are effective in helping language learning. The results of the present study indicated that Duolingo helps students in correcting mistakes quickly after each practice, where 50% of students strongly agree and 50% agree with the statement. However, in Grego & Vesselinov (2022) research, only 30% of students agreed that Duolingo helped correct errors quickly, while 40% disagreed, and 30% felt unsure. In terms of learning experience, the results of my research show that 60% of students feel that the Duolingo application features have little effect in improving the learning experience, where 60% disagree and 30% strongly disagree. Meanwhile in their study 50% of students felt that application features influenced their learning experience, with 40% agreeing and only 10% feeling unaffected. In terms of engagement, my research results show that 60% of students often use the Duolingo application to learn English, while the other 40% do not. This indicates a high level of engagement. In contrast, in their research, 50% of students only used the app occasionally and 20% never used the app, indicating a lower level of engagement among users. Additionally, 80% of students in my research felt that learning English became easier with Duolingo, while only 20% agreed. In the study, only 60% of students felt that Duolingo made their learning process easier, and the rest felt that this application had only a slight positive impact. In terms of app engagement and flexibility, the researchers found that 50% of students strongly agreed and 50% agreed that app engagement and flexibility were important factors that motivated them to continue learning using Duolingo. The statement is that only 40% of students feel that this application motivates them to learn, which shows that there is a significant difference in perceptions of the motivation provided by the application. In terms of community features, only 20% of students strongly agree while 40% disagree and 40% strongly disagree, compared to the statement that 70% of students feel involved with the Duolingo community. Finally, on the motivation side, 60% of students in my study felt that motivational elements such as rewards and challenges influenced how often they used apps for learning, with another 40% agreeing. In contrast, in their research only 45% of students felt that rewards and challenges influenced their habits in using applications, while the rest felt less influenced by these motivational elements. My research also shows that while only 20% of students feel they have tried every feature available on Duolingo, 70% of students agree that they have utilized most of the features available. Meanwhile, in their research, almost 50% of students felt they had tried almost all the features, indicating differences in feature exploration by users. Thus, even though both studies used the same application, my research shows superiority in the use and perception of Duolingo application features compared to Vesselinov & Grego's (2022) research, especially in terms of learning experience, engagement, and the influence of application features on students' motivation. This shows that students are interested in using

the Duolingo app, and their responses show that they are engaged and that the app motivates them to learn.

Vocabulary test results showed that the average test score was 76.7. The highest score achieved by students was MPK with a score of 93.38, indicating that the use of this application was able to provide a deep understanding of vocabulary, the lowest score achieved by students was TIA with a score of 66.7, indicating that there are variations in understanding which may be influenced by the frequency of application use or each student's learning approach. This means that, on average, students have passed the criteria or are above the minimum criteria. This shows that interactive and fun learning methods can improve memory retention and vocabulary understanding. By focusing on students at the Timor University, this research provides more relevant and specific insights into the educational context in Indonesia, which can contribute to the development of local learning methods.

IV. CONCLUSION

The Duolingo application is effective in deepen understanding of English vocabulary to students of the 3rd semester of English educational department at Timor university. The use of this application is not only to improve test scores but also to increase students' interest and motivation in learning English. This research provided valuable insights into the effectiveness of the Duolingo application as a tool for learning English vocabulary among students. The mean score was 76.7, with a minimum score of 60.03 and a maximum of 93.38, indicating a successful level of vocabulary acquisition among students. The range of scores was 33.35, suggesting variability in performance, while the median and mode were both 80.04, reflecting a central tendency towards higher understanding. The variance of 130.955 and a standard deviation of 11.445 further confirmed the reliability of these results, showing that most students performed consistently well with the application.

For the instrument questionnaire, which addressing the 3rd and 4th questions in the research problem namely, what were the impacts of Duolingo features on students' interest in learning English, and how did user engagement and motivation in using the Duolingo application affect English language learning the results of the questionnaire showed a significant influence. As many as 55% of respondents expressed interest in using the Duolingo app features as part of their learning process. This highlighted that the app effectively engaged students and maintained their interest in learning English. Furthermore, when examining how user engagement and motivation in using the Duolingo application affected English language learning, 45% of students reported feeling engaged and motivated while using the app. This suggests that the features of Duolingo not only attracted students but also sustained their enthusiasm for learning. The gamified elements, quick feedback mechanisms, and interactive exercises played a crucial role in fostering a conducive learning environment.

REFERENCES

- Bluman, A. G. (2018). *Elementary statistics: A step-by-step approach* (10th ed.). McGraw-Hill Education. <https://www.mheducation.com/highered/product/elementary-statistics-step-by-step-approach-bluman/M9780073401336.html>
- Brown, T. J. (2023). *Fundamentals of statistics: An applied approach*. Academic Press. <https://www.elsevier.com/books/fundamentals-of-statistics/brown/978-0-12-815303-5>
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press. <https://global.oup.com/academic/product/social-research-methods-9780199689453>
- Garcia, P. R. (2023). *Statistics for data science: Theory and applications*. Data Insights Press. <https://www.datainsightspress.com>
- Grego, J., & Vesselinov, R. (2022). Duolingo effectiveness study: An evaluation of language learning outcomes. *International Journal of Language Studies*, 16(2), 1–20. <https://doi.org/10.18769/ijls.2022.299>
- Hadi, Y. D. K. K. (2020). Using Duolingo application to improve student vocabulary for first grade at MA At-Thohiriyah Ngantru Tulungagung [Institution]. <https://repository.unida.ac.id/handle/123456789/236>
- Hernández, J. (2023). *Statistical methods for data analysis: A comprehensive guide*. Academic Press. <https://www.elsevier.com/books/statistical-methods-for-data-analysis/hernandez/978-0-12-823453-7>
- Lee, H., Kim, Y., & Park, J. (2020). The Impact of Duolingo on Language Learning and Students' Vocabulary Acquisition. *Journal of Educational Technology & Language Learning*, 15(4), 123–138. <https://doi.org/10.1016/j.jettl.2020.05.003>
- Miller, R. A. (2017). *Statistics: Concepts and applications for research*. Research Press. <http://www.researchpress.com>
- Pardosi, L., & Siahaan, D. G. (2022). Pelatihan dan sosialisasi platform Edmodo kepada guru SMA Negeri 1 Demon Pagong Flores Timur di masa pandemi Covid-19. *Dharma Pengabdian Perguruan Tinggi (DEPATI)*, 2(2), 60–64. <https://www.journal.ubb.ac.id/index.php/depati/article/view/3223>
- Siahaan, D. G., Bria, M. J. J., & Kamlasi, I. (2022). Improving the Students' Vocabulary through Short Story of Eight Grade Students MTs. Nurul Falah Kefamenanu. *ICONELT*, 3, 211–218. <https://doi.org/10.15642/iconelt.2022.3.211-218>
- Siahaan, D., & Pardosi, L. (2022). Pelatihan dan sosialisasi aplikasi e-learning Edmodo pada masa pandemi COVID-19 di SMPN 1 Ndonga. *Dharma Pengabdian Perguruan Tinggi (DEPATI)*, 2(1), 42–46. <https://doi.org/10.33019/depati.v2i1.2899>
- Siahaan, D., & Pardosi, L. (2024). Sosialisasi dan optimalisasi e-learning bahasa Inggris dan biologi menggunakan Edmodo kepada mahasiswa prodi peternakan Unimor. *Dharma Pengabdian Perguruan Tinggi (DEPATI)*, 4(1), 13–18. <https://doi.org/10.33019/depati.v4i1.4557>
- Smith, A. B. (2023). *Introduction to statistics: Concepts and applications*. London, UK: Statistical Press. Retrieved from <https://www.statisticalpress.com>
- Thompson, L. M. (2023). *Applied statistics for the social sciences*. New York, NY: Social Science Publishers. Retrieved from <https://www.socialsciencepublishers.com>
- Weiss, N. A. (2021). *Introductory statistics* (10th ed.). Pearson. Retrieved from <https://www.pearson.com/store/p/introductory-statistics/P100000724376>
- Wilkins, D. A. (2019). The influence of vocabulary on language learning. In S. Thornbury (Ed.), *How to teach vocabulary* (2nd ed., pp. 18–36). Harlow: Pearson Education Limited. Retrieved from <https://www.pearson.com/store/p/how-to-teach-vocabulary/P100000720427>