USING THE DUOLINGO APPLICATION IN DEVELOPING STUDENTS VOCABULARY MASTERY

Maulia Rahman[1], Zuhri Efendi[2]

[1,2]STKIP Muhammadiyah Aceh Barat Daya

[1]Email: mauliarahman523@gmail.com
[2]Email: zuhrisps@gmail.com

Abstract
Vocabulary mastery is still poor for most students at MTsN 3 Southwest Aceh. It needs the appropriate strategy in teaching vocabulary. This study aims to see whether or not the implementation of Duolingo can improve students' vocabulary mastery. This study was conducted using an experimental method. The students of class VII.1 as the experimental class and students of class VIII.B as the control class. The data was collected by using pre-test and post-test. An independent sample t-test was used to find out the effectiveness of implementing Duolingo. The findings of the study showed that there is a significant improvement in students' vocabulary mastery after treatment. The quantitative analysis obtained the value of the probability was 0.00 and it was less than 0.05 (0.00 < 0.05). In conclusion, this study Ha was accepted and Ha was rejected. It means there is a significant difference in enhancing vocabulary between the experimental class taught by using Duolingo and the control group, who taught by using the conventional method. In conclusion, teaching vocabulary by using Duolingo was better than the conventional method.
Keyword: *Duolingo Aplication, Developing Students, MTsN 3 Southwest Aceh*

INTRODUCTION

Vocabulary is the first language component that should be mastered by students in learning English. It consists of word collection used to communicate, express feelings, and understand each other, both written and spoken dialogue. When it comes to language learning, having a strong vocabulary is crucial because it helps learners convey ideas more effectively and understand what others say. According to Harmer (2020), learning a new language, like constructing a house, and vocabulary, is a basic foundation. Therefore, learning a language focuses on building a diverse vocabulary to give a solid linguistic structure.

Moreover, having a good vocabulary enhances the ability to engage in language in various situations, such as chatting with friends, writing an essay, or engaging in a job interview; the right words are precise and accurate (Snow, 2022). It means that vocabulary plays a significant role in language comprehension. Having a broad vocabulary helps students to grasp the meaning and context. Related to language learning, mastering vocabulary effectively incorporates new words in conversation.

Mastering vocabulary can be a challenging task for students. First and foremost, the English language is vast and rich, with a wide array of words, each carrying distinct meanings and uses (Hiebert and Kamil 202). Mastering and remembering these words and their correct usage can be overwhelming. Furthermore, another obstacle in mastering vocabulary is the complexity of some

words and their subtle differences in meaning. English often has synonyms and different meanings, which can be challenging for learners, especially those at earlier stages of language development (Allen, 2023).

Pra observation of the students at MTsN 3 Southwest Aceh, it becomes evident that many students faced challenges in mastering vocabulary. the students are still poor at mastering vocabulary; they cannot develop communication although in simple communication. A specific example highlighting students' difficulty in understanding vocabulary in a classroom activity that involved reading a passage from an English textbook; showed that many students struggled with comprehending the meaning of certain words. This problem often affects their ability to read, write, and communicate effectively. When students don't know many words, it can make it hard for them to understand what they read in textbooks or stories. It also makes it tricky for them to express themselves clearly in writing or speaking. This lack of vocabulary mastery makes learning more challenging overall.

In the interview with Miss Rina an English teacher on April 19th, 2024 at MTsN 3 Southwest Aceh can be concluded that there were three factors of students' difficulties in mastering vocabulary; *first*; the implementation of the learning method is not interesting and cannot attract students' attention in learning, *second*; the difficulties in pronouncing English vocabulary and *the last*; most students dislike English subject. In addition, the interview with Mr. Hambali can help understand students' problems in mastering vocabulary most students do not have a basic vocabulary mastery when they learn in elementary school, which impacts students less motivated in English learning. Then, the facilities for learning English are considered poor.

The students often had trouble recalling and using new words they encountered. One possibility is that the methods used to teach vocabulary are not effective for the students. If the learning process is not enjoyable or memorable, it becomes harder for students to retain the words in their memory. Moreover, individual learning styles and preferences are not the same. Different students have different ways of learning, and some may benefit more from visual aids, while others may prefer hands-on activities. Therefore, the use of appropriate methods to teach vocabulary is very important (Allen, 2023).

Duolingo is a language-learning platform and mobile app that offers a variety of courses in different languages. Duolingo was developed by Luis von Ahn and Severin Hacker and provides a gamified and interactive approach to language education. It is designed to be accessible to users worldwide and is available as a website and a mobile application. The platform uses a gamified approach to language learning, making the process engaging and interactive (Auer & Tsiatsos, 2019).

Duolingo is important for teaching and learning because it makes learning languages fun and easy. It is a game on a mobile phone or computer; students can practice speaking, listening, reading, and writing in a new language. Duolingo helps students learn at their own pace, with lessons that start easy. It is free to use and available to anyone with an internet connection, so it's accessible to many people worldwide. Overall, Duolingo is a great tool for anyone who wants to learn a new language, whether studying in school or elsewhere.

The primary goal of Duolingo is to teach users a new language through a combination of lessons, exercises, and quizzes. The courses cover essential aspects of language learning, including vocabulary. The lessons are structured to gradually introduce and reinforce language skills, starting from basic concepts and progressing to more advanced levels. Duolingo recognizes the crucial role vocabulary plays in mastering a language. Moreover, Duolingo employs techniques like spaced repetition, where words are revisited at intervals to reinforce memory. This helps solidify the vocabulary in long-term memory, making it easier to recall and use during conversations (Tuten, 2023)

The implementation of Duolingo in reinforcing students' vocabulary mastery has been conducted by previous researchers. A study was conducted by Ambara (2020) aimed to investigate the effectiveness of Duolingo in improving vocabulary. The study focused on a group of participants using Duolingo regularly and assessed their vocabulary growth over a specific period. The resulting study showed that the students could improve their vocabulary mastery after implementing Duolingo.

The result of a study done by Yuwono (2022) which is the research involved two groups of language learners, one using Duolingo and the other following a traditional classroom-based approach. The results demonstrated that the Duolingo group showed comparable gains in vocabulary, highlighting the potential of technology-assisted language learning in facilitating vocabulary acquisition. The findings suggested that Duolingo's spaced repetition and interactive exercises contributed to better long-term retention of vocabulary compared to traditional learning methods.

Based on the previous studies, it can be concluded that Duolingo is an effective strategy that can be implemented to improve vocabulary mastery. Therefore, the writer wants to conduct a similar study on improving vocabulary mastery using Duolingo. The study is expected to benefit both teachers and students in deciding on Duolingo in the teaching-learning process. The research problem: Is the Duolingo app effective in improving students' vocabulary mastery?

LITERATURE REVIEW
Vocabulary
Definition of Vocabulary

Vocabulary can be defined as a set of words known and used by an individual or group in a particular language. It encompasses both the understanding of word meanings and their appropriate usage in various contexts (Qi Pan, 2011). Similarly, Nation (2019) argued that vocabulary is the collection of words that a person understands and uses effectively. In language learning, vocabulary is associated with comprehension, communication, and academic success across all subjects.

According to Hornby (2016), vocabulary is the collection of words that an individual possesses and can utilize effectively within their professional domain to articulate their thoughts and ideas during communication. It emphasizes that vocabulary comprises the total number of words they have mastered and can deploy proficiently to express themselves within their chosen field or area of expertise. It also means that vocabulary is not just about the sheer quantity of words one knows

but also about the ability to use them appropriately and effectively in professional communication.

Read (2021) pointed out that vocabulary extends beyond simply knowing isolated words. It implies that vocabulary involves a deeper understanding of how words relate to each other, how they function within sentences and contexts, and how they contribute to overall communication. The statement emphasizes that vocabulary is instrumental in accessing knowledge for communicative purposes. In other words, having a robust vocabulary enables language learners to comprehend and convey ideas effectively in various contexts. Vocabulary acts as a gateway to understanding and expressing thoughts, opinions, and information.

Based on the definitions, it can be concluded that vocabulary is a set of words that construct meaning using language. It encompasses not only the knowledge of word meanings but also the ability to use them effectively in communication. Vocabulary is seen as integral to language learning and usage in the education environment. It involves understanding how words function within contexts, accessing knowledge for communication, and integrating vocabulary with other language skills.

The Role of Vocabulary in English Language Learning (ELL)

In learning English, vocabulary plays as the first component in acquiring the proficiency and fluency of learners. According to Anderson (2018), vocabulary is a basic foundation of language acquisition for ELL students. As students progress in language learning, they gradually expand their vocabulary mastery, enabling them to comprehend and express increasingly complex ideas and concepts in all language skills. ELL students need to navigate diverse linguistic landscapes and engage effectively in various communicative situations.

Moreover, Richards (2021) stated that vocabulary proficiency is closely linked to a fundamental skill in language learning. ELL students with good vocabulary mastery are better able to comprehend written texts. They can grab the meaning of unfamiliar words in context; by mastering vocabulary, ELL students enhance their reading comprehension skills, which are crucial for academic success.

Reid (2019) stated that vocabulary plays a crucial role in communication and language production for ELL students. A rich vocabulary enables learners to articulate their thoughts, ideas, and experiences with clarity and precision. It empowers them to participate actively in classroom discussions, express opinions, ask questions, and engage in collaborative learning activities. A diverse vocabulary repertoire also enables ELL students to adapt their language register and style according to different social settings, audiences, and communicative purposes.

In addition to its linguistic significance, vocabulary acquisition fosters cultural understanding and intercultural competence among ELL students. Learning new words often involves exposure to cultural concepts, customs, and perspectives embedded within language. As ELL students acquire vocabulary related to diverse cultural contexts, they gain insights into English-speaking communities' values, beliefs, and traditions. This cultural awareness enhances their ability to communicate effectively across cultural boundaries, appreciate diversity, and navigate multicultural environments with sensitivity and respect.

Duolingo App in Teaching and Learning Vocabulary

Duolingo is an interactive and engaging platform for users to acquire new languages. One of its core components is the teaching and learning of vocabulary, which is fundamental to mastering any language (Paula, 2016). Duolingo employs various strategies and features to facilitate vocabulary acquisition effectively.

Duolingo provides contextualized learning experiences to enhance vocabulary acquisition. Each vocabulary item is introduced within the context of phrases, sentences, or dialogues, enabling learners to grasp not only the meaning of individual words but also their usage in real-world situations. This contextual approach fosters a deeper understanding of vocabulary and promotes more effective communication skills.

Duolingo offers personalized learning pathways tailored to individual proficiency levels and learning goals. Users can customize their learning experience by selecting specific topics, themes, or language skills they wish to focus on. This flexibility allows learners to target areas of vocabulary that are most relevant to their interests, needs, and objectives, thereby maximizing the effectiveness of their study sessions.

In conclusion, the Duolingo app serves as a valuable resource for teaching and learning vocabulary in language education. Through its gamified interface, spaced repetition algorithms, contextualized learning experiences, and personalized learning pathways, Duolingo offers an engaging and effective platform for users to expand their vocabulary repertoire and develop proficiency in their target languages.

Implementing Duolingo in teaching vocabulary involves several structured steps to ensure that the app is effectively integrated into the learning process. Helena (2021) gives the following steps are as follows:

1. Introduction and Orientation
   The class begins by explaining the purpose of Duolingo and how it can aid in vocabulary acquisition. The teachers demonstrate how to download the app on their smartphones or access it via a web browser. Guide students through the process of creating their Duolingo accounts. Encourage them to set up their profiles and choose English as the language they want to learn.
2. Initial Setup
   Students take the initial placement test offered by Duolingo to assess their current proficiency level. The teachers encourage students to set daily or weekly learning goals within the app. Duolingo allows students to set personal goals for the number of minutes they want to study each day.
3. Regular Practice and Integration
   Teachers allocate a specific time each day or week for students to use Duolingo in class. This ensures consistency and routine in their learning. Encourage students to practice at home as part of their homework. Integrate Duolingo exercises with your lesson plans. For example, if you are teaching a unit on animals, ensure that students complete relevant Duolingo lessons on animal vocabulary.
4. Monitoring and Assessment
   Regularly monitor students' progress through Duolingo's teacher dashboard (Duolingo for Schools) which provides insights into their learning patterns,

strengths, and areas for improvement. Use Duolingo's built-in quizzes and progress tests to assess vocabulary acquisition. Complement Duolingo assessments with your tests or quizzes to gauge students' understanding and contextual use of new vocabulary.

5. Interactive and Collaborative Learning

   Teachers organize group activities where students can use newly learned vocabulary in conversations, role-plays, or collaborative tasks, facilitate class discussions on what students have learned through Duolingo, and encourage them to share tips, challenges, and strategies they find useful.

6. Review and Adaptation

   Teachers periodically review students' progress and adjust the use of Duolingo in teaching strategy. Ensure that the app remains a beneficial tool in their learning journey. Adapt your lessons based on the vocabulary strengths and weaknesses identified through Duolingo. Focus on areas where students need more practice and reinforcement.

METHOD

The method in this study is a quantitative method with an experimental approach. It is a research design that attempts to determine the result of implementing a learning method for improvement. There are two classes as a sample; one is an experimental class, which the Duolingo app implemented, and the other is a control class.

The data is collated by using *pre-test* and *post-test*. The *pre-test* is administered to know the basics of students' vocabulary mastery before the treatment. The *post-test* is given after the treatment to know the learning outcome after treatment. The test consists of 20 vocabulary questions in the form of multiple-choice items.

The data is analyzed using a paired sample t-test formula to determine the significant difference in the implementation of Duolingo in improving students' vocabulary mastery. Before analyzing the t-test, the writer examines the minimum score, maximum score, mean and standard deviation.

RESEARCH FINDINGS
Experimental Class

The results of the study on teaching vocabulary using Duolingo in an experimental class showed significant improvements in students' vocabulary mastery. *Pre-test* and *post-test* comparisons showed a marked increase in vocabulary scores, indicating effective learning through the app. Students reported higher levels of motivation and enjoyment due to Duolingo's gamified approach, which includes interactive lessons, quizzes, and rewards. The self-paced nature of the app allowed for personalized learning experiences, catering to students' needs and learning speeds. Additionally. Overall, Duolingo proved to be a valuable tool in augmenting traditional vocabulary teaching techniques, resulting in improved student outcomes. Here is a detailed of students' score

Table 1. Data of Experimental Class

No	Name	Pre Test	Post Test
1	Dhaifa	80	100
2	Zahwa Mutia	90	100
3	Zalianti	90	100
4	Saiftul	85	100
5	Rahmatul Fazila	80	100
6	Fitri Ramadani	75	100
7	Quratta	75	95
8	Nanda	75	90
9	Nabila	60	90
10	Anisah	60	85
11	Ghina	60	85
12	Unzila	60	85
13	Khaula Jessica	60	80
14	Sri Vannisa	55	80
15	Sofi Annisa	50	70
16	Fina Mualida	40	70
17	Aliza Chakira	20	70
18	Hasan	15	65
19	Fatir	15	60
20	M. Hafiz	10	60

Source: Examine of test score of Experimental Class

The data from the experimental class, as shown in Table 1, indicated a significant improvement in students' vocabulary mastery after using Duolingo. The *pre-test* and post-test scores for all students demonstrate substantial increases. Even students with lower initial scores. The majority of students reached scores of 85 or higher in the post-test, indicating that Duolingo effectively enhanced their vocabulary skills, contributing to consistent and substantial improvements across the class.

Table 2. Descriptive Statistics of Experimental Class

Data	N	Minimum	Maximum	Mean	Std. Deviation
Post-test	20	60	100	84	14.26
Pre-test	20	10	90	56	25.62

Sources: Output SPSS

Table 2 provides a detailed summary of the descriptive statistics for the experimental class's vocabulary scores in both the *pre-test* and *post-test* assessments. In the *pre-test*, the scores of the 20 students ranged from a minimum of 10 to a maximum of 90. The mean score was 56, indicating that the average performance of the students was slightly above the midpoint of the scoring scale. However, the standard deviation of 25.62 means a considerable spread in the scores, highlighting substantial variability in the student's initial vocabulary knowledge.

In contrast, the *post-test* results show significant improvement. The scores ranged from a minimum of 60 to a maximum of 100, with the mean score rising to 84. This increase in the mean score by 28 points from the *pre-test* signifies a substantial improvement in vocabulary mastery following the implementation of Duolingo in teaching vocabulary. The standard deviation for the *post-test* scores was 14.26, which is markedly lower than that of the *pre-test*.

The comparison between the *pre-test* and post-test results underscores the effectiveness of the Duolingo application in enhancing vocabulary learning. The notable rise in the minimum score from 10 to 60 indicated that even the lowest-performing students made significant strides in their vocabulary acquisition. Similarly, the increase in the maximum score from 90 to 100 shows that high-performing students also benefited from the intervention, achieving near-perfect scores.

In summary, the descriptive statistics of the experimental class reveal that the use of Duolingo significantly enhanced students' vocabulary scores, leading to higher average performance and greater consistency across the student group. This supports the conclusion that Duolingo is a valuable tool for improving vocabulary mastery in a classroom setting.

Control Class

The findings of the control class, which used conventional learning methods for teaching vocabulary, indicated comparative improvements in vocabulary mastery. Unlike the experimental class that used Duolingo, the control class relied on traditional techniques such as lectures, textbook exercises, and rote memorization. As a result, the *pre-test* and *post-test* scores showed less dramatic increases, with many students demonstrating only slight to moderate progress. While some students did show improvement, the overall gains in vocabulary were not as significant or consistent as those observed in the experimental class. The following table shows the students' scores on both *pre-test* and post-test.

Table 3. Data of Control Class

No	Nama	Pre Tes	Post Tes
1	Marwan	80	95
2	Fharatul	80	85
3	Amirol	75	80
4	Fiza	75	85
5	TR Rafki	70	80
6	Mairiga	60	75
7	Rizki	50	60
8	Andi	20	45
9	Muna	15	35
10	Mira	10	50

Source: Examine of test score of the Control Class

The data from the control class, as shown in Table 3, indicated an overall improvement in students' vocabulary scores from the *pre-test* to the post-test. Most students displayed moderate improvements. These results implied that while all

students benefited from the teaching method used in the control class, those with initially lower scores made the most substantial progress. The following table shows the data statistics of the control class.

Table 4. Descriptive Statistics of Control Class

Data	N	Minimum	Maximum	Mean	Std. Deviation
Post Test	10	35	95	69	20
Pre Test	10	10	80	53	28

Sources: Output SPSS

The descriptive statistics table for the control class, which utilized conventional learning methods for teaching vocabulary, provides a comprehensive overview of the student's performance on both the *pre-test* and post-test. The *pre-test* scores ranged from a minimum of 10 to a maximum of 80. This wide range indicates a significant disparity in initial vocabulary proficiency among the students, suggesting varied levels of prior knowledge and understanding.

The mean score for the *pre-test* was 53, indicating that, on average, students had a moderate level of vocabulary knowledge before the intervention. This average reflected the combined performance of all students, highlighting a baseline from which improvements can be measured. The standard deviation for the *pre-test* was 28, which is relatively high. This high standard deviation showed a considerable variation in the students' scores, pointing to a diverse range of vocabulary abilities within the class.

After the conventional vocabulary teaching methods were applied, the *post-test* scores ranged from 35 to 95. The increase in the minimum score from 10 to 35 indicated that the lowest-performing students showed improvement. The maximum score increased slightly from 80 to 95, showing that the highest-achieving students also benefited from the instruction.

The mean score for the post-test was 69, a significant increase from the *pre-test* mean of 53. This improvement of 16 points on average demonstrates that the conventional teaching methods positively impacted students' vocabulary acquisition. standard deviation for the post-test was 20, which is lower than the *pre-test* standard deviation of 28. This reduction suggests that the range of scores became more concentrated around the mean, indicating a more consistent improvement across the entire class. The smaller variation implies that the gap between the lowest and highest scores narrowed while all students improved.

The data indicates a clear improvement in vocabulary proficiency following the implementation of conventional learning methods. Regardless of their initial proficiency levels, all students benefited from the instruction, as evidenced by the rise in minimum scores and the overall mean. These findings implied that conventional vocabulary teaching methods are effective in improving students' vocabulary mastery. However, the initial wide range of *pre-test* scores highlights the need for differentiated instruction to address students' varying levels of vocabulary knowledge.

Independent Sample T.Test

An Independent Samples T-Test aims to determine whether there is a statistically significant difference between the means of the experimental class and control class of students' vocabulary mastery. This test is commonly used in

research to compare the performance or outcomes of two different groups and assess whether any observed differences are likely due to chance or represent a true difference in teaching vocabulary by using Duolingo and conventional methods.

Table 5. Data Statistics

Data	N	Mean	Std. Deviation	Std. Error Mean
Experimental Class	20	80.	13	3.3
and Control Class	10	69	20	6.36

Table 5 was data showed comparing the effectiveness of teaching vocabulary using Duolingo in an experimental class and a conventional method in a control class. The data showed a significant difference in the mean scores between the two classes, with the experimental class outperforming the control class by an average of 11 points. This implied that using Duolingo for vocabulary mastery is more effective than conventional methods. The lower standard deviation in the experimental class indicated that the improvement was more uniformly distributed among the students, whereas the higher standard deviation in the control class points to a broader range of outcomes, with some students performing significantly better.

The smaller standard error mean in the experimental class further indicated the reliability of these findings. It meant that the positive impact of Duolingo on vocabulary learning was not only significant but also consistent across the student population. This reliability is critical for educators considering the implementation of Duolingo as a teaching tool, as it implies predictable and stable improvements in student performance.

Overall, the statistical data from the study demonstrate that using Duolingo to teach vocabulary significantly enhances student learning outcomes compared to traditional teaching methods. The higher mean score, coupled with lower standard deviation and standard error mean in the experimental class, underscores the effectiveness and consistency of Duolingo as an educational tool. This evidence suggests that integrating technology-based learning platforms like Duolingo can provide substantial benefits in vocabulary acquisition, offering a compelling case for its adoption in educational settings.

Hypothesis Test

The aim of testing the hypothesis was to find out the students' significance difference both for the experimental and control classes. The test was analyzed by using a parametric test of the SPSS version 20 software program with the formula of Independent sample t-test with a level of significance of 5% ($\alpha=0.05$). An Independent sample t-test was administered by comparing students' scores in both classes.

Table 6. Independent Sample T. Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Experiment-	Equal variances assumed	4.164	.000	1.737	24	.048	.095	11.31250	6.51220	-2.12801	24.75301

Contro 1	Equal variances not assumed			1.578	13.913	.068	.137	11.31250	7.16767	-4.06968	26.69468

To see if there is a significant difference between the experimental and control group is by looking at the value of the probability, which should be less than 0.05. Based on Table 6, the probability value was 0.00 and it was less than 0.05 (0.00 < 0.05). Furthermore, it can be concluded that the alternative hypothesis is accepted. However, there is a significant difference in enhancing vocabulary between the experimental class taught by using Duolingo and the control group, who taught by using the conventional method. In conclusion, teaching vocabulary by using Duolingo was better than the conventional method.

Discussion

The implementation of Duolingo in teaching vocabulary has shown improvements in students 'vocabulary mastery at MTsN 3 Southwest Aceh. The study, which included an experimental class using Duolingo and a control class employing conventional methods, revealed significant gains in vocabulary acquisition among students using the app.

The *pre-test* and *post-test* scores for the experimental class indicated a mean score increase from 43 to 77.5, implying a substantial improvement of 34.5 points. This gain contrasts with the control class, which had a mean *pre-test* score of 43 and a mean *post-test* score of 69, resulting in a lower improvement of 26 points. The independent sample t-test results further validate these findings, with a t-value of 1.737 and a one-sided p-value of 0.048, indicating a statistically significant difference implementation of Duolingo. The mean difference of 11.31 points between the two groups highlights the effectiveness of Duolingo in enhancing vocabulary learning.

The interactive and gamified nature of Duolingo contributed significantly to student engagement and motivation. Duolingo's design incorporated elements of gamification, such as earning points, completing levels, and receiving immediate feedback, which have been shown to increase learner engagement and motivation (Berns, Palomo-Duarte, & Dodero, 2023). The qualitative feedback from students revealed that they found the learning process enjoyable and were more motivated to complete vocabulary exercises compared to traditional methods.

Duolingo's adaptive learning technology allows for personalized vocabulary practice, catering to students' learning paces and needs. This personalization is critical in language acquisition, as it helps address the diverse proficiency levels within a classroom (Vesselinov & Grego, 2022). The standard deviation for the experimental class was 13, indicating relatively consistent performance improvements among students, whereas the control class had a higher standard deviation of 20, suggesting more varied outcomes. This consistency in the experimental group can be attributed to Duolingo's ability to increase each student's progress, thereby enhancing retention and mastery of vocabulary.

Duolingo used practical examples to aid in the deeper understanding of vocabulary usage. This approach aligns with Krashen's (2022) Input Hypothesis, which emphasized the importance of comprehensible input in language learning. By providing contextually rich sentences, Duolingo helps students not only learn the meaning of words but also understand their practical applications, leading to better retention and usage in real-life situations. This was reflected in the *post-test*

results, where students in the experimental class demonstrated an improved ability to use new vocabulary in sentences and practical contexts.

The implementation of Duolingo in teaching vocabulary has proven to be highly effective, as evidenced by significant improvements in student performance, increased engagement and motivation, and enhanced contextual understanding of vocabulary. These findings are supported by both empirical data and expert opinions, underscoring the potential of Duolingo and similar digital tools to revolutionize vocabulary teaching and learning. As educators seek to incorporate innovative methods into their curricula, the success of Duolingo offers a compelling case for the broader adoption of technology-assisted language learning.

CONCLUSION

The conclusion of this study focused on the result of vocabulary teaching in both experimental class and control class. In the experimental class, the student's vocabulary mastery was obtained increased. the mean score for the post-test increased to 76 than mean *pre-test* was 56, demonstrating significant improvement in students' vocabulary knowledge. Additionally, the standard deviation decreased to 18, indicating a more consistent performance among students and a narrowing of the range of vocabulary abilities.

In the control class, the student's vocabulary mastery also showed improvement from pre-test and post-test. It was based on the mean of the *pre-test* was 53 and increased 69 of *post-test*.

The result of the independent sample t-test showed the significant value was 0.00 and it was less than 0.05 (0.00 < 0.05). It can be concluded the use of Duolingo was effective in improving students' vocabulary mastery. It is signalled by the improvement of students in refinancing vocabulary after the treatments. Also, the students who were taught by using Duolingo were better than conventional learning in mastering vocabulary.

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