EXPLORING EFL LEARNERS' EXPERIENCE TOWARD THE UTILIZATION OF DUOLINGO FOR VOCABULARY MASTERY

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Abstract: Teaching and learning vocabulary is somewhat troublesome for EFL learners, especially Indonesian learners. At this point, the majority of vocabulary teaching in the classroom still uses a traditional approach, meanwhile, the involvement of ICT in educational environments is thought to promote the advancement of learners' expertise and skills. This research aimed to examine the effectiveness of using media-based technology, especially Duolingo to enhance learners' English vocabulary mastery. In this research, the researcher used a qualitative method, a case study as the research design. This research was conducted in one of the private schools in Malang, East Java with 31 students as the participants. The results of this research showed that the majority of learners believe that learning a foreign language, especially its vocabulary, through Duolingo is straightforward because the vocabulary material is relevant to everyday life. This is supported by several findings regarding Duolingo facilities, which include easy access, user-friendly, and engaging vocabulary games and activities that enable learners to feel more motivated and enthusiastic about learning English. This research implies that Duolingo is an effective tool for supporting learners in learning foreign languages, especially mastering new English vocabulary by incorporating Duolingo as a warm-up or exercise in classroom teaching.
Keywords: *duolingo; EFL learners; vocabulary mastery.*

INTRODUCTION

The development of English skills, covering listening, speaking, reading, and writing, relies significantly on acquiring English vocabulary. As stated by Nurul, et al (2020) without an adequate understanding of the vocabulary, it is challenging for learners to master the other competencies. In learning an English language, proficiency in vocabulary is crucial for learners, enabling them to apply words effectively in communication and expression of ideas. This is supported by Yusda, et al (2020) who stated that the moment learners are able to communicate effectively in the target language, they are considered to have mastered the language. In this context, good communication includes not only mastery of grammar or pronunciation but also mastery of vocabulary, which aims to make communication more meaningful.

However, teaching and learning vocabulary is somewhat troublesome for EFL learners, especially Indonesian learners. Nadya (2020) stated that The technique of teaching has an essential effect on learners' achievement, while many learners find it difficult to improve their vocabulary because the teaching technique applied by teachers is not interesting. Most vocabulary teaching in the classroom uses traditional methods, like instruction, memorization tests, and questions in books which tends to cause some difficulties for learners, such as lack of target language and learners easily feeling bored. The other factor that causes difficulties in learning vocabulary is laziness (Sulasri, 2021), some learners are just concerned with completing the assigned task, whereas its implementation in a social context is still a long way off.

Teaching using media-based technology is considered as one of the strategies to overcome these difficulties. Ewa (2016) observed that the global trend of incorporating technology in education plays a vital role in enhancing the teaching and learning environment. It is supported by Gebremeskel (2016) who stated that using ICT

in a classroom setting can assist in the creation, sharing, support, and acquisition of knowledge as well as expertise.

As previously stated, the researchers saw learners' enthusiasm increase when the educational process involved the use of various technologies. Therefore, in order to address learners' English vocabulary issues, this research concentrated on the use of Duolingo, which is known as one of the most famous media-based technologies that most people use to learn vocabulary. Duolingo brings the main concept of learning a language while playing. This platform is considered effective as a language learning media because it provides various features of activities, such as learning vocabulary through matching games, fill-in-the-blank, translation, pronunciation, dictation, and so on (Nadya, 2020).

Furthermore, Duolingo also offers its users an autonomous learning model as a strategy where they can decide their own style in learning vocabulary. According to Rais & Netty (2022), this model is known as an independent learning process that gives freedom for learners to identify their own learning needs, learning characteristics, learning goals they want to achieve, and learning strategies that make it easier for them to get the material.

Extensive research has been conducted on the use of Duolingo to enhance learners' vocabulary mastery. Start from research conducted by Nadya Savira Hernadijaya (2020) entitled The Use Of Duolingo Application To Enhance Junior High School Student's English Vocabulary, the limitation of the research is that it does not include a list of questions used in the test and also does not explain how long the researcher conducted the research. Alike with research conducted by Rais Abin and Netty Huzniati Andas (2022) entitled The Effect of Using Autonomous Learning Model by Duolingo-Assisted to Improve Students' Vocabulary Mastery at SMPN 3 Buton Tengah, the limitation of the research is that it does not include outcome interviews even though the researcher mentions the use of interviews as one of the research methods. Moreover, in research conducted by Anton Adi P and Syafryadi (2023) entitled Students Perception on Using Duolingo for Learning English Vocabulary, the limitation of this study is that it does not examine further the challenges that learners may face while using Duolingo to improve vocabulary.

Departing from several limitations in previous research, which only focused on organizing data in order to figure out whether Duolingo was effective in enhancing learners' English vocabulary or not,

this research focused on "How does Duolingo foster learners' vocabulary mastery into their broader learning environment?" and "What are the challenges learners face in mastering vocabulary using Duolingo?" Therefore, this research focused on the Indonesian learners' perceptions in order to identify variables that influence both the efficacy and obstacles of using Duolingo to improve English vocabulary from a learner's perception

METHOD

This study adopted a qualitative method, employing a case study as the research design. Moleong (2018) defined a case study as a research approach used to generate an in-depth and diverse understanding of a complex problem or issue in its natural context. In this regard, a case study is considered as an appropriate design for the purposes of this research because the researchers aim to identify the main issues surrounding how the use of Duolingo can enhance learners' vocabulary mastery in its real-life context and also identify the challenges learners may face while using Duolingo.

The questionnaire data was distributed via Google form through WhatsApp group class. According to Apsari and Yana (2015), the collected data was examined in order to assess opinions, behaviors, and experiences as the participants progressed through the research program. In this research, the data belongs to qualitative data in the form of descriptive analysis that consists of information about the experience and the difficulty that learners face while using Duolingo. The researcher obtained final data in the form of numerical data from questionnaires and descriptive data from interviews.

Data collection involved a questionnaire and interview, adapting them from Alan Jaelani and Dilla Rachmadanti S (2020). There were 15 statements and the data were collected using five alternative points of the Likert Scale. These are Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. While the interview was conducted face to face. This research used semi-structured interviews with 6 open questions to support the Likert scale results from the questionnaire in order to obtain more in-depth and accurate information.

The researcher uses a purposive technique sample with some categories: 1) Participant has experience and is still using Duolingo; 2) Using Duolingo to learn the English language; 3) Willing to participate voluntarily in this research. In total, 31 students from a private school in Malang, East

Java, participated in the research, with information on 14 students from class XI A and 17 students from class XII IPS as participants through several categories.

Taking the framework from Miles, Huberman, and Saldana (2014), the researcher decided to analyze the questionnaire data using display calculation data, as shown in Figure 1. Furthermore, the researcher analyzed the interview data using qualitative data analysis, as shown in Figure 2. Here, they mentioned that there are three flows of the activities in qualitative data analysis, such as data reduction, data display, drawing, and conclusions. 1) Data reduction is a step where after collecting the data, the researcher selected and reduced unimportant data or even the same answer from the participant. 2) Data display was used in all phases. So in this step, the data will be organized and summarized to make it easier for researchers to draw the conclusion. 3) Conclusion drawing/verifying, in this step, the researchers begin to decide what the meaning of all answers, what the conclusion can be taken, and what the answer from all the research questions that was formulated before.

$$P = \frac{F}{N} \times 100\%$$

Note:

P : Percentage

F : Frequency

N : The number of samples
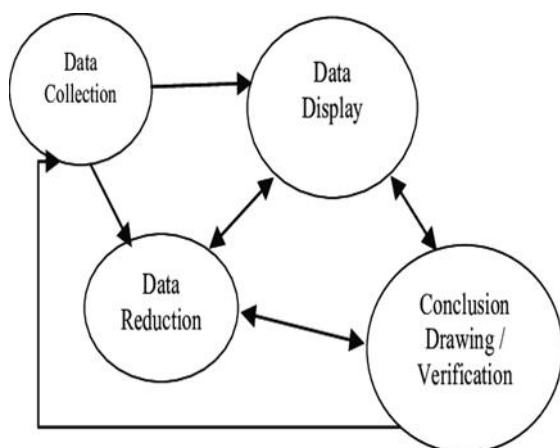
100% : Constant value

Figure 1. *Data display calculation*

Figure 2. *Qualitative data analysis*

RESULTS AND DISCUSSION
This chapter addresses the data analysis findings; the questionnaire and interview data was examined to answer the research question related to learners' perceptions regarding "How does Duolingo foster learners' vocabulary mastery into their broader learning environment?" and "What are the challenges learners face in mastering vocabulary using Duolingo?". The questionnaire and interview were divided into four major aspects of learners' perceptions on the use of Duolingo. These include learners' perceptions on Duolingo's facilities and features for learning vocabulary, learners' motivation on learning vocabulary using Duolingo, learners' understanding of vocabulary after using Duolingo, and effective tools for learning vocabulary.

Learners' perceptions on Duolingo's facilities and features for learning vocabulary
This part consists of seven statements divided into two categories: four positive statements and three negative statements. The findings of the data will be discussed further below.

Table 1. *Duolingo's facilities and features for learning vocabulary*

No	Statement	Frequency	Total Score	Percentage
1	I know the Duolingo application as a multi-language learning application	144	155	92.9%
2	Duolingo is an easy tool for learning English vocabulary	143	155	92.3%
3	Duolingo can be accessed anywhere and anytime to learn English Vocabulary.	139	155	89.7%
4	Duolingo English vocabulary questions are interesting and easy to understand	135	155	87.1%

Based on the data in table 1 above, a majority of learners affirm that Duolingo effectively aids in learning English, especially when it comes to its vocabulary. In line with the data analysis, 92,9% of learners have been familiar with Duolingo as a multi-language learning application. Furthermore,

92,3% of learners agreed that the Duolingo feature was user friendly for learning English vocabulary. In statement 3, 89,7% of learners agreed that Duolingo was accessible anywhere and at any time.87,1% of learners agreed with another statement about Duolingo's feature which presents English vocabulary questions in an engaging way.

The data above is also confirmed by the outcomes gathered from multiple interviews with learners, whose results are below:

> "Yes, Duolingo is an easy to use, apart from that, Duolingo's features are very colourful and entertaining" (Respondent 1),

> "Of course, it's very interesting because the features of Duolingo are very diverse, starting with the program, which is a game with levels and three heart, fill in the blank, translate, a narrative questions, speaking, and so on" (Respondent 2)

> "Yes, Duolingo can be accessed anywhere and anytime, I even installed it on my phone and laptop at home" (Respondent 5)

According to the findings, learners consider Duolingo a useful tool for acquiring vocabulary due to the fact that it is interesting and the features offered by Duolingo are varied & user friendly.

Table 2. *Duolingo's facilities and features for learning vocabulary*

No	Statement	Frequency	Total Score	Percentage
5	Duolingo in learning English vocabulary is boring	79	155	51%
6	Duolingo makes learning English vocabulary difficult for me.	67	155	43,2%
7	Duolingo is difficult to use if there is no internet connection	115	155	74,2%

As seen in table 2 above, those statements were made based on the weaknesses of the Duolingo application. According to the data questionnaire results, 51% of learners did not agree with the statement which said that learning vocabulary with the Duolingo application was boring and monotonous. This is supported by the following statement: 43,2% of learners said Duolingo was incredibly helpful in learning English vocabulary. This indicates that learners were not in line with negative statements about the Duolingo

application. In contrast, 74,2% of learners agree that Duolingo cannot be used without internet access.

The results of the questionnaire were also confirmed and clarified in depth through interviews as follows:

> "To be honest, Duolingo makes learning English vocabulary a breeze for me. The features are also very appealing, so I made it to unit 8, but after a while this becomes a little tedious because all of the Duolingo games are nearly identical on each unit" (Respondent 4),

> "The Duolingo app is not boring because it allows me to expand my English vocabulary" (Respondent 6),

> "The internet connection is the issue when using Duolingo. Duolingo cannot be used without an internet connection" (Respondent 1).

> "In my opinion, Duolingo is an excellent tool for learning foreign languages, especially for learners who are just starting out from scratch. The vocabulary learning offered by Duolingo is very related to everyday life usage. But I get lazy from time to time, and it's not because the Duolingo app is bad. This is more about distraction. Because my Duolingo application is on my phone, I am easily distracted by other applications or chat notifications. So, I became less focused" (Respondent 2).

> "I believe that learning to use Duolingo requires plenty of concentration and desire. We only have three chances or three hearts."

The main issue identified through questionnaires and interviews is the dependency on internet connectivity. Aside from that, learners believe that Duolingo helps them expand their English vocabulary, which contradicts questionnaire statement number 6. However, if used too often, Duolingo can become monotonous because the game method in each unit is nearly identical. These findings also stated that learning English vocabulary through Duolingo is not too boring; however, another factor that definitely stands out is laziness. Learners are easily distracted by other applications, and they become lazy when they have to restart from the beginning after losing three hearts or three chances.

Learners' understanding of vocabulary after using Duolingo
Table 3. *Learner's understanding of vocabulary after using Duolingo*

No	Statement	Frequency	Total Score	Percentage
8	I'm interested in learning using Duolingo, because it makes it easier for me to understand the meaning of English vocabulary properly	132	155	85.2%
9	Learning with Duolingo allows me to be more active in my learning at school and at home.	130	155	83.9%
10	Learning using Duolingo makes me memorize new vocabulary	136	155	87.7%
11	Learning using Duolingo makes me understand the learning material more deeply at school	127	155	81.9%

This part consists of four statements related to learners' perception while using Duolingo to learn English Vocabulary. In accordance with the findings of the data questionnaire from table 3, most learners (85,2%) agree that utilizing the Duolingo application for learning English vocabulary is a straightforward and engaging process. After several months of utilizing Duolingo, 83,9% of learners agreed that they became more engaged in the learning process, 87,7% of learners felt that the amount of vocabulary they knew began to expand, and 81,9% of learners agreed that their understanding of the learning material was additionally starting to get better.

Learning English with Duolingo provides practical applications for English skills in real-life situations. Validation of questionnaire data is supported by learner arguments from interviews. Learners express clarity in learning vocabulary through Duolingo, particularly its relevance to everyday life.

"That's right, learning vocabulary using Duolingo is very clear because the vocabulary demonstrated by Duolingo is related to everyday life, such as activities, animals, and people, which makes it easy to remember and apply" (Respondent 3)

"I enjoy learning using Duolingo because it allows me to expand my English vocabulary" (Respondent 2)

"I've been learning a lot of new vocabulary through Duolingo. As a result, my understanding of the learning material improves, and what the teacher explains becomes easier to grasp" (Respondent 6).

According to the findings, learners feel that their English vocabulary skills have evolved since using Duolingo. Apart from that, the utilization of their English skills in real-life situations, both at school and at home, is beginning to yield results.

Learners' motivation on learning vocabulary using Duolingo
The findings consist of two statements, reflecting diverse learner perceptions. The findings of the data shown in table 4 will be discussed further below.

Table 4. *Learners' motivation on learning vocabulary using Duolingo*

No	Statement	Frequency	Total Score	Percentage
12	I feel more motivated to learn using Duolingo.	132	155	85.2%
13	Duolingo has increased my enthusiasm for memorizing English vocabulary.	133	155	85.8%

The findings from questionnaire data reveal that points 12 and 13 have results with a slight difference which stated that 85,2% of learners feel more motivated and substantial 85.8% of learners exhibit increased enthusiasm in learning English vocabulary through the Duolingo application.

It is also supported by the data from interview result, as follows:

"Yes, I feel more enthusiastic and motivated to learn English" (Respondent 5)

"For the first time, I realized that learning a foreign language can be enjoyable with sophisticated technology" (Respondent 1)

"Memorizing new vocabulary becomes easier because using Duolingo feels like playing a game. I like playing games" (Respondent 6).

According to the data shown below, learners feel more motivated and enthusiastic to learn foreign languages after using Duolingo, because Duolingo simplifies the memorization of new vocabulary for learners. The integration of technology enhances the engagement and overall learning experience.

Effective tools for learning vocabulary
This part consists of two statements. The findings

of the data will be discussed further below.

Table 5. *Effective Tools For Learning Vocabulary*

No	Statement	Frequency	Total Score	Percentage
14	I feel my English skills have improved after using Duolingo	131	155	84,5%
15	I believe my English vocabulary has evolved after using Duolingo	128	155	82,6%

Duolingo, recognized as a multilingual learning application, motivates learners to enhance their English language skills, especially English vocabulary. This is supported by the result of the data, which indicated that 84,5% of learners believe their English skills have improved after using Duolingo, and 82,6% of learners believe their English vocabulary has evolved.

The questionnaire responses above are confirmed by interview data conducted with some learners, as follows:

"It's true that Duolingo is an effective tool for increasing English vocabulary" (Respondent 3)

"Duolingo not only presents new vocabulary but also teaches how to pronounce it and give some basic grammar" (Respondent 2)

"Yes, since using Duolingo, my English vocabulary has grown. Duolingo as a media based technology to learn a new language is very effective" (Respondent 1)

As indicated by the data presented in the questionnaire and interviews above, the majority of learners feel that Duolingo is effective for learning English and developing their insight into new vocabulary that they did not know before.

The researcher discovers various learner perceptions regarding the use of technology, particularly Duolingo, for improving English vocabulary. The vast majority of learners believe that Duolingo is a user-friendly program that is suitable for users of all ages, from children to adults. Aside from that, Duolingo provides its users with easy access, allowing them to learn English, especially vocabulary, anytime and anywhere. According to Khairul (2022), engaging learners in interactive vocabulary games and activities, such as word matching, crossword puzzles, or word trivia can support learners to improve their exposure to target terms, and reinforce vocabulary acquisition. Duolingo provides its users with game-based learning, with different levels and a maximum of three hearts to survive. Furthermore, the features offered by Duolingo are also quite interesting, such as narrative questions, translation, pronunciation, fill-in-the-blank, matching games, and so on. These various kinds of features offered by Duolingo allow learners not only to expand their English Vocabulary but also to put their English skills in real-life context.

Furthermore, it can be said that learners show their interest in learning English vocabulary using Duolingo. They also felt more motivated because Duolingo demonstrates vocabulary related to everyday life, such as activities, animals, and people, which makes it easy to remember and apply. The argument was affirmed by Hernadijaya (2020), who discovered that learning with Duolingo is more enjoyable than conventional classes without the use of digital media. This is due to the gamification feature, which encourages learners to collect rewards from Duolingo in order to improve their English-level achievement.

Fortunately, it can't be ruled out that Duolingo also has several flaws, starting with the fact that Duolingo can't be used without an internet connection, then the abundance of advertisements is sometimes annoying, and the games in some units tend to be monotonous, causing learners to become easily bored. One of the most common factors that learners encounter is laziness. Learners get easily distracted by multiple chat notifications and an impulse to open other applications such as YouTube, TikTok, and Instagram, which causes them to lose focus and their main goal of learning vocabulary with Duolingo. Aside from that, the heart feature means learners only have three chances to make a mistake, and if they run out of hearts, they must restart the unit from the beginning, which causes learners to become lazy about starting over. Despite shortcomings, learners firmly believe in Duolingo's effectiveness in aiding English learning, especially vocabulary acquisition. Chen (2016) asserts that Duolingo, as a mobile gamification app, engages learners effectively, providing quick feedback and correcting incorrect responses. This type of functionality is not found in any other app. Despite all the weaknesses, It still demonstrates that the gamification features initiated by Duolingo make learners take pleasure in every step of their learning process

CONCLUSION

This research endeavors to delve into learners'

experiences while using Duolingo as a medium for learning English, especially to enhance their English vocabulary. Based on the previous results and discussion, this research concluded that Duolingo is effective for learning English vocabulary. Apart from increasing students' English vocabulary, Other features of Duolingo, such as speaking and pronunciation, enable learners to utilize their English skills in real-life contexts. The learners discovered Duolingo as an interesting medium to learn a language, as proven by the positive perception they stated during the interview process. The majority of learners agree that Duolingo is very simple to use, that it can be played at any time and anywhere, and that the gamification features developed by Duolingo make the learning process enjoyable, which leads to learners feeling more motivated and enthusiastic. Even though Duolingo has several flaws, such as limited internet access and monotonous gamification features, this does not rule out the fact that all learners still agree that Duolingo is effective for learning languages, especially vocabulary because Duolingo offers its users with the opportunity to learn new vocabulary in each unit related to their surroundings. Furthermore, it is hoped that this research will inspire teachers to develop more innovative and interesting educational activities in the classroom by incorporating media-based technology. Using various games and questions in Duolingo as a warming up before learning or as a form of exercise after learning to assess learners' comprehension of the material as well as proficiency in new vocabulary represents a few of the activities that researchers use when using Duolingo as an educational tool in the classroom. In addition, for future research, the researchers hope that this research can give more insight into the use of Duolingo for vocabulary mastery. In addition, future researchers can conduct research on other skills by using Duolingo.

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REFERENCES

Abin, R., & Andas, N. H. (2022).the effect of using autonomous learning model by Duolingo-assisted to improve students' vocabulary mastery at VIII class of SMPN 3 Buton Tengah. EduLine: Journal of Education and Learning Innovation, 2(4), 415-426.

Ajisoko, P. (2020). The use of Duolingo apps to improve English vocabulary learning. *International Journal of Emerging Technologies in Learning (iJET), 15*(7), 149-155.

Al-Dosakee, K., & Ozdamli, F. (2021). Gamification in teaching and learning languages: A systematic literature review. *Revista Romaneasca Pentru Educatie Multidimensionala, 13*(2), 559-577.

Aulia, H. R., Wahjuningsih, E., & Andayani, R. (2020). The effect Of Duolingo application on students' English vocabulary mastery. *ELTR Journal, 4*(2), 131-139.

Devi, G. A. K. F. S. (2022). Children's language learning vocabulary through mobile applications: Duolingo. *Jurnal Pendidikan Tambusai, 1*(02), 88-98.

Du, Y. (2020). Study on cultivating college students' English autonomous learning ability under the flipped classroom model. *English Language Teaching, 13*(6), 13-19.

Fadilah, K. (2023). Students' perception on the use of duolingo application in learning English during covid-19. *Vision, 18*(2), 96-105.

Fithriani, R. (2021). The utilization of mobile-assisted gamification for vocabulary learning: Its efficacy and perceived benefits. *Call-Ej, 22*(3), 146-163.

Fitri, Y., Melani, M., Roza, V., & Reflinda, R. (2023). The effect of using duolingo application toward students' vocabulary mastery at the second grade Of SMPN 1 Koto Besar. *Innovative: Journal Of Social Science Research, 3*(2), 8265-8279.

Habibie, A. (2020). Duolingo as an educational language tool to enhance EFL students' motivation in writing. *British (Jurnal Bahasa dan Sastra Inggris), 9*(1), 13-26.

Hernadijaya, N. S. (2020). The use of duolingo application to enhance junior high school

student's English vocabulary. *RETAIN, 8*(2), 17-24.

Hidayati, H., Rahmaniah, R., Irwandi, I., Hudri, M., Zitri, I., & Muhardini, S. (2021). Use of Duolingo application to improve English vocabulary during COVID-19 for mining engineering students. *JCES (Journal of Character Education Society), 4*(3), 623-634.

Inayah, N., Yusuf, Q., & Fibula, N. (2020). Exploring undergraduate students' perception toward the use of duolingo in learning English. *Humanities & Social Sciences Reviews, 8*(3), 76-85.

Irawan, A., Wilson, A., & Sutrisno. (2020). The implementation of duolingo mobile application in English vocabulary learning. *Journal of English Language Teaching, 5*(1), 08-14.

Jaelani, A., & Sutari, D. R. (2020). Students' perception of using Duolingo application as a media in learning vocabulary. *Bogor English Student and Teacher (BEST) conference, 2*, 40-47.

Khotimah, K., Widiati, U., Mustofa, M., & Ubaidillah, M. F. (2019). Autonomous English learning: Teachers' and students' perceptions. Indonesian Journal of Applied Linguistics, 9(2), 371-381.

Kusumadewi, H., & Widyastuti, M. (2018). The effects of using Duolingo towards student's vocabulary mastery. *IJET, 7*(2), 172-186.

Li, X., Xia, Q., Chu, S. K. W., & Yang, Y. (2022). Using gamification to facilitate students' self-regulation in e-learning: A case study on students' L2 English learning. *Sustainability, 14*(12), 7008.

Matra, S. D. (2020). Duolingo Applications as Vocabulary Learning Tools. *Journal Of English Literature, Linguistic, and Education (JELLE), 1*(1).

Maxwell, J. A. (2008). Designing a qualitative study (Vol. 2, pp. 214-253). The SAGE handbook of applied social research methods.

Nasrul, V., & Fatimah, S. (2023). The effect of using duolingo application on students' English learning motivation and vocabulary enrichment: An experimental research at SMKN 1 Padang. *Journal of English Language Teaching, 12*(3), 933-952.

Novitasari, I., & Purnamaningsih, I. R. (2022). Students' perception of using duolingo application as an online english learning medium. *PROJECT*

(Professional Journal of English Education), 5(3), 535-543.

Nur Aziz, I., & Hoesny, M. U. (2019). The concept and application of ICT to teaching/learning process. *International Research Journal of Mathematics, Engineering and IT, 6*(2).

Octaberlina, L. R. (2023). EFL learning gamification: exploring high school learners' vocabulary acquisition through experimentation. *SALIENCE: English Language, Literature, and Education, 3*(1).

Purwanto, A. A. (2023). Students' perception on using duolingo for learning English vocabulary. Journal of English Teaching, 9(1), 70-82.

Rejeki, S., Kristina, D., & Wijayanto, A. (2020). Perception of vocational students toward the use of Duolingo and Quizlet to improve their word bank. In *The International English Language Teachers and Lecturers Conference* (pp. 102-108).

Tiara, A. D., Rahman, M. A., & Handrianto, C. (2021). The students` perception about use of duolingo application for improving English vocabulary. *International Journal Of Education, Information Technology and Others (IJEIT), 4*(4), 690-701.

UGWU, N. P., & Nnaekwe, K. (2020). The implementation of technology-based media in improving English speaking skill of hospitality students in Mataram tourism college. *Journal of English Language Teaching, 7*(2).

Van, L. K., Dang, T. A., Pham, D. B. T., Vo, T. T. N., & Pham, V. P. H. (2021). The effectiveness of using technology in learning English. *AsiaCALL Online Journal, 12*(2), 24-40.

Waluyo, B., & Bucol, J. L. (2021). The impact of gamified vocabulary learning using Quizlet on low-proficiency students. *Computer-Assisted Language Learning, 22*(1), 158179.

Yusda, D. D., Nanda, D. S., Pratiwi, T. L. M., & Haninun. (2020). An analysis of using Duolingo application in improving students' vocabulary mastery at 10th grade Of SMA Yadika bandar Lampung. *Journal of Linguistics & Language Education, 3*(2).