Using the Duolingo Application as a Vocabulary Learning Tool in Higher Education

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ABSTRACT

The use of technology in education has grown rapidly in recent years. One of the increasingly popular language learning apps is Duolingo. This app provides an easy-to-use, interactive and free way to learn many languages, including foreign languages. This study aims to determine the use of the Duolingo application as a means of learning vocabulary in tertiary institutions. This study uses quantitative methods by collecting population and samples. The data obtained through the distribution of questionnaires. The questionnaire was created by using the Google form. The number of questions is 15 with the categories strongly agree, agree, disagree and strongly disagree. The study was conducted through surveys and interviews with a number of students who used Duolingo as a vocabulary learning tool. In addition, research also observes the effect of using this application by assessing students' learning progress after using Duolingo. The results of the study show that the Duolingo application makes a positive contribution to learning vocabulary in universities. Students say the app provides a fun learning experience and inspires them to keep practicing. The app's interactive features, such as play-based exercises, also help increase learning engagement and enhance student engagement. In addition, this research also shows that students' learning progress after using Duolingo increases significantly. Using this application provides flexible learning access and allows students to study anytime, anywhere according to their interests and schedule. In short, the use of the Duolingo application as a tool for learning vocabulary in tertiary institutions can be considered effective and useful. This application can be an interesting and effective alternative to improve students' understanding and fluency of vocabulary.

Keywords: *Duolingo App, Language Learning, Learn Vocabulary*

INTRODUCTION

Language plays a very important role in higher education and education in general. Language(Gacs et al., 2020)is a basic communication tool in higher education. Students and teachers use language to interact with each other, discuss(Prikhidko & Kenny, 2021), ask questions, and provide answers. Apart from that, language is also used to convey ideas and insights(Rovira-Sugranes et al., 2022), and research in oral and written form. In the context of learning(Ardakani et al., 2020), language is used to communicate topics, explain concepts, and guide students(Yström & Agogué, 2020)in understanding information. Students learn to use language to digest, interpret, and respond to the material taught. Language is an important tool in the research process in higher education. Researchers use language to formulate research questions, design methods(MahmoumGonbadi et al., 2021), analyze data, and present results(López et al., 2020)in the form of reports or scientific articles.

Language plays an important role in understanding culture and literature(Da Veiga et al., 2020)a region or country. In high school, students learn languages to understand literature, traditions, and cultural values(Larrondo-Ureta & Ferreras-Rodríguez, 2021)different societies. University(Babicka-Wirkus et al., 2021)often have students and staff from diverse cultures and languages. Language is a bridge to integrate students from different cultures and helps them interact in an inclusive environment. Students in higher education are often asked to give presentations(Etchecopaz et al., 2021)and publish in a particular language, both spoken and written. Effective and appropriate language is used to convey information(Szymkowiak et al., 2021)and influencing audiences, language also plays a role in global competition. Fluency in a foreign language(Presbytero, 2020), like English, can open up international opportunities for students to participate in student exchanges, internships, and career opportunities abroad. Thus, language plays an important role in the educational process(Alqahtany & Jamil, 2022)in higher education, shapes students' thinking and understanding and facilitates the exchange of knowledge and understanding between students' cultures.

In college, language is important in many ways, including Education and Learning. Outside the classroom, language plays a role in social interactions between students, teachers and university staff. Language makes communication possible(Meier & Reinecke, 2021)that is effective, builds relationships, and supports collaboration in the school environment. Language also plays a role in various extracurricular activities(Díaz-Iso et al., 2020), like a language club(Schiller, 2021), cultural performances or study group meetings related to a particular language and culture. By understanding the importance of language in higher education, students are encouraged to improve their abilities(Özkal et al., 2020)language to support academic and career

success. Language ability(Lebkuecher et al., 2021)will help students participate actively in the learning process and take advantage of opportunities that exist in the academic world(Alghamdi et al., 2020)and professional. Universities as institutions play an important role in producing quality graduates(Jain et al., 2020)who are ready to face the challenges of the world of work. One important aspect in the learning process(Malik et al., 2020)in college is mastery of vocabulary, both foreign and mother tongue. Vocabulary(Jones et al., 2020)knowledge that is broad and accurate plays an important role in improving communication skills(Aslan, 2021a), both in the academic and professional fields. In lectures or studies at universities, many terms, concepts and special terms are used which require students to have a good understanding of vocabulary. By mastering relevant vocabulary, it will be easier for students to understand lesson material and obtain accurate information.

In lectures or studies at universities, many terms, concepts and special terms are used which require students to have a good understanding of vocabulary. By mastering relevant vocabulary, it will be easier for students to understand the material(Peña et al., 2021)lessons and obtain accurate information. Good vocabulary mastery allows students to communicate more fluently and accurately. While participating(Díaz-Iso et al., 2020)in class discussions, writing essays or speaking in presentations, the ability to use correct vocabulary improves the clarity and quality of communication. Learning vocabulary also helps develop thinking skills. By understanding the meaning of words and connecting them to larger concepts, students will hone their analytical and critical thinking skills. In many fields, writing skills(Pitoyo, 2020)well is a highly valued skill. Mastering a rich vocabulary will help students communicate ideas and arguments clearly and effectively in their academic writing.

Universities as institutions play an important role in producing quality graduates who are ready to face world challenges(Kaplan & Haenlein, 2020)Work. One important aspect in the learning process(Perera et al., 2020)in college is vocabulary mastery(Tskhovrebova et al., 2022), both foreign and mother tongue. A broad and accurate vocabulary plays an important role in improving communication skills, both in the academic and professional fields. The use of technology in education is an increasingly popular trend and one application that is receiving special attention in this regard is Duolingo. This app offers multiple languages including English, Spanish, French, and more. With an attractive interface, interactive learning methods, and diverse content.

Benefits of using the Duolingo applicationin college can provide a number of benefits for students. Language learning application(Derakhshan et al., 2022)which is popular and effective. Students can use this app to learn more languages related to their studies or to improve their general foreign language skills. The Duolingo app can be accessed via mobile devices(Farhad et al., 2020)or computer, so students can study anytime, anywhere at their convenience. This provides flexibility(Guarino et al., 2020)which is useful for students with busy college schedules. Students who use Duolingo to learn an additional language can improve their communication skills(Aslan,

2021b)across their cultures. This can be helpful when communicating with students from other countries or when seeking international opportunities in the future.

Review of Literature

1. Duolingo App

The Duolingo application is a learning application(Matencio et al., 2020)online foreign language designed to help users learn foreign languages interactively and effectively. This app offers many language lessons focused on vocabulary, grammar(Deslatte et al., 2022), speaking, and listening. Duolingo can be accessed via mobile devices or computers(Dehghani et al., 2020), and users can learn the language using a points and rewards system to provide extra motivation. Duolingo's main role is to support language learning. This app helps users, including students, expand their language skills, whether for academic, professional or personal purposes. Duolingo offers access to languages from around the world, making it a vehicle for understanding and appreciating cultural diversity(Frainer et al., 2020)and intercultural communication. Duolingo is the ultimate tool for learning another language. This app provides structured and varied lessons to develop vocabulary, grammar, speaking and listening skills.

Duolingo is flexible, allowing users to learn languages anytime, anywhere using their mobile devices or computers. Rewards feature(Cao et al., 2022)and Duolingo's points system works to motivate(Burmeister et al., 2021)users to continue learning and facing new challenges in language learning. The application functions as a measure of the user's progress and achievements in language learning by providing assessments at each learning stage. Duolingo supports self-directed language learning, so users can accelerate learning based on their needs and preferences. The app allows users to interact with friends and others through social features, facilitating collaboration(Browne et al., 2021)and exchange of experiences. Duolingo, an innovative and effective language learning tool, provides access to language courses from around the world and helps users advance in mastering new languages using engaging and interactive learning methods.

2. Vocabulary Learning Tools

The means of learning vocabulary in higher education refer to various tools or methods(Bommert et al., 2020)which is used to help students develop and enrich their vocabulary in the language being studied. Learning tools(Elsheikh, 2023)these can take the form of textbooks, digital apps, flashcards, language games, and many other resources specifically designed to improve vocabulary fluency. By having a richer vocabulary, students can easily understand complex and scientific texts commonly found in universities. Improved writing, larger vocabulary allows students to write with more variety, creativity, and clarity. Mastering vocabulary(Draze & Johnson, 2021)The right words help students manage exams and academic assignments, especially when answering the right questions and using the right vocabulary. For students studying a foreign language, vocabulary learning tools are

an important tool for expanding vocabulary beyond the scope of regular reading texts.

There are several previous research opinions regarding the use of the Duolingo application as a means of learning vocabulary in higher education. The first research, according to Susiandari, A., & Parwati, D. (2022), said in their research entitled Using the Duolingo Application to Increase Students' Mastery of Foreign Language Vocabulary in Higher Education. This research was conducted to investigate the impact of using the Duolingo application in increasing mastery of foreign language vocabulary. for college students and showed that students who used Duolingo regularly had a significant increase in mastery of foreign language vocabulary compared to a control group who did not use the application. According to Rusmana, P. (2023), said in his research entitled the effectiveness of the Duolingo application in improving memory and repetition of vocabulary in higher education. This research aims to evaluate the effectiveness of the Duolingo application in increasing memory and repetition of foreign language vocabulary among university students and showed that using Duolingo with adaptive repetition and training features helps improve memory and vocabulary repetition effectively. The third research according to Rifdinal, R. (2021), said in his research entitled the experience of using the Duolingo application as a means of learning vocabulary by college students. This research explored the experience of using the Duolingo application as a means of learning vocabulary by college students and showed that the majority of students felt that Duolingo is effective in expanding their vocabulary, flexible to use, and provides additional motivation in learning a foreign language.

RESEARCH METHOD

The method used in this research is a quantitative method. Quantitative research methods (Huang et al., 2020)This produces data in the form of numbers obtained by filling out a survey on Google Forms and provided to students as research subjects. Apart from that, this quantitative method produces systematic, planned and structured research. This quantitative research method is widely used in research. This quantitative method is defined as the process of systematically and realistically discovering a phenomenon by collecting information, then measuring it and ensuring its truth by filling out questionnaires and interviewing stakeholders. This research is mostly carried out through statistical research(Coenen et al., 2021)where quantitative data is collected through research studies. This quantitative research method provides truly accurate and realistic information because the final results are numbers.

The type of research is a test whose aim is to test the use of the Duolingo application as a means of learning vocabulary. The researcher's data collection technique is to search for and collect factual information(Tu et al., 2023)and up to date at that time. Data collection at observation points is a quantitative research data analysis technique. When analyzing data, one does so by describing and describing the information collected, without changing the source of the information obtained. The

first step in this quantitative research is to find the root of the problem or formulate the problem, then conduct a literature review(De Barcelos Silva et al., 2020), establish a hypothesis, determine the method to be used, determine the instrument or research tool, and carry out data analysis and finally draw conclusions.

RESULTS AND DISCUSSION

Using the Duolingo application as a vocabulary learning tool in higher education is an innovative step in integrating modern technology into the language learning process. Using the Duolingo application experienced a significant increase in vocabulary skills compared to the control group. The Duolingo application as a learning tool can effectively improve students' vocabulary skills. The interoperability and adaptability of this application allows students to learn according to their respective skill levels, so that learning becomes more effective and efficient. Most students find that this app helps them understand and memorize vocabulary better. Additionally, the interactive interactions and friendly user interface make using this app an enjoyable learning experience. The Duolingo app can be accessed via mobile device or computer, so students can learn anytime, anywhere at their convenience. This provides useful flexibility for students with busy college schedules. Duolingo offers exercises that focus on various aspects of language, including vocabulary, grammar, listening, and speaking. Students can gradually develop their language skills through varied and structured practice.

Figure 1: Example of the Duolingo application

The language learning application Duolingo is the most popular way to learn languages in the world. Learning languages on the Duolingo application is fun, students will get a lot of vocabulary and the learning method is effective. With small lessons, students will earn points and unlock new levels while improving their real language skills. Apart from providing knowledge to students, lecturers also act as facilitators of communication and the teaching and learning process. Most importantly, language teaching must emphasize language acquisition using various methods and technologies

that motivate students and increase student vocabulary, not only through textbooks and in the classroom. In these circumstances instructors play an important role in ensuring that students are enthusiastic and progress towards developing skills in the language. Students can enroll in as many courses as they want, and they're all free. Duolingo courses cover more than 40 different languages. This application is available in the web version and is also available in the Android, iOS and Windows Phone versions. Duolingo aims to create a light but powerful learning experience for its users. You can find over 100 total courses in 41 different languages, from Spanish, French, German and Japanese to Navajo and Yiddish and many more. Foreign language courses for Indonesian users are available and used by 1.74 million users. However, Indonesian language courses for English speakers are still in the development stage. Apart from language learning as a core platform, Duolingo also developed the Duolingo English Test (DET). Duolingo English Test is a digital platform that provides an alternative English Language Proficiency Test which is well recognized by many institutions.
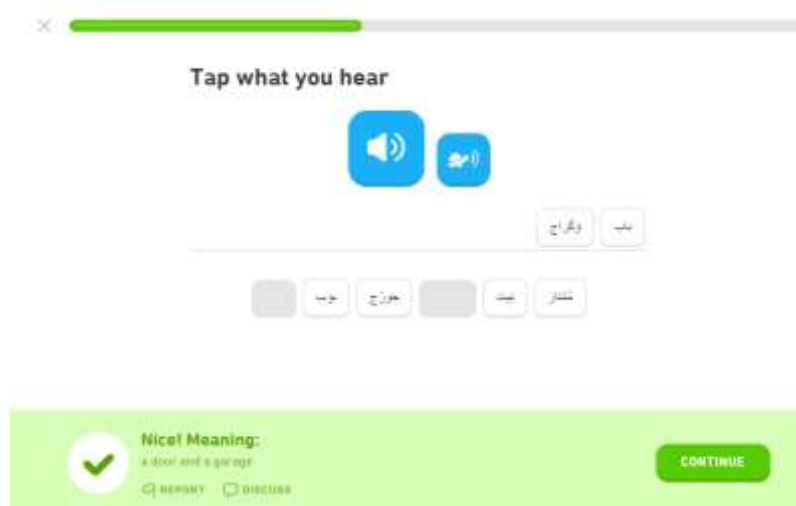

Figure 2: Example of a Duolingo App Game

Duolingo is packaged like a game so that students don't get bored easily, plus there are native speakers who can model the correct pronunciation of the language. Students can practice language skills by choosing a level according to their abilities. If the level chosen is not successful, the level will decrease, reminding them when to practice. The lessons are quick and easy to complete. This makes Duolingo a great app to use. Users also make good use of their free time during dawn and lunch hours to study. One of the interesting things about the Duolingo English Test system is that, if you answer one question correctly, the next system will adaptively become more difficult. However, if you answer incorrectly, the test system will automatically give you easier questions. To create a fun learning atmosphere, they can use the Duolingo application. The students were very enthusiastic and enthusiastic when the teaching and

training took place, they felt that the Duolingo application was very useful when used in teaching and learning foreign languages in class.

Researchers collected data about students' perceptions and responses to the use of the Duolingo application as a means of learning vocabulary in higher education, namely through questionnaires. The purpose of distributing the questionnaire is to obtain results and find out whether the Duolingo application is used as a means of learning vocabulary in higher education. With the Duolingo application, it can help students increase their vocabulary. The benefits include improving skills in foreign languages. Apart from speaking skills, Duolingo can improve other skills, such as writing, reading, translating, listening. The Duolingo application as a tool for learning foreign language vocabulary and language is very useful when used in teaching and learning foreign language activities in the classroom. useful for research and data analysis. The questionnaire contains 15 statements, which were made via Google Form. It is very important to design a questionnaire well, including choosing relevant and accurate questions, maintaining confidentiality and anonymity of respondents if necessary, and paying attention to factors such as the difficulty level of questions, order of questions, and scale. Questionnaires are often used in statistical research to collect data about desired variables. This data can then be processed and analyzed using statistical methods to identify patterns, relationships or trends in the data. The response from students who filled out the questionnaire was that they really felt helped by the presence of artificial intelligence in the learning process, they enjoyed interactive learning media that utilized the Duolingo application. In fact, they want to deepen their understanding of this extraordinary Duolingo application.

Apart from these many benefits, the Duolingo application also has disadvantages, namely that there are often vocabulary sentences in the application that are rarely used in communicating in everyday life. This problem often causes confusion when operating it. Furthermore, this application still does not have features for communicating between users. Because this application is free, there are quite a lot of advertisements which are quite disturbing the learning process. One way to be free from advertising is to subscribe to Duolingo Plus. While Duolingo is a good tool to start learning a new language, it doesn't provide a very in-depth understanding of grammar, vocabulary, and the nuances of more complex languages. Some of the exercises in Duolingo may lack in providing adequate context for real use situations in everyday life. This can cause difficulties in applying what has been learned in everyday life. The Duolingo application often relies on translation between the target language and the user's native language. This can lead to dependence on the native language and hinder the development of immediate understanding in the target language.

Figure 1: Duolingo Application Opportunity Score as a Vocabulary Learning Facility

ASPECT	
Opportunities for the Duolingo Application as a Vocabulary Learning Facility	
Agree	Don't agree

80	20

Based on Figure 1 above, it can be concluded that the potential role of applications as a means of learning vocabulary offers great opportunities and many benefits for students to deepen their foreign language and increase their vocabulary with the Duolingo application. The majority of respondents gave positive answers and reactions to the possible role of the Duolingo application in increasing students' vocabulary so that this Duolingo application has a very good influence on universities. The results of the survey conducted as part of the survey also show that the Duolingo application is very important to use as a means of learning vocabulary in higher education so that students learn happily and of course make it easier to understand foreign languages easily. One of the advantages of the Duolingo application is that to improve foreign language and increase vocabulary, students can spend their time using this application.

Figure 2: Challenge Score for the Role of the Duolingo Application as a Vocabulary Learning Tool

ASPECT	
The Challenge of Duolingo's Role in Vocabulary Learning Tools	
Agree	Don't agree
70	30

Based on the results of research completed with a questionnaire containing statements from student respondents, it can be concluded that the Duolingo application as a vocabulary learning facility faces several challenges in implementing maximum utilization. These challenges can be in the form of language limitations that are still in the development stage and have not yet reached the student's level of ability. This means that the Duolingo application still has limitations in learning foreign languages. The internal challenges of this application are self-based without direct interaction with tutors or native speakers. Although Duolongo offers a variety of languages, some languages may have more content and support than others, which could limit user choice.

Table

No	Statement	SS	S	RR	T.S	STS
1	The Duolingo application can make learning vocabulary easier	66.7%	33.3%	-	-	-
2	You will get many benefits if you can use it optimally and according to existing procedures	50%	50%	-	-	-
3	With so much vocabulary, it will progress and develop if you make	60%	40%	-	-	-

	good use of its existence					
4	towards greater development in foreign languages and quality with the Duolingo application	66.7%	33.3%	-	-	-
5	Students can spend their time using games on the Duolingo application	54%	46%	-	-	-
6	Makes learning vocabulary more conducive and fun, so that students are able to understand the lesson well, and are even more enthusiastic about asking questions and being curious	50%	50%	-	-	-
7	Using the Duolingo application saves time and energy, unlike previously using a dictionary manually	67%	33%	-	-	-
8	Students become more interested in learning vocabulary with the fun Duolingo application and are of course enthusiastic in class	60%	40%	-	-	-
9	With the Duolingo application, it makes it easier for students to find difficult vocabulary and learning resources easily, even abroad	70%	30%	-	-	-
10	Changes in learning which was initially monotonous and boring have become more enjoyable and Susana learns vocabulary more comfortably	50%	50%	-	-	-
11	Student interest increases with the Duolingo application for learning vocabulary and making assigned assignments	50%	50%	-	-	-
12	Students become more curious by utilizing the Duolingo application which can make them smart and competitive with high value	60%	40%	-	-	-
13	Students become critical in thinking and clever in	66%	34%	-	-	-

	understanding the language given by the teacher easily					
14	Lecturers get many benefits from the presence of the Duolingo application, it is more economical and practical	50%	50%	-	-	-
15	There are many advantages if you are able to make maximum use of the Duolingo application, it can even be used as a job opportunity	66.%	34.7%	-	-	-

Image: data on the results of filling out the questionnaire by students

The table above is a table of assessment results from the questionnaire given to students. Responses or responses given by students are really needed to provide an assessment of the use of the Duolingo application as a means of learning vocabulary in higher education. In this study there were 5 assessment categories, namely strongly agree (SS), agree (S), unsure (RR), disagree (TS), strongly disagree (STS). Based on the first statement that the Duolingo application can make it easier to learn vocabulary, it obtained a percentage of 66.7% in the strongly agree category. Meanwhile, in the agree category, the percentage was 33.3%. Furthermore, in the statement that you will get many benefits if you can use it optimally and according to existing procedures, you get a percentage of 50% in the strongly agree category, while in the agree category you get a percentage of 50% too. The statement that with a large vocabulary will progress and develop if it makes good use of its existence, it got a percentage of 60% in the strongly agree category and in the agree category it got a percentage of 40%.

Furthermore, the statement that towards more development in foreign languages and quality with the Duolingo application, obtained a percentage of 66.7% in the strongly agree category, while in the agree category the percentage was 33.3%. The statement that students can spend their time using games on the Duolingo application received a percentage of 54% and 46% in the agree category. Furthermore, in the statement that makes learning vocabulary more conducive and enjoyable, so that students are able to understand the lesson well, are even more enthusiastic about asking questions and are curious, getting a percentage of 50% in the strongly agree category and in the agree category getting a percentage of 50%. The statement that using the Duolingo application saves time and energy, unlike previously still manually using a dictionary, obtained a percentage of 67% in the strongly agree category and in the agree category a percentage of 33%. Furthermore, the statement was that students became more interested in learning vocabulary with the fun Duolingo application and were of course enthusiastic in class, getting a percentage of 60% in the strongly agree category and in the agree category getting a percentage of 40%.

In the statement that the Duolingo application makes it easier for students to find difficult vocabulary and learning resources easily, even abroad, they obtained a

percentage of 70% in the strongly agree category and a percentage of 30% in the agree category. Furthermore, in the statement that the changes in learning which were initially monotonous and boring turned out to be more enjoyable and Susana learned vocabulary more comfortably, getting a percentage of 50% in the strongly agree category and in the agree category getting a percentage of 50% as well. The statement that student interest increased with the Duolingo application for learning vocabulary and making assignments was given, getting a percentage of 50% in the strongly agree category, while in the agree category the percentage was also 50%. Furthermore, the statement states that students become more curious by utilizing the Duolingo application which can make them smart and competitive with high value. Obtaining a percentage of 60% in the strongly agree category and in the agree category obtaining a percentage of 40%. In the statement which states that students become critical in thinking and clever in understanding the language given by the lecturer easily. Obtaining a percentage of 66% in the strongly agree category and in the agree category obtaining a percentage of 34%.

Furthermore, the statement stated that lecturers get many benefits from the presence of the Duolingo application, it is more economical and practical. Obtaining a percentage of 50% in the strongly agree category and in the agree category also obtaining a percentage of 50%. In the statement that there are many advantages if you are able to make maximum use of the Duolingo application, it can even be used as a job opportunity. Obtaining a percentage of 66% in the strongly agree category while in the agree category the percentage was 34.7%. From the results of the questionnaire above, it is evident that respondents really benefit from the Duolingo application as a means of learning vocabulary, it can even enable students to speak foreign languages and spend their time well using the Duolingo application.

CONCLUSION

Based on the results and discussion above, it can be concluded that using the Duolingo application as a means of learning vocabulary in higher education has many benefits that can make it easier for students to speak foreign languages and increase their vocabulary. The Duolingo application has shown a significant positive impact in the vocabulary learning process. This application allows students to expand and deepen their understanding of vocabulary in various languages in an interactive and flexible manner. And this application is a very interesting application in interactive and interesting learning, through a variety of exercises such as oral, written, auditory and visual comprehension. This helps maintain student interest and motivation, encouraging active involvement in the learning process.

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