CHILDREN'S LANGUAGE LEARNING VOCABULARY THROUGH MOBILE APPLICATIONS: DUOLINGO

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Abstract. This research article aims to investigate how the influence of Duolingo can help improve children's vocabulary. The data were obtained from the 10 children of 7th graders as the sample that was collected in 1 main place that was the researcher's house to make it easier to collect and observe the data. This study used the theory of language learning proposed by Halliday (1978). This study used a pre-experimental research design with a pre-test and post-test. The 10 children as the sample were practicing using Duolingo apps for 10 days, during which they had to answer 1 lesson consisting of 10 to 15 exercises every day. The collected data in this study were quantitatively analyzed by observing the children that consisted of some procedures. This study used two research instruments, namely, tests and questionnaires to answer the research questions. How can Duolingo help children improve their vocabulary? Furthermore, to present the data, this study used the tables and charts which were elaborated with symbols and numbers, to ensure validity and reliability, and described the ethical consideration in terms of the involvement of the respondents. The result of this study showed that by using Duolingo as a learning medium, children can master most of the vocabulary from all the given exercises. The scores they obtained for the post-test were much higher than the scores for the pre-test.

Keywords: children's; Duolingo; mobile application; language learning; vocabulary

INTRODUCTION

Language learning is a dynamic process that develops throughout one's life. Language is being learned by humans to communicate thoughts, feelings, and experiences, and to be able to speak a new language as the target language. Learning a new language involves four language skills: listening, speaking, reading, and writing. Besides language skills, three basic components are required to learn English to children: pronunciation, grammar, and vocabulary. It is very important for children who want to master English to learn vocabulary. Children are required to acquire sufficient vocabulary to facilitate the learning of other language skills and components (Puspita & Sabiqoh, 2017). People can still understand a language with the wrong language structure, however, without vocabulary, people can't express anything in words or writing. Laufer (1997) stated in Ambara (2020), "learning vocabulary is one of the most important elements without which neither comprehension nor production of language is possible. In another word, vocabulary cannot be separated from other language skills." More importantly, Basuki (2017) defined the importance of vocabulary as the core of the

complexity of the language and the starting point for those who learn a foreign language. Therefore, learning vocabulary was required for those who learn a foreign language.

Vocabulary is important for learning English; however, many children still lack knowledge of English vocabulary nowadays. Children tend to feel bored in the classroom due to the use of media and the lack of monotonous skills of the teacher during the teaching and learning vocabulary process. Therefore, children find it difficult to understand a sentence or to express themselves in a spoken language. However, in this age of globalization, technology plays an important role in all sectors of human life, including education. Through technology, education is more diverse and provides children with a variety of opportunities to improve their knowledge, learning, and access to online learning/educational resources. One of the popular technological advances in learning English is the Duolingo application.

Duolingo is a mobile phone application that was designed to help children feel easier and more fun in learning language, especially English vocabulary. Before entering the lesson, children can choose one of the four target time options that have already been provided by Duolingo. The options are; five minutes per day, ten minutes per day, fifteen minutes per day, and twenty minutes per day. If the children already have experience with the target language, it provides the children with a placement test. Meanwhile, if the children are still beginners in learning the target language, children start with the basics. To use this app, the children are not required to fill in any additional questions or register for the course, instead, they can jump right into the first lesson by only tapping "Start" and be faced with several exercises. The exercises can be divided into many types: Translation exercises, in which the children translate the language from the source language to the target language and vice versa; Matching exercise, in which the children look at a photo and match it to a given word or vice versa; Filling the blank exercises, in which children have to choose the right word to fill the blank of the sentence; Listening exercises, in which children listen to the short sentences in a second language and type correctly; Speaking exercises, in which children have to say words or sentences that are said by the speaker in the apps.

This study used the theory of language learning proposed by Halliday (1978) to analyze the data. Halliday (1978:9), viewed language learning as a social and cultural practice. He intentionally used the term "learning" rather than "diverting" the language. This is because language is not something that can be "learned" externally, however, it is considered to be built by interaction (Halliday, 1978:16). Halliday's study of the child language was aimed at answering the question, "What function does language play in the lives of young children?" (1978:18). To find out what a child means in an utterance, Halliday prompts asking the question, "What did the child learn using language?" For

example, a child can learn to cry and get attention very quickly. Children with hearing loss start to drop or push small items at their parents to achieve the same effect.

However, after children start to grow up and want or are required to learn a foreign language, they can no longer use the old method, namely by listening to other people randomly or being taught in a monotonous way in class, because children will tend to feel bored. For this reason, it is necessary to have a new method of learning or teaching foreign languages to children using applications from mobile phones. According to Booton, et.al. (2021) article entitled, *The Impact of Mobile Application Features on Children's Language and Literacy Learning: A Systematic Review,* mobile phone touchscreen programs give new possibilities for children to learn the language. This systematic evaluation summarizes the proof of the effect of functions of mobile phone programs on children's language learning. Therefore, leveraging mobile phone touchscreen may want to have a massive effect in assisting the improvement of language and literacy talents inclusive of vocabulary, grammar, pronunciation, reading, and writing in each first and second language of the children.

The analysis in this study focused on children's reactions to the use of the Duolingo app, both in terms of the process and effectiveness of learning new English vocabulary. The data are from 10 children of 7th graders. They are Cindy, Indah, Dwi, Ani, Febri, Diah, Devi, Ita, and Paramitha.

Review of literature. Previous Studies. It was important to review some previous studies before doing research. There were two reviews of articles relevant to this study. The first article was written by Ambara (2020) entitled *The Effect of Using Duolingo Application in Learning Vocabulary at SMAN 2 Karangan.* The aim of this article was to see how the used of Duolingo in English classes improved student's capability to learn vocabulary and how students perceived the use of Duolingo in English classes at SMAN 2 Karangan. This study used experimental research by using two types of variables, test, and questionnaire. Since the use of a questionnaire to prove the data, it means that his study used quantitative research methods. The students of XI IPA 1 and XI IPA 2 at SMAN 2 Karangan were the subjects of the study. The results of this study showed that, Duolingo has many positive effects on students. It helps students understand the material and motivated them to learn more. Students get the same turn in practicing material, which reduces boredom in learning and facilitates memorizing and exercising material in everyday situations. They were also eager to participate in teaching and learning activities. The students were enthusiastic about using Duolingo in the classroom.

The study above was similar to the current study that research about the use of Duolingo in increased children or students' mastery in English. However, the current study only focused on the children's vocabulary. This study was very clear in presenting the analysis since provides the bar charts, making it readable or easier to be understood by

the readers. However, that study did not give a conclusion in the last section, making the study looks less complete. The relevance of that study to the current study can be seen in the topic of the research which was about Duolingo application to improve children's or students' vocabulary, however, the subject of the study was different. That study was taken the data from students in the Borneo University of Tarakan, which means that they already have more knowledge about the basic English vocabulary, while the current study was taken the data from the children in Senior High School (SMPN 2 Busungbiu). Since the children were still in the 2nd stage of school and rarely used the telephone to study, their knowledge of vocabulary seems to lack, therefore, making it easier to see the differences between them before and after using Duolingo.

The second article was written by Booton, et.al. (2021) entitled, *The Impact of Mobile Application Features on Children's Language and Literacy Learning: A Systematic Review*. This study aimed at synthesizing the findings on the effect of mobile application features on children's language learning. This study employed a qualitative approach to 11 experimental studies published from 2010, involving children aged 3 to 11 years old. Since then, 11 studies have been identified that looked at four aspects of mobile touchscreen applications: inbuilt narration, real-time conversation prompts, augmented reality (AR), and hotspots. According to the findings of this study, the most commonly measured aspects of language learning were story comprehension and vocabulary or word learning, with studies also looking at parent-child talk, pronunciation, and engagement with learning. Inbuilt narration (5 studies), real-time conversation prompts (2 studies), interactive hotspot (2 studies), and augmented reality were the four device features investigated (2 studies).

The study above was also similar to the current study that research about the use of mobile applications in increased children's language. This study was very complete in the analysis and presenting the analysis. It was also analyzed the four features of mobile touchscreen applications, proving that the role of technological advances may provide a variety of learning tools, which were very useful for practicing English language skills for children. However, since that study used a qualitative approach which presented the analysis using words or sentences, the way how that study presents the analysis in the form of a paragraph was too long (more than 7 sentences in one paragraph), making the readers feel bored. The relevance of that study to the current study can be seen in the topic of the research which was about the impact of mobile applications on children's language learning, however, the subject of the study was different. That study was taken the data from 11 previous studies on the same topic that published in 2010 included the children aged 3 to 11 which belongs to the library research, while the current study was taken the data from the children in Senior High School (SMPN 2 Busungbiu) which belongs to the field research.

This study used the language learning theory proposed by Halliday (1978). Language learning, according to Halliday, is a social and cultural practice: *In the development of the child as a social being, language has a central role. Language is the main channel through which the patterns of living are transmitted to him, through which he learns to act as a member of a 'society' ... and to adopt its 'culture' (1978:9)*

Halliday intentionally used the term "learning" over "acquiring" the language. This is because language is not something that can be "learned" externally, however, it is considered to be built by interaction (Halliday, 1978:16). If the child can be said to be acquiring anything, it is his 'meaning potential' (Halliday, 1978:19).

Anything the child's hearing is systematically equivalent to measurable aspects of the environment around him (1978:18). The child may learn the language and culture through interaction with parents and caregivers.

Interaction with caregivers starts immediately after the child's born. Communication and language seem to be existent since a child starts making meaningful expressions, including smiling or crying. Parents did not need to wait until their child says recognizable phrases before beginning to study their language; they had been organized to manage for a long period of time. Before children have recognizable words and structures, it can be difficult to interpret what they are saying. This was due to the fact that the types of meaning produced by children differ from those created by adults. Halliday's study of the child language was aimed at answering the question, "What function does language play in the lives of young children?" (1978:18).

When seeking to determine the means of a child's utterances, Halliday convinces asking, "What has the child learned to do by using language?" Children, for instance, might really learn sooner than crying gets them attention; deaf children also learn to dump stuff or push items to/her families to achieve the desired result. Halliday (1975:54-59) distinguishes 3 main stages in which children progress when learning a language: The first phase was the children's first language systems; the second phase was the transformation from either the children's systems to the adult language; and the third phase was adult language learning.

Parents could observe the development of their child through all of these stages by observing the most language was their like at each stage and, in particular, what they used their language for. Parents should also keep in mind that every child was unique, as well as the ages from which children were in a specific stage can only be used as rough estimates.

Method The collected data in this study were quantitatively analyzed by observing the children that consisted of some procedures. Pre-experimental research was used in this study, with one group pre-test and post-test. This study included ten children from the seven grades in the second semester of the 2021/2022 academic year of Junior High School

at SMP N 2 Busungbiu. After finishing their studies at school, the children were instructed to practice using Duolingo for 10 days. Each day, children have to practice 1 lesson which consists of 10 to 15 exercises. A pre-test was used to assess children's vocabulary mastery before using the apps. If the post-test score is higher than the pre-test score, it means that children's vocabulary has improved and that the practice was just as successful as a medium for learning vocabulary.

In this study, two instruments were used. It was a series of tests and questionnaires. The test was used to determine the effect of Duolingo, and the questionnaire was used to assess children's perceptions following their use of Duolingo. There are two tests: a pre-test and a post-test. Before using Duolingo, the pre-test was completed. The pre-test consists of 30 basic vocabulary questions based on basic 1 and 2 questions on stage 1 of the Duolingo application to determine how far the children have progressed in their mastery of English vocabulary. However, the questions provided were merely the questions about translation and filling in the blank exercises, where children are given printed questions to work on within 30 minutes. Meanwhile, the post-test was administered following the children's practice. The goal of this test was to see how children's vocabulary scores changed after using Duolingo. The post-test consists of 30 questions drawn from checkpoint 1 of the Duolingo app, including translation, matching, filling in the blanks, listening, and speaking exercises. These questions served as a summary of all of the material from the first to the tenth day. The post-test, like the pre-test, had a time limit of 30 minutes. The results were analyzed in conjunction with the pre-test results to determine the impact of Duolingo on improving children's vocabulary.

In this study, a closed-ended questionnaire was also used. The questionnaire contains 10 questions. It consists of children's interests, advantages and disadvantages of Duolingo. The questionnaire was completed by the children at the most recent meeting. Furthermore, to present the data, this study used the tables and charts which were elaborated with symbols and numbers, to ensure validity and reliability, and described the ethical consideration in terms of the involvement of the respondents.

RESULT AND DISCUSSION

1. Result of Pre-test and Post-test

The children had been required to answer some questions about their English vocabulary proficiency in both the pre-test and post-test. The questions were of the same type, but they were not identical. The results of the pre-test and post-test were shown in table 1.

Table 1. Children's Scores

N	Name	Pre-test	Post-test

o			
1	Cindy	67	90
2	Indah	63	87
3	Dwi	63	87
4	Ani	67	90
5	Febri	60	83
6	Diah	70	93
7	Devi	77	100
8	Ita	70	93
9	Paramitha	73	97
10	Mulan	57	80

According to the table above, the highest score for the Pre-test was 77 and the lowest score was 57. From the pre-test, it can be seen that 6 children were getting scores above the average, and the rest were under the minimum criterion. To determine the outcome of the pre-test, the score was calculated to determine the mean score. The pre-test mean score was 66,7. It can be concluded that the children's vocabulary remains less because the questions in the pre-test were much easier than the questions in the post-test.

Furthermore, the highest score for the Post-test was 100 and the lowest score was 80. There were 6 children who were getting scores above the average because the post-test mean score was 90.

There was a very remarkable improvement in children's scores based on the results of the pre-test and post-test scores. The pre-test mean score was 66,7, and the post-test mean score was 90. Their remarkable improvement score was 13,3.

2. **Result of the Questionnaire**

Questionnaires were developed to collect information on children's perceptions of using Duolingo for extensive vocabulary learning. The questionnaire contains ten questions. The data can be seen in figure 1.
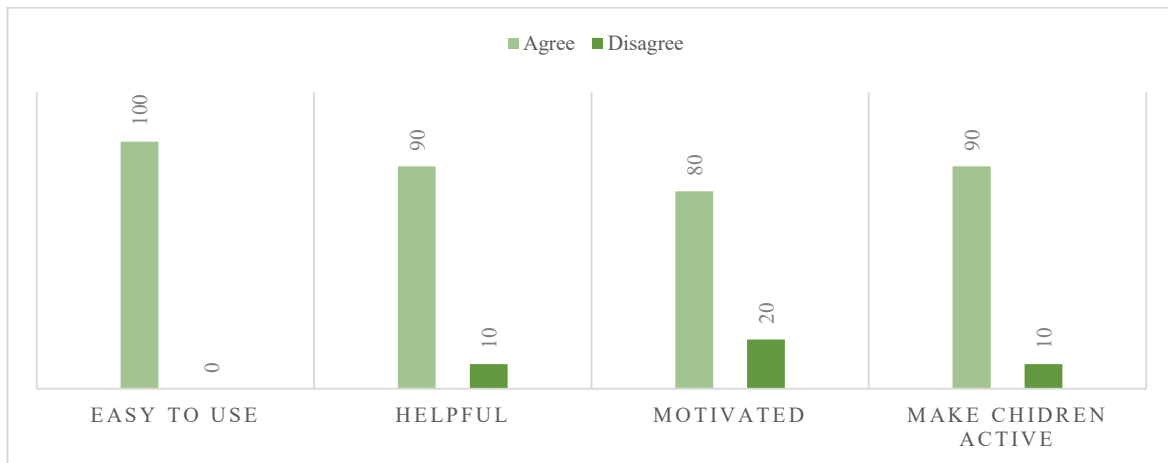
Figure 1. Children's Interests in Using the Duolingo Apps

According to the data presented above, it was discovered those children agreed on Duolingo, where 100% agreed that Duolingo was very easy to use, 90% of children agreed that Duolingo was helpful and makes them active in learning vocabulary, and 80% agreed that Duolingo makes children interested in learning vocabulary, and. It can be concluded that Duolingo aids them in comprehending and practicing their vocabulary.
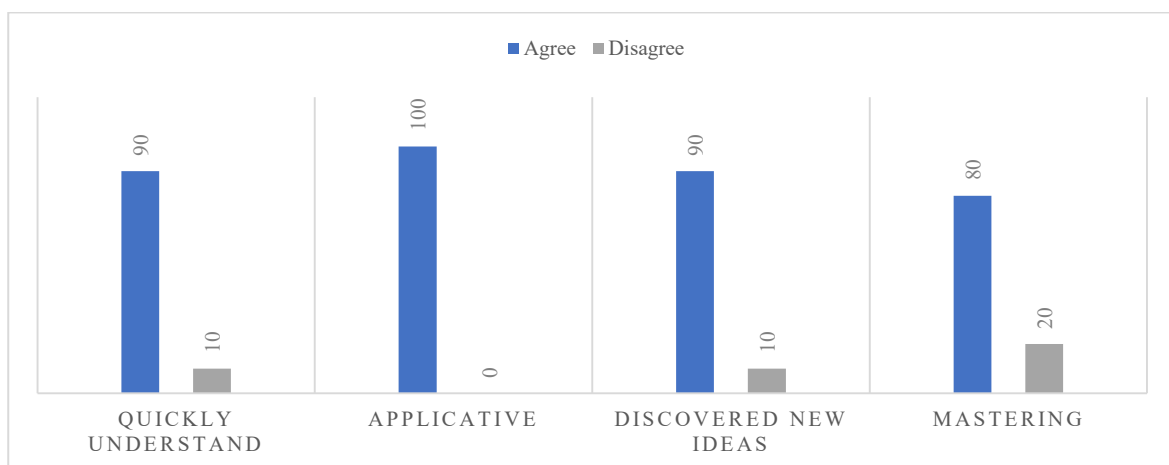

Figure 2. Advantages of Duolingo Apps by Children's

According to the data above, it was discovered those children agreed on Duolingo, 100% agreed that Duolingo was applicative to use, 90% agreed that Duolingo makes them have a better understanding and allowed them to discovered new ideas, and 80% agreed that Duolingo can help them to mastered vocabulary.

Figure 3. Disadvantages of Duolingo Apps by Children's

According to the data above, it was discovered those children disagreed on the disadvantages of Duolingo, 100% of students disagreed that Duolingo was difficult to use and less useful, 90% disagreed that Duolingo makes them feel bored during the exercises, and 80 disagreed that Duolingo makes them less expressive. However, there are still 10% who agreed that Duolingo was bored and 20% agreed on it being less expressive, which means that Duolingo has to improve their exercises system.

The study discovered that nearly all children had significantly higher post-test scores than pre-test scores. The data from post-test scores revealed that the children's scores improved. The post-test mean score was greatest than the pre-test score (66,7>90), indicating that children's vocabulary mastery has increased. The measurement progress was 13,3. According to the findings, children's scores were improved significantly before and after extensive use of Duolingo.

The results of the questionnaire indicated that the children responded positively. Children were much more eager to learn; more skilled as a result of their increased interest in learning; easier to understand the material; offering all children a fair chance to practice the material; eliminating tedium in learning; encouraging new ideas; assisting children in memorizing and practicing the material in everyday life.

CONCLUSION

The main objective of this research was to investigate the use of the Duolingo apps in English learning, improve children's vocabulary, and investigate the impact of Duolingo on children. According to the result and discussions, the conclusions were obtained as follows:

1. The findings show that by using Duolingo as a learning medium, children can master most of the vocabulary from all the given exercises. The scores they obtained for the post-test are much higher than the scores for the pre-test.

2. All children have the same opportunity to participate in learning material and practice questions from Duolingo, which can certainly increase their activity.

3. Children can connect target knowledge with the source knowledge, reduce learning anxiety, increase their attention and metalinguistic awareness during the learning process.

4. Children always feel excited and comfortable following every exercise in the Duolingo application for a long time because of the game-like learning method (with the existence of life in the game), levels, and power-ups. In addition, children are also free to access the Duolingo application without having to spend money. Children only require an active data cellular (quota) on their mobile phones to access the application.

5. Besides vocabulary, children obtain other benefits from learning using the Duolingo application where their listening and speaking skills also experience significant changes. Furthermore, that makes children look more confident in using English to communicate.

6. Children have been able to develop their competitive spirit in competing to complete each exercise in the fastest time which will directly get them a lot of diamonds to upgrade the "owl" character in the Duolingo application to make it more interesting and obtain a lot of XPs to occupy the top position of the rank in the league they are in.

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AUTHOR'S PROFILE

Gusti Ayu Komang Friska Sri Devi is a 2018 English Department student. Since the beginning of college, she must be able to support herself. However, she still takes time to join the organization to learn and gain more experience. She is an independent person and was able to take responsibility for herself and others. In 2022, it's time for her to finish her studies and move on to the next step in life.