Review Study Learning Apps in Teaching Vocabulary Using Duolingo

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Abstract. The objective of this research is to find out whether there is or not effectiveness Duolingo application in teaching vocabulary at tenth grade of SMA N 2 Purworejo. The design of this research was quasi experimental research which belongs to the quantitative method. The researcher determines this study as quantitative in the form of quasi experimental design that involves one only group pre-test and post-test. The population of this study was tenth grade of SMA N 2 Purworejo. By employing purposive sampling technique, the sample of this study are consist 36 students from X IPS 1. Then, the instrument in this research is consisted of forty question multiple choice for pre-test and post-test. To compare the result of pre-test and post-test used Mann-Whitney U-test in SPSS 16.0. The result shows the mean score of post-test it could be seen that the mean of the post-test score (73.40) was larger, that the mean of pre-test score (49.30). While, the Zvalue is 7.972 and the Ztable is 1.96. It means that Zvalue is higher than Ztable that is 7.972 > 1.96. So, it could be concluded that the use of Duolingo application in teaching vocabulary at tenth grade students of SMA N 2 Purworejo in the academic year 2019/2020 is effective.

Keywords: Effectiveness, Vocabulary, Duolingo Application

1. INTRODUCTION

English has become an international language because many people in the world use it as a means of communication. It has been learnt by the Indonesian students as a foreign language and it serves as a compulsory subject or local content subject starting at elementary school up to university level. As a foreign language, it is seriously learnt by many people to have a good prospect to be community of international world. Generally, English is very difficult to understand for Indonesian students. This language is required to master four basic language development tasks, development of vocabulary, stringing words, say words and language skills including speaking, listening, writing, and speaking. However, being able to master the skills, the students need vocabulary. The idea is to convey the message that in English, one needs to have a great number of vocabulary so that he/she could easily express her/his thought in communication [1], [2], [3].

Based on the interview with English teacher at SMA N 2 Purworejo, the researcher found that the students still lack of vocabulary. It was found that most of the students could not answer the question in English. They asked the teacher to translate it into bahasa. Besides that, the other reason that causes the problem was that the teacher did not use the media in learning vocabulary. The teacher just asked the students to read the material and to find the meaning from the dictionary. It made the students feel bored in learning vocabulary. Less vocabulary was the other problem for the students. To solve the problems, the teacher needed to use an effective media in teaching and learning process which made in students interest [3].

One of the media in teaching vocabulary is using application based on CALL (computer assisted language learning). CALL (Computer Assisted Language Learning) represents aside of e-learning where computer technology is used in the context of language learning [4][5]. CALL (Computer Assisted Language Learning) is widely used to refer to the area of technology and target language learning. Duolingo, which is used in this research belongs to CALL specific application is suitable for the teacher and the students in teaching vocabulary.

The previous study about application used for teaching English based on Android. It is finding the student's perspective [6], the possitive impact in learning using apps [7], [8], [9]. the study about learning apps was been discussed in the perspective of teacher and students [2], [10], [11]. The benefit of the apps [12], [13], [14]

Review of Related Literature
Vocabulary

There are some definition of vocabulary according some experts. Moeller et define vocabulary is central to the learning of foreign language includes literature, music and content of knowledge [15]. It is a core component of language proficiency and provides much of the basis for how learners speak, listen, read and write [16]. Vocabulary as one of the language elements, can help someone to understand clearly in communication [17]. The most apparent components of language and one of the earliest subjects to be investigated by applied linguists [13], [18]. In order to comprehend the meanings of English words, it is necessary to understand how the words function within the context of an English sentence. Words represent complex and, often, multiple meanings [19]. It is a set of terms that one has to know in order to communicate both orally [20]. The teaching and acquisition of vocabulary has been the subject of much research. Drawing from the aforementioned definitions, the investigator deduces that vocabulary comprises all the terms in a certain language that a person is aware of or utilizes in order to have successful communication [13], [21].

Vocabulary acquisition is of significant value to those engaged in either the acquisition of a second language or the learning of a language as a foreign language. It is impossible to convey any meaningful information [22], [23]. Similarly, without a sufficient vocabulary, it is impossible to convey any information at all. Therefore, even if an individual has excellent grammar, it will be of no use to them if they do not possess a wide vocabulary [24]. The term vocabulary is defined in two ways: active vocabulary and passive vocabulary or receptive vocabulary [25]. Active vocabulary is defined as words that students must comprehend and utilize in both speaking and writing. For instance, the word "audience" can be defined as a group of individuals who are listening to a concert. Passive vocabulary, on the other hand, refers to words that individuals must understand, but do not necessarily utilize. In essence, active vocabulary is a set of words that enables individuals to comprehend and convey messages. In contrast, passive vocabulary is a set of words that facilitates the comprehension of messages, but does not facilitate the generation of messages [26].

In addition to the conventional division of vocabulary into active and passive categories, the vocabulary used in sentences is also divided into parts of speech. Verbs, adjectives, adverbs, prepositions, conjunctions, interjections, and nouns, pronouns, and verbs are among them. The meaning, spelling, pronunciation, word classes, and word use of words are all included in the study of vocabulary [27]. The use of technology can facilitate the acquisition of English vocabulary. Technology enables learners to store and retrieve learning materials with ease, provide information on how they learn, both within and maybe outside of the classroom. In addition to having access to materials, students may keep an eye on how they are using them [28]. Computer-Assisted Language Learning is a technological tool that is employed to enhance and improve learners' vocabulary acquisition.

Learning Apps with Duolingo

In the contemporary educational landscape, learners are aware of the plethora of educational applications that can be utilized in the teaching and learning of vocabulary. Among these, Duolingo stands out as a particularly prominent example. Duolingo, a mobile app and web platform that also employs translation to access online language resources for users, offers a creative and free way to learn a new language. Duolingo is an app that uses games to teach foreign languages. It may be accessed through a web browser or as an iOS, Android, Windows, and Phone application.. [29]). The app Duolingo is meant to be used on web-based desktops or mobile devices [30]. With compatibility for Android, iOS, Windows Phone, and the web, it is one of the most well-known and respected language learning apps accessible today. There are the characteristics of duolingo Android application [31]. Achievements is awarded to users or learners who have finished a lesson with their best effort, To earn "lingots," learners must successfully complete activities and levels. Lingots are little gem icons. It is modifiable for additional bonus practices, A recent addition to the Duolingo application is crown levels. There are "crown levels" for every skill, You will receive a crown upon mastering a talent, and you can advance to a new one, The daily objective is about showing gratitude to the

students who finish it. The Duolingo software rewards users with unexpected noises and distinctive images, making the learners feel more satisfied, Club user networking allows language learners to interact and share information about language learning with other users. Additionally, they may compete to earn ten XPs and view their friends' results.

Duolingo Features
The Available Languages

Cites Languages that may be learnt on Duolingo include English, Spanish, Portuguese, Italian, French, German, Russian, Hungarian, Dutch, and Turkish [32]. One can better comprehend English by learning Hungarian, French, Portuguese, Russian, Italian, German, Spanish, Dutch, and Turkish. Furthermore, Finardi et al adds There are 19 languages accessible on the second language learning platform Duolingo. However, the suitability of the platform for learning any given language is dependent on the user's first language [33].

To illustrate, an Indonesian speaker who wishes to learn Korean as a second language must first utilize another language, such as English, as a conduit to gain access to Korean. Consequently, an individual who is proficient in English can select any of the 19 languages available on Duolingo. The number and variety of languages that a user can learn in Duolingo is contingent upon the user's first language and the second language that they wish to learn.

Learning Vocabulary Activities

Jaskova states For keeping track of a learner's vocabulary level, Duolingo has a dedicated website [32]. This webpage lists every word and all of its forms that have been used during the learning process. It also includes information on when the last practice session was held, how well the learner utilized the terms, and how fast they learned them.. Based on input from learners, this feature which allows learners to easily assess their vocabulary size and knowledge of individual words. Additionally, learners may engage in individual practice of words, observing sample sentences or further examples. Furthermore, each lesson provides an overview of the acquired vocabulary. This overview allows learners to examine particular terms, the appropriate use forms of these words, and the extent to which they utilized a word during the completion of a lesson.

Four Skills of Language in Duolingo

The Duolingo platform encompasses four language skills: listening, reading, writing, and speaking. These skills are integrated throughout the process of learning. Duolingo offers a comprehensive range of activities designed to facilitate the acquisition of competency in the target language in reading, writing, speaking, and listening [33]. It employs a variety of techniques to maintain learner engagement, including the integration of diverse activities, such as listening, transcription, writing, speaking, and translation. These activities are presented in a straightforward interface, allowing learners to progress through vocabulary and phrases with ease. Castro et al (2016:60) Duolingo incorporates all four language skills—speaking, writing, listening, and reading—into the learning process. The way questions are worded, the use of affirmative and negative statements, the ability to record and transcribe brief texts and audio snippets, and the ability for students to record their own pronunciation in order to assess their oral performance all serve to illustrate these:

1. Monitoring Progress and Skills

One of the most important and inspiring elements of any educational process is the opportunity to witness the success, progress, and development that result from the acquisition of knowledge. The Duolingo learning project employs an innovative approach to recording the process of learning. Learners can engage in a gradual, step-by-step approach to learning and monitor their results and progress.

2. Discusssion Forum and Duolingo Club

Starting new forums or posting in ones that already exist is advised for students. When in uncertainty or ambiguity, advanced learners or native speakers can utilize these discussion boards to assist beginners, discuss potential issues or disputes, give further assistance, or recommend modifications [32]. In the Duolingo club, the Duolingo coach typically presents the questions or topics that users are required to answer. Users are awarded experience points (XP) for their responses.

3. Motivation

Duolingo gives students the incentive to learn. It understands that in order for language learners to return to the application and participate in further language-learning activities, they need to be motivated [33], [33]. With Duolingo, users may compete with peers and are encouraged to continue and beat their prior marks. As they advance through the levels and accrue experience points (XP), learners may use these points to buy extra classes and merchandise using lingots.

4. Duolingo Coach

The success of personal trainers served as a model for Duolingo's designers' approach. Coaches that adopt an owl-like form and have amazing success with their kids are good examples of this approach. This coach functions as a virtual instructor, encouraging students to visit Duolingo again, complete the assigned tasks, and provide encouraging or helpful feedback [32]

5. Learning Reminder

The Duolingo Reminder is one of the most interesting aspects of Duolingo. This feature makes use of an owl's visual depiction to remind users to visit Duolingo again. The reminder's purpose is to alert students when they haven't used Duolingo today [34]. This is accomplished by sending an email. Users may customize the time that the reminder message appears on their screen and choose to receive it every day. With its plethora of cutting-edge features, Duolingo has drawn a million users worldwide.

Principle of Duolingo for Classroom

Duolingo serves two main purposes: teaching (with Duolingo for Classroom) and learning. To establish a class, a teacher has to go to https://schools.duolingo.com. The researcher searched for information on the teacher's function in the Duolingo mobile application but was unable to locate any. You may only use a browser to view this website. Teachers can create a class on the previously stated website, send out a link to students, or share the classroom code. After establishing a classroom using a Duolingo account, the teacher may evaluate language learning progress, offer assignments to groups of Duolingo users, and track other Duolingo accounts (classroom). The instructor may watch every student at once when they sign up and provide permission for the educator to follow them. As long as their name and email address are linked to the account, the teacher may see the specifics of the activities. Students can use the website or download the app to their mobile device to access Duolingo.

2. METHOD

The methodology employed in this research is experimental, whereby an idea, practice, or procedure is tested to ascertain its influence on an outcome or dependent variable. [35]. Using a non-equivalent control group design, this study employs quasi-experimental research methods. This research spanned eight meetings. In this research, the researcher determined the population, sample, and sampling technique to make data collection easier. It can be concluded that the population is all of the group members, people, events, or objects which live together in one place from the final conclusion of a research.

Population

The population is the large group about the generalization. The term "population" is characterized as a collection of people who have one or more common interests to researchers [36]. The population of this research is all the tenth grade students of SMA N 2 Purworejo in academic year 2019/2020. There are 288 pupils in the population as a whole. They were divided up into eight classes, with thirty-six pupils in each. The table below showed the population's specifications:

Table 1. List of Population

No	Class	Number of Students
1	X MIPA 1	36
2	X MIPA 2	36
3	X MIPA 3	36
4	X MIPA 4	36
5	X MIPA 5	36
6	XIPS1	36
7	XIPS2	36
8	XIPS3	36
	TOTAL	288

Sample

In order to draw broad conclusions about the target population, the researcher will examine a subgroup of that population, which is represented by the sample. population. In this research, the researcher has chosen one class as a sample [35]. This class, designated as Class X IPS 1, consists of 36 students who will serve as the experimental group..

Sampling Technique

Sampling is a part of representative of population of the research [37]. The sampling process is an integral part of the population's characteristics and numbers. The objective of sampling is to obtain more information about the population [38]. In this research, purposive sampling was selected as the sampling technique due to time constraints, multiple considerations, and recommendations from the instructor.

Technique of Collecting Data

Data is very important in a research. The data collection is taken on July 13th to July 20th, 2020 with the permission of the principal and the English teacher of SMA N 2 Purworejo; The first, the researchers give pre-test on 13th July 2020 to measure the students' vocabulary before researchers give a treatment, the second, the researchers give treatment on 13th, 15th, 16th, and 17th July 2020 uses, the third, duolingo Application in teaching vocabulary at tenth grade class. The last session, the researchers give post-test on 20th July 2020 to find out the significant of progress by the final score that students get.

Instrument

In general, instrumentation refers to the entire process of getting ready to gather data [39]. It is of the utmost importance for a researcher to utilise an appropriate instrument prior to the collection of any data. Every research project must use acceptable and practical measurement tools if it is to be successful. It is therefore essential to ensure that the chosen instrument is both appropriate and useful for the research in question [40]. Moreover, the instrument itself will demonstrate whether it is effective or not. In the case of this research, the researcher employed a test as the instrument. The test was used in a pretest and a posttest. The test was focused on vocabulary testing. The researcher employed a variety of assessment instruments to evaluate vocabulary acquisition, including multiple-choice, specific-knowledge-and-skills, pronouns, simple present tense, text purpose, greeting, and vocabulary arrangement.

The instrument consisted of 40 items, with each item presented with five possible responses, and the test duration was 45 minutes. For assessment purposes, each question is worth two-and-a-half points for a correct answer and zero points for an incorrect or false response. Therefore, forty questions are worth one hundred points. The results of the pretest and posttest were analyzed using the Mann-Whitney U-test in SPSS 16 to determine the differences between the two groups.

3. FINDINGS AND DISCUSSION

Findings

Table 2. Descriptive Statistic

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Posttest	36	35.0	60.0	95.0	2642.5	73.403	8.2192	67.555
Pretest	36	42.5	32.5	75.0	1775.0	49.306	9.8491	97.004
Valid N (listwise)	36							

From the table above, it could be seen that the mean of the post-test score (73.40) was larger than the mean of pre-test score (49.30). It means that the used of Duolingo application has caused in improving students vocabulary. While N for each other is 36. Meanwhile, the standard deviation of the pre-test is 9.5 and standard deviation of post-test is 8.2.

Table 3. One sample Kolmogorov-Smirnov Test

		Pretest	Posttest
N		36	36
Normal Parameters[a]	Mean	49.306	73.403
	Std. Deviation	9.8491	8.2192
Most Extreme Differences	Absolute	.295	.210
	Positive	.295	.210
	Negative	-.233	-.151
Kolmogorov-Smirnov Z		1.770	1.262
Asymp. Sig. (2-tailed)		.004	.083

a. Test distribution is Normal.

If the significance value is more than 0.05, the data may be considered normal. In the event that the significance value is less than 0.05, the data may then be deemed abnormal. It is clear from the Kolmogrov-Sminorv column computation that the pretest's significance value of 0.004 is less than 0.05. However, the posttest's significance value of 0.083 is more than 0.05. Thus, it may be said that the pretest distribution is abnormal while the posttest distribution is normal. From the table above, the sig. Value is 0.574 and it was bigger than 0.05, it means that the data is homogenous.

Table 4. Test of Homogeneity of variances

Nilai Tes

Levene Statistic	df1	df2	Sig.
.319	1	70	.574

The hypothesis testing will be discussed by the researcher. As previously said, "The use of Duolingo application in teaching vocabulary at the tenth grade students of SMA N 2 Purworejo is effective" is the research's hypothesis. As a consequence of the preceding study, Zvalue was calculated for n = 36 samples, and Ztable was found to be 1.96 based on a significance threshold of 0.05. As can be shown, Zvalue is more than Ztable (7.972>1.96), indicating acceptance of the alternative hypothesis (Ha). This indicates that "Vocabulary instruction in the tenth grade at SMA N 2 Purworejo is effectively taught through the use of the Duolingo application".

Discussion

From the data analysis, the objective of the research is to know whether there is or not effectiveness in applying Duolingo application in teaching vocabulary at the tenth grade of senior high school of SMA N 2 Purworejo in academic 2019/2020. The researcher used a research design in which the students were given a pre-test to determine what language they already knew. The next step was to administer the therapy, which included utilizing the Duolingo app. The researcher then gave a post-test to the pupils to gauge their vocabulary after therapy. The researcher assessed the students' vocabulary knowledge using a post-test after they had used the Duolingo software. The statistical calculation, which was carried out using a Z-test, revealed that the pretest and post-test scores differed significantly from one another. The alternative hypothesis (Ha) was accepted and the null hypothesis (Ho) was rejected, according to the results of the hypothesis test. This suggests that the mean results from the pretest and post-test differed significantly. After using the Duolingo program for instruction, pupils are found to make significant progress in their vocabulary mastery. The program clearly has a positive impact on vocabulary attainment, indicating that vocabulary training via this medium is a useful strategy for raising vocabulary proficiency among students.

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