# The Effect of Using Autonomous Learning Model by Duolingo-Assisted to Improve Students' Vocabulary Mastery at VIII Class of SMPN 3 Buton Tengah

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**Abstract**

The aim of this study was to find out whether the use of the Autonomous Learning Model by Duolingo-assisted has an effect on increasing the vocabulary mastery of the eighth grade students of SMPN 3 Buteng. Purposive sampling was used to select 29 students in VIII grade class as sample of this research. This study applied a pre-experimental method using one class pretest and posttest. To collect data and information, researchers used tests, distributed questionnaires, and conducted interviews. From the analysis result, the researcher found that the students' average score increased from 60.94 to 86.83. Hypothesis analysis at a significant level of 0.05 showed that the value of $T_{count}$ was higher than the value of $T_{table}$ (14,662>2,048) so that $H_0$ was rejected and $H_1$ was accepted. This means that the treatment given to students, namely the Autonomous Learning Model assisted by the Duolingo application has an effect to increase vocabulary. Autonomous Learning assisted by the Duolingo application is very appropriate to use in teaching vocabulary because with this learning model students were encouraged to be more independent and responsible in learning English without others help. Duolingo as a learning media made students more interested in learning English because this application is equipped with complete features that make it easier for students to learn vocabulary.

*Keywords:* autonomous learning model; duolingo aplication; vocabulary mastery.

## 1. Introduction

As one of the international languages, English is the first foreign language which is taught in Indonesia from elementary school to university level. In the learning process, there are four language skills that must be mastered by students, those are speaking, reading, listening, and writing. To support students' ability in mastering the four language skills, students are required to have adequate vocabulary to be able to communicate in English both orally and in writing (Puspita, 2017). In line with that, Yusda, et al (2020) assert that communication will not be meaningful without vocabulary, even though a student has previously mastered other language components such as grammar and pronunciation.

In the teaching and learning process, the students get various difficulties especially in mastering vocabulary. The students are not motivated to enrich their vocabulary, this has an impact on not being optimal in their proficiency in mastering four language skills such as; reading, writing, listening, and speaking (Alqahtani, 2015). Furthermore, Handayani (2019) explained that in speaking skills students will not be able to communicate well if they have a limited vocabulary, students may understand the meaning of the vocabulary but they are not able to arrange the vocabulary in the form of phrases or sentences. Mardiyah, 2018 added that inadequate vocabulary affect on the students' ability to understand the text meaning. Next, Hamid, et al (2020) stated that another obstacle that causes the vocabulary teaching process is not optimal due to the unavailability of interesting learning models for students which make teaching and learning activities tend to be more monotonous. Afterward, uninteresting learning models are the main causes of students feeling bored when learning English. Thus, teachers are required to be able to create an effective and efficient learning atmosphere by using appropriate learning models.

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The vocabulary constrain above were also found in students at SMPN 3 Buteng. Based on the pre-observations during online learning in class VIII A of SMPN 3 Buton Tengah, it was found that the majority of students have difficulty in understanding English material due to lack of vocabulary. In addition, students were less interest if the teaching process was carried out through virtual. According to them, online learning was very monotonous because teachers never monitor student activities during the teaching and learning process. The teacher only provides material via whatsapp without giving a detail instructions as a result students were not motivated in learning activities. To finish the classed, the teacher merely provides a list of vocabulary memorization to students as an assignment.

The online learning process should be designed more attractively as solution for students who got problem in face-to-face learning. However, the implementation of online learning is considered less effective, one of the causes is the use of inappropriate learning models. Handayano (2020) states that during online learning the teacher only provides material through a whatsapp group which is followed by various kinds of tasks for students without any detail explanation. In line with that (Mertawati, 2021) revealed that giving assignments continuously without a better comprehension create a passive students who always rely on the teacher. Therefore, teachers need to obtain a suitable learning model in order to establish a conducive learning atmosphere even though the teaching process is carried out through online. The learning model that emphasize on students' autonomy is called Autonomous Learning Model. Knowles in Suadarna (2012) describes that the autonomous learning model is an independent learning process where students can take the initiative to learn with or without the help of others.Then, through the autonomous learning model, students can identify their own learning needs, sources of information to obtain learning material, formulate learning objectives, and choose the right strategy for themselves (Mardiyah, 2018). In addition, Iryani, et.al. (2020) believes that autonomous learning models can develop students' thinking patterns to have a deep knowledge rather than covering broad material. This learning model is believed as well to assist s to control their own learning process with the teacher as a facilitator (Anangga & Ardiyani, 2021)

As the inventor of the autonomous learning model, George Betts & Jolene Kercher in Ahmadi (2013) describes five core principle that serve as references in the implementation of the autonomy learning model, including; (1) orientation is related to understanding the talents that exist in students so that they are able to carry out self-development activities both in groups and individually. (2) Individual development which is closely related to the learning skills possessed by students and the use of technology to support learning activities (3) wealth involves exploration by students related to learning topics, (4) seminars in the form of presentations in small groups related to the results of exploration and investigations related to learning materials, (5) in-depth studies related to giving projects both individually and in groups to students.

The use of the proper learning model and learning media become the main aspect in successful learning (Hamid, et al 2020; Fatah 2019). In applying Autonomous Learning Model, teacher should combine it with a suitable media which support the principle of independent learning. In this research, the researcher used Duolingo as a media to facilitate the implementation of autonomous learning model. Nursyamsiah (2021) stated that Duolingo is a gamification platform that carries the concept of learning while playing, this application is very easy to use for all ages. Nushi & Eqbali (2017) added that the features in Duolingo can increase students' interest in learning vocabulary, because students can hear directly how to pronounce words and sentences in English. In addition, Duolingo is able to create a joyful learning process.

Along with the emergence of government policies regarding online learning, the use of technology is no longer a new thing in the education world. Various e-platforms have sprung up to support the learning process, one of them is Duolingo. Munday (2016) in his research stated that Duolingo is a very popular foreign language learning application and provides more than six languages to learn, one of them includes English. As a language learning application, Duolingo is very helpful for students to improve their ability in English, especially vocabulary, in this application student will answer a series of questions, type translations of words or sentences, respond to voice commands, and identify images according to certain words or sentences (Ambara, 2020).

Research on the use of the Duolingo application as a learning medium in English subjects has been widely studied. Ambara (2020) in his research explained that students X IPA 1 and XIIPA 2 at SMAN 2 Karangan showed a positive attitude towards the use of the Duolingo application, students were more motivated to learn vocabulary because they easily understand the learning material. Similar to Wijaya, et.al (2016) stated that vocabulary mastery in class VII SMPN 1 Bandar Lampung increased, because by using Duolingo students

were more interested in being actively involved in learning activities.

This research is certainly different from previous researches; the novelty of this research lies on the integration of autonomous learning models and Duolingo as media in vocabulary. Researchers consider the study of the use of the autonoumous learning model very worthy of research because in the midst of the current pandemic where the learning process must be carried out online, then by using the autonomous learning model the teaching process can run effectively like face-to-face learning. Autonomous learning model establish students-centered learning in which teacher act as a fasilitator to encaourage students in exploring their ability to finish the task. Autonomous learning increase the level of independence and responsibility of students to complete each task.

## 2. Literature Review

### 2.1. The Concept of Autonomous Learning Model

It's crucial to define the term "autonomous" in order to recognize autonomous learners. The adjective form of autonomy is the word autonomous, which is a phrase with legal and political origins. It originally derived from the Greek word autonomos, where auto implies self and nomos translate to "law." According to Moore (1999) cited in Ahmadi (2013) it is the ability to self-govern; freedom of the will, personal liberty, and self-government community. Thus, the meaning of the word "autonomy" is independence and freedom to handle one's own affairs. In a Currently, it is described as the capacity to control one's own business as opposed to being in a dependent position where One is under the authority of and subject to the judgments of others (Anangga & Ardiyani, 2021) Based on this definition, independent learners are the one who take control of their own learning. In addition, Sudana (2012) mentioned that having control of one's own learning implies to be responsible for all decision regarding all elements of learning including:

1) Determining the goals

2) Specifying the progressions and contents

3) Deciding which tactics and methods to employ

4) Monitoring the acquisition process

5) Assessing the information obtained.

Similar to this, autonomy is described as "the capacity to direct one's own learning." Autonomy is related to have control over one's life both personally and collectively (Prabowati, 2022). Additionally, Maslakahatin&Lianawati(2017) adopts the concept of autonomy as a setting in which the learner is completely responsible for all of the decisions concern with applying what they've learned. According to these two definitions, learners must be autonomous theorists with a comprehensive understanding of the entire learning process, including the objective of learning, the purpose of learning, the process of learning, and the selection of materials learning, etc. It may be argued that autonomy involves both decisions and acts, when a learner assumes responsibility for his or her own learning by making decision relevant to it and putting them into practice.

More specifically, Geraus&Guttel(2015) notes that the practice of learner autonomy needs insight, a positive attitude, a ability for reflection, and a willingness to be active in self-management and in connection with others. In this way, independent learners take control of their learning by selecting what to learn, when to learn it, and how to learn it.

According to the concept above, autonomous learning is a learning model that treats students as autonomous beings with the ability to influence and be accountable for their own learning environment. This concept made it obvious that students needed to be autonomous learner with a clear understanding of the entire learning process, such as; the learning process's goals, methods, and materials. In other words, it covered everything related to learning even if it entails a great deal of responsibility, the goal of autonomy learning can be achieved if all class members collaborate and assist one another, including the teacher and the students.

### 2.2. Kinds of Autonomous Learning

Dickinson in Nunan (1996) as cited in Iriyani, et.all (2020) stated that there are two kinds of autonomous learning:

a. Full autonomous. Full autonomous refers to a situation in which the learner is entirely in charge of all learning decision and its implementation. In full autonomy, neither teacher nor institution are involved, only students independently prepare their own learning materials.

b. Partial autonomy. This appropriately identifies the phase in which students are ready for autonomy. In this situation, since the students are taking the initiative to study, they should be encouraged to engage in some independent learning while still receiving instruction from the teacher. To complete the shift from a teacher-centered to a student-centered teaching model, teachers should simultaneously adopt a new teaching models. This learning process can be called semi-autonomous learning. In the process, the role of the teacher has changed, but only partially, not completely, as well as the role of the student

### 2.3. Use of Autonomous Learning Activities

Teachers and students can promote autonomous learning using a variety of medium. For instance, logbooks are useful media because they give a broad perspective of the learning process, how group work is conducted, and how to reflect on it. Additionally, posters play a significant role in the autonomous classroom as instructions for creating logbooks, ideas for activities, and other information are posted for all students to notice.

The real examples in the target language is necessary in autonomous learning. The students individually determine and select the homework in groups. The teacher acts as both a facilitator and a counselor while the students select their own topic for the project. In this sense, by taking charge of their own learning, students become motivated to learn and achieve their own goal. Group work is essential to create autonomous learner in the classroom, however, many teachers find it challenging. The teachers should particularly get ready for this part, considering the ability to collaborate well in groups is not something that naturally comes to learners.

Another essential part of learner autonomy is reflection on the educational process. Reflecting on their learning process helps students understand how and why they select the approaches and techniques they do for various projects and activities. They become more autonomous when they are conscious of the learning process.

The last activities in autonomous learning is assessment. Assessment in autonomous is distinct from traditional assessment. The process of assessment is viewed as one in which the teacher and the students work together. Students actively participate in the evaluation process through self- and peer-assessment, group work assessment, portfolios, and logbooks, all of which are important for helping students acquire languages.

### 2.4. Duolingo

The future of language learning is Duolingo. It is quite beneficial to those who wish to learn a new language because it is simple to access and offers a variety of languages. Many elements of Duolingo can make it easier for users to learn languages, including daily word lists, user discussions where users can exchange knowledge, the Lingot store, and immersion for more experienced users. . Despite the software's material not being appropriate for the pupils' cultural background, it motivates them by keeping them interested.

Language learners have a wide variety of languages to select from on Duolingo, including English, Arabic, Spanish, French, Dutch, and other languages. Additionally, it has a forum for educators where users may share lesson plans and learning experiences with one another, whether they are teachers or students, to make learning easier. In the most effective manner, it can assess pupils' performance and commitment. It offers information on points earned, the course overview tree, streaks, and time spent.

For beginners learning a new language from the very basic, Duolingo offers a wide variety of pleasant learning methods. The procedure of Duolingo is easy to use, due to it is intended for users of all ages, including kids, teens, parents, and others, this is the case.

### 2.5. The Feature of Duolingo

Stringer (2016, as cited in Amalia, 2019), Duolingo provides a number of game-like features that will keep students interested in learning a language:

1) The user can progress through the lessons on the skill tree in Duolingo to unlock the following skill. There are 10 to 15 exercises of various types in each session.

2) When a user adds friends to their list, Duolingo's leader board is active.

3) The user of Duolingo can purchase more skills, perks like freeze, or the ability to change the appearance of Duo, the owl mascot, in the shop using the currency known as Lingot.

4) Duolingo also offers a component on its website called Duolingo for Schools that enables teachers to set up virtual classrooms where they can study the program's curriculum, track their students' development, and assign homework or classwork.

*2.6. Types of Dulingo*

Wagner et al. (2015, as cited in Munmday, 2016), Duolingo offers four different assignments, including:

1) Vocabulary Task. The test-taker might view several words in a grid on the screen when completing a vocabulary exercise. Following that, the test-taker must also select the right terms in English. There is a regulation that states test-takers have just one minute to finish the assignment.

2) Listening and Transcription task. The listening skills of test-takers are evaluated in Listening and Transcription. The person taking the test must input the sentences they audibly hear.

3) Sentence Completion Task. A task with the label "complete a sentence" is called "sentence completion." The test-taker will now display a number of brief paragraphs made up of multiple sentences. The exercise has five blank areas that must be chosen by clicking on them in order to choose a response from the offered list of eight options. To complete this task, test taker has a three minutes time limit for finishing this activity.

4) Speaking Task. Speaking is the last task. The test-taker will enter on-screen instructions for this assignment, such as "Say this sentence." The test-taker should next click the microphone symbol, and a timing icon must be used to read out the written sentence. The time limit of one minute applies to this activity as well.

## 3. Methods

This research used experimental method. Experimental method is a method to solve a problem that is being studied by conducting an experiment or looking for the cause and effect between two variables to know the consequences. Sugiyono (2017) argues that the experimental method is a research method used to find the effect of certain treatments on others under controlled conditions .In accordance with the purpose of this study to determine the effect of the autonomous learning model assisted by Duolingo on increasing students' vocabulary mastery, the researcher chose the form of pre-experimental research with one group pretest-posttest design. This research was hold out at SMPN 3 Buton Tengah which is located in Lakudo District, Central Buton Regency, Southeast Sulawesi Province.

Population is a generalization area consisting of objects that have certain qualities and characteristics determined by researchers to be studied and then drawn conclusions (Sugiyono, 2013). Population in this study were all students of SMPN 3 Buton Tengah which consist of 345 students. The sample of this research was 29 students from class VIII A and VIII B who posed a smartphone, to take the sample the researcher use purposive sampling.

To obtain the data the researcher used three types of instrument such as; test, questionnaire, and interview. The primary data of this research is vocabulary test. It was in the form of multiple choices, the researcher design 35 questions which had been validated before administering it to the student. Questionnaire was design in form of Close-ended and open-ended questionnaire. Meanwhile, Semi-Structure interview was used as secondary data. Vocabulary test was aimed to measure the students' mastery in vocabulary before and after the treatment, while questionnaire and interview were used to find out students' perception after being treatment using Autonomous Learning Model assisted by Duolingo. Afterward the data was analyzed using SPSS (Statistical Product Service Solution).

## 4. Result

This study uses one group pretest-posttest design which involving 29 students of class VIII as a sample. The aim of this research is to know the effect of using Autonomous Learning Model by the Duolingo-assisted in improving vocabulary mastery at class VIII SMPN Buton Tengah. The data in this study were obtained from the results of the pre-test and post-test, adminsitering questionaire, and interviewing students.

## 4.1. Data Description

In this study, data were taken using a vocabulary mastery test which was conducted twice on students at class VIII SMPN 3 Buteng. The purpose of giving a pre-test is to measure the initial ability of students' vocabulary mastery, while the post-test was administered after treatment to find out students achievement after treating used autonomous learning model by Duolingo-assisted. The reseacher conducting treatment for five meetings. There were 29 students who participated in this research. After collecting the data through test, questionaire, and interview, the researcher analyzed the data used descriptive statistics and t-test. Data analysis in this study used SPSS for Windows 13.0 computer assistance, in addition to simplifying the data analysis process as well as to avoid possible errors in analyzing data, researchers did normality test to find out whether the data is normally distributed or not before testing a hypothesis.

### a. Descriptive Analysis

Descriptive analysis is an analysis used to determine the characteristics of data obtained from the results of the pre-test and post-test. The characteristics in question such as Mean Score, Standard Deviation, Median, etc. The following is a description of the data from the results of this study which include; pre-test descriptive analysis, post-test descriptive analysis, N-Gain descriptive analysis, statistical descriptive analysis pre-test and post-test.

**Tabel 1.** Descriptive Analysis of Pre-Test

| Descriptive Analysis of Pre-Test | |
| --- | --- |
| Mean | 60,94 |
| Standard Error | 3,44 |
| Median | 62,00 |
| Mode | 43,00 |
| Standard Deviation | 18,51 |
| Sample Variance | 342,55 |
| Kurtosis | -1,69 |
| Skewness | 0,04 |
| Range | 52,00 |
| Minimum | 37,00 |
| Maximum | 89,00 |
| Sum | 1767,30 |
| Count | 29,00 |

Based on the table 1, it can be seen that the students score in pretest was 60.94, the lowest score wass 37.00, the highest score was 89.00, then the standard deviation obtained was 18.51, while the mode was 49.00, and the last the median was 62.00

Based on the result of statistical analysis in the table 2, it showed that the students' post-test have increased after the treatment. The mean score or mean value obtained by students was 86.83, while the lowest value was 66.00, then the highest score was 100, while the median was 86.00, and the last mode was 100.00.

N Gain is a test which conducted to determine the increasing on student learning outcomes after treatment by calculating the difference between the pretest and posttest scores. From the table 3, it can be seen that the mean score of students was 0.72, the lowest score was 0.39, and the highest score was 1.00. From the mean value, it can be concluded that student learning outcomes have increased after treatment using Autonomous Learning Model by the Duolingo-assisted application.

Based on the table 4, it can be seen that the majority of students' N gain criteria were high. There were 14 students (48%) was high, then 15 students (52%) were in the medium category, and none of students (0%) were in the low category. So it can be concluded that the criteria for student gain are categorized as high criteria.

**Tabel 2.** Descriptive Analysis of Post-Test

| Descriptive Analysis of Post-Test | |
| --- | --- |
| Mean | 86,83 |
| Standard Error | 2,08 |
| Median | 86,00 |
| Mode | 100,00 |
| Standard Deviation | 11,20 |
| Sample Variance | 125,43 |
| Kurtosis | -1,10 |
| Skewness | -0,32 |
| Range | 34,00 |
| Minimum | 66,00 |
| Maximum | 100,00 |
| Sum | 2518,00 |
| Count | 29,00 |

**Tabel 3.** Descriptive Analysis of N Gain

| Descriptive Analysis of N Gain | |
| --- | --- |
| Mean | 0,72 |
| Standard Error | 0,04 |
| Median | 0,67 |
| Mode | 1,00 |
| Standard Deviation | 0,19 |
| Sample Variance | 0,04 |
| Kurtosis | -1,18 |
| Skewness | 0,27 |
| Range | 0,61 |
| Minimum | 0,39 |
| Maximum | 1,00 |
| Sum | 21,01 |
| Count | 29,00 |

**Tabel 4.** N Gain Interpretation

| Gain Value | Frequency | Percentage | Interpretation |
| --- | --- | --- | --- |
| $0,70 \leq g < 100$ | 14 | 48% | High |
| $0,30 \leq g < 0,70$ | 15 | 52% | Mediun |
| $0,00 < g \leq 0,30$ | 0 | 0% | Low |
| $g = 0,00$ | 0 | 0% | No improvement |
| $-1.00 \leq g < 0.01$ | 0 | 0% | Decline happened |
| Total | 29 | 100% | |

**Tabel 5.** Descriptive Analisis of Pretest-Posttest

**Descriptive Statistics**

| | N | Range | Minimum | Maximum | Sum | Mean | Std. Deviation | Variance | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Pretest | 29 | 52,00 | 37,00 | 89,00 | 1767,30 | 60,9414 | 18,50823 | 342,555 | ,040 | ,434 | -1,688 | ,845 |
| Posttest | 29 | 34,00 | 66,00 | 100,00 | 2518,00 | 86,8276 | 11,19971 | 125,433 | -,316 | ,434 | -1,100 | ,845 |
| N_Gain | 29 | ,61 | ,39 | 1,00 | 21,02 | ,7248 | ,19240 | ,037 | ,273 | ,434 | -1,172 | ,845 |
| Valid N (listwise) | 29 | | | | | | | | | | | |

The table 5 showed the differences in the results of students' scores before treatment (pre-test) and after treatment (post-test). From the data, there was an increasing in the mean score of students. In Pre-test students obtain 60.94 become 86.82 in posttest. Further, the minimum score of pretest was 37.00 become 66.00 after the post-test, the maximum score achieved by students in the pre-test was 89.00 while the maximum score for the post-test was 100.

*4.2. Normality Test*

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The normality test was conducted to determine whether the data was normally distributed or not with a significance value higher than 0.05 (P > 0.05) means the data is normally distributed, but if the significance value is less than 0.05 (P < 0, 05) t the data is not normally distributed. The normality test used was the Kolmogrov-Smirnov test. The following were the results of the data normality test in class VIII.

**Tabel 6.** Normality Test

**One-Sample Kolmogorov-Smirnov Test**

| | | Pretest | Posttest |
|---|---|---|---|
| N | | 29 | 29 |
| Normal Parameters[a,b] | Mean | 60,9414 | 86,8276 |
| | Std. Deviation | 18,50823 | 11,19971 |
| Most Extreme Differences | Absolute | ,179 | ,163 |
| | Positive | ,179 | ,120 |
| | Negative | -,174 | -,163 |
| Test Statistic | | ,179 | ,163 |
| Asymp. Sig. (2-tailed) | | ,019[c] | ,047[c] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

The table 6 showed that Calculated (0.162) is less than $F_{table}$ (0 246), so it can be concluded that the data given is normally distributed.

## 4.3. HyphotesisTest

A hypothesis test is carried out to find out whether there is an effect on vocabulary mastery after the application of the Autonomous learning model assisted by the Duolingo application for students at class VIII. The hypothesis assumed that if there is an effect on student learning outcomes after the autonomous learning model assisted by the doulingo application is used, the alternative hypothesis (Ha) is accepted. On the other hand, the null hypothesis (Ho) is rejected if there is no effect on the use of the autonomous learning model assisted by the doulingo application on student learning outcomes. The results of the t-test are presented in the table 7.

**Table 7.** Paired Sample Test

**Paired Samples Test**

| | | Paired Differences | | | | | $T_{hit}$ | $T_{table}$ | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | Posttest - Pretest | 25,88621 | 9,50762 | 1,76552 | 22,26970 | 29,50271 | 14,662 | 2,0484 | ,000 |

The hypothesis is accepted if the value of $t_{count}$ is less than $t_{table}$ at a significance level of 5%,. Conversely, if the value of $t_{count}$ is higher than $t_{table}$ at a significance level of 5%, then $H_0$ is rejected and $H_a$ is accepted. The data presented in the table above clearly shows that the value of $T_{count}$ (14.662) is hgher than the value of $T_{tab}$ (2.0484). Thus, it can be concluded that Ho is rejected and Ha is accepted, which means that the treatment given is the Autonomous learning model assisted by the Duolingo application affects students' learning outcomes at class VIII SMPN 3 Buton Tengah.

## 5. Discussion

The use of the Autonomous Learning Model by Duolingo-assisted as a medium in the vocabulary learning process have a significant effect on improving students' vocabulary mastery at class VIII SMPN 3 Buteng. This can be see from the improvement of students' mean score on the pretesst and posttest. Before treatment students means score was 60,94 then after giving treatment students mean score increased to 86,83being given treatment (pre-test) the mean score obtained by students was 60.94 then the mean score increased after being given treatment (post-test) which was 86.83. Besides, the increase in student learning outcomes is also seen in the acquisition of N gain where the majority of students are in the high category (0.72). Furthermore, from the results of the hypothesis test using the paired sample test, it was obtained that Tcount was greater than the value of Ttable (14,662>2,048) with a significance level of = 0.05. Since the value of Tcount is greater than the value of Ttable, Ho is rejected and $H_1$ is accepted, thats mean the use of an autonomous learning model assisted by the Duolingo effective on increasing vocabulary mastery at class VIII students SMPN 3 Buteng

There are several main reasons why the use of autonomous learning model has a positive impact on improving student learning outcomes. The first reason is the emergence of an independent attitude in students, for example, students have freedom to develope what attitude should be used in learning. Students feel free to discover their greatest potential which assist them to determine what learning activities they need wtihout rely on teachers' instruction. when students do not need any assistant from other, either from teachers or classmates, they become more active and creative participant in learning process. As shown at the students learning outcome improvement after being treatment using autonomous learning model. Most of students are able to accomplished the task alone. In finishing the task, the students did not feel anxious in case their answer is differ from others. The students got self-high confidence in answering the test, they were not hesitan anymore whether the asnwer is right or worong (Prabowati,2022).

The next reason is the emergence of students ability to overcome obstacles when learning vocabulary. Yildrim, et al (2012) strentheing that autonomous learning model was built because of the motive to master certain competencies in learning, by mastering these competencies students get easier to solve problems faced during leraning activities..In line with the results found in this research, students always try to find ways to answer the questions correctly. They become more persistent to finish whole task given in duolingo. As revealed by Garaus, et al (2016) autonomous learning model build the students autonomy, the role of teacher merely as facilitator who make sure the teaching

learning process run well, students stay active, and the learning goal achived.

Furthermore, by using autonomous learning students are able to control themselves and be responsible for their learning activities. (Prabowati, 2022) states that learning becomes more effective when students have strong self-control by applying a disciplined attitude and having high responsibility in learning activities. In line with the result of students learning activity , it showed that the students responsisbility develope since they finished all exercises given in duolingo. In addition, autonomous learning develope student participation in learning in which they attempted to initiate each learning activities in Duolingo without any burden from other people. (Nuralie, 2019) emphasizes that independent learning is when a person has his or her own desire to learn without any burdern from others with the aim of mastering certain competencies and improving learning outcomes. It shown in this study where students be autonomous to determine the way of can be seen in this study where students independently formulate how to accomplish the exercise in duolingo propely.

In this study, Duolingo made a major contribution as a medium to apply autonomous learning model. In its use, Duolingo is equipped with various features that make students convenient  to learn independently. The feedback feature for example, this feature will automatically display corrections if the student's answer is wrong. That way, if the same question reappears, students easily identify the right answer. This makes them never give up and keep doing the exercises even though they find difficult questions. In line with that (Fauzan & Kasim 2020) stated that the direct feedback given to students on duoling had a positive impact on learning motivation . On the other hand, Nursyamsi (2021) revealed that Duolingo is an effective vocabulary learning medium. Duolingo carries the concept of learning by playing which equipped with image visualization, audio, and translation to make learning activities more effective. Certainly,  with using  duolingo the existence of autonomous learner appeared  as seen in the findings of this study, where students find the meaning of a difficult word without help from the teacher or classmates, what they do is merely  press the difficult word and the meaning of the word will appear automatically. With this asssintat, students become more enthusiastic in learning English vocabulary.

## 6.  Conclusion

From the results of data analysis, it can be concluded that there is a significant effect on the use of the Autonomous Learning Model using the Duolingo application to increase the vocabulary mastery of class VIII students at SMPN 3 Buteng. This can be seen in student learning outcomes which have increased before and after treatment. The pre-test score obtained by the students was 60.94 after the treatment the post-test score increased to 86.83. In addition, from the results of the t test, it was found that the value of Tcount was greater than the value of Ttable (14,662>2,048) so that H0 was rejected and H1 was accepted. This means that the treatment given to students,  which is  Autonomous Learning Model assisted by the Duolingo application, has an effect  to improve students' vocabulary mastery. There are several very basic reasons has been sucessfull in vocabulary learning. The first reason is that students become more independent in learning and are able to sharpen their potential in determining the best learning activities for themselves without any helping from others. Then with this independence students will be able to overcome obstacles that they may face during the learning process. In autonmous learning model the students learn to built a motivation of mastering some competences which facilitate them to solve some problem related to their learning activity.. After that, through the autonomous learning model students are trained to be more disciplined in learning and have a high sense of responsibility to complete each task given. Next, the autonomous learning model increased student participation in learning because they are able to initiate learning desires without any encouragement from other people.

Duolingo makes a major contribution to the application of autonomous learning models. In the Duolingo application, students get so much convenience in learning vocabulary, then the features available in Duolingo can provide a new learning experience for students. The emergence of image visualization, audio, and translation in this application adds to the enthusiasm of students to enrich their vocabulary. The students no longer open the dictionary to find the meaning of difficult vocabulary because they just press the difficult word and the meaning of the word will automatically appear. Students can also guess the meaning of the word from the pictures provided, listening to the pronunciation of the vocabulary from the audio. With the concept of learning while playing duolingo, it is able to attract students' attention in learning vocabulary.

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