



Gamification in Duolingo App on Improving English Listening Proficiency of Junior High School Students

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Abstract. Gamification is considered as a strategy to involve students in solving problems related to learning English, rather than playing games. Duolingo, an application that uses gamification, is suitable for junior high school students as a formal classroom setting in English learning. This study aimed at investigating whether the use of gamification in Duolingo App can improve the listening proficiency of junior high school students in English. This research uses quasi-experimental design with quantitative approach. The data is collected using test and observation and analyzed using SPSS 26 App. The results show that the sig. (2 tailed) indicated is 0.002 meaning that there is difference between post-test of experiment class and control class. It is concluded that gamification in Duolingo app affects English listening proficiency of junior high school students. Hence, Duolingo App has the potential to serve as a valuable tool for educators to enhance their students' listening skills. Additionally, gamification can form the foundation for the development of technological learning resources. However, this study has some limitations, and further research involving different educational levels, media, and longer experiment duration is necessary to obtain detailed and reliable results that can be applied to the broader population.

Keywords: Gamification, Duolingo App, English Listening Proficiency, Junior High School Students

Introduction

Nowadays in globalization era, technology has been developed in every aspect of human being, from smartphone for easing communication and information gaining to robot for helping doctors (Lestari, 2018). One of the aspects that appear because of the technology development is gamification. The name of "Gamification" is created by Nick Pelling, a programmer from England, in 2002. Initially, gamification was not welcomed by other people because it was seen as game tool only. However, in 2010, gamification was started to develop in educational sector (Yordanova, 2019). Gamification is an approach through game element or video game to solve non-game problems that has the purpose of motivating students in order to enjoy particular material during learning process and escalate their achievements (Khaleel et al., 2020; Sari et al., 2015).

Usually, gamification applied in educational sector is in a form of game application (Jusuf, 2016). One application that applies gamification is Duolingo App. Duolingo is an application for learning some languages consisting some materials such as nouns, verbs, phrases, etc., which has various language modes that can be chosen by students such as English, Arabic, Spanish, or French (Ajisoko, 2020). Duolingo App is functioned to help students to enhance their motivation and achievement in learning language, especially English (Nushi & Eqbali, 2017). In Duolingo, some features are provided to make students learning

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English such as levels, points, leaderboard, progress bar, gift, and ranks that match gamification characteristics (Al-Azawi et al., 2016; Huynh et al., 2016).

Duolingo can be used and given to everyone who wants to learn any particular language provided in it (Teske, 2017), including junior high school students. It is because junior high school students are in the formal operational stage. The characteristics of students in formal operational stage is that they are able to acknowledge something abstract meaningfully and represent aspects imaginative, which is the utilization of game to associate it with language learning (Dalle et al., 2017).

According to the 2013 curriculum, junior high school is the first stage for students to learn English formally in class (Mubarak, 2016; Panjaitan, 2013). It is because English course in elementary school is omitted from compulsory course and it depends on each elementary school policy whether the school will give English or not to their students (Maili & Hestingsih, 2017). It causes junior high school students get confused and assume that English is difficult as their ability in using English is considered low (Romadhon & Sungkar, 2020). Therefore, the junior high school students need to be given a media such as Duolingo, which can ease their learning and increase their English Proficiency (listening, reading, speaking, and writing).

The class in junior high school level that is considered to be the most urgent to be given a media to enhance their English Proficiency is seventh grade (Brian et al., 2018). It is because the seventh graders are new students who are in the transition period from elementary to junior high school (Simmons & Blyth, 2017). In addition, the fact that they never get English course in the formal class also becomes the reason why it is appropriate to give the seventh graders more attention and media. The use of media can introduce English, which will be a compulsory course taken, to the seventh graders (Akbari, 2015).

Moreover, in the regular English learning class of seventh graders in SMPN 1 Jatiroto, the students only have textbooks to learn English. In addition, according to the English teacher for seventh grade, they are hardly ever taught listening. It is because the teacher thought that they have not been ready yet to learn English listening proficiency. It causes they have difficulties in understanding English, especially listening proficiency.

In fact, several research such as Gangaianaran & Pasupathi (2017), Liperote (2006), Pinter (2017), Saxton (2017) stated that, in language learning, students have to listen several words before speaking or writing it. That statement is based on a circumstance that from baby, students listen to their mother tongue from their environment then speak it, followed by reading and writing. Therefore, it is important to strength their listening proficiency in English as a basic for them to learn English to be more advance (Gilakjani & Sabouri, 2016).

Some researchers have conducted research to determine whether Duolingo is effective for junior high school students. First is research conducted by Wijaya et al. (2016) showing that Duolingo can be used to improve students' achievement in vocabulary. According to Nurbainah et al. (2017), the use of Duolingo game as a teaching method is effective in enhancing the grammar skills of seventh-grade students in the area of personal pronouns. Similarly, Niah (2019) found that utilizing Duolingo for improving the speaking and listening skills of junior high school students has been demonstrated to be effective.

Other than that, some research is also conducted to know the effect of Duolingo on English proficiency such as the study from Hafifah (2021) indicates that the utilization of Duolingo significantly enhances the speaking ability of tenth-grade students at MA Bilingual Batu during the 2019/2020 academic year. Similarly, ZA (2017) reported in their research that Duolingo can be an effective language learning app for students at IAIN Zawiyah Cot Kala Langsa to improve their English language proficiency. However, from the research that has been conducted, hardly any research discussing related to the effect of gamification in Duolingo toward junior high school students' listening proficiency in English. Therefore, the researcher is interested to conduct research to determine whether the use of gamification in Duolingo App will enhance the English listening proficiency for junior high school students.

Theoretical Framework

English Proficiency and the Ability to Listen Owned by Students

As non-native English countries, students need to acquire certain level of fluency, accuracy, and proficiency. English proficiency leads to the skill of students to understand the English language in spoken and written communication contexts (Ozowuba, 2018). This involves selecting appropriate vocabulary, constructing phrases, crafting concise sentences, composing short paragraphs (in written communication), and other linguistic elements that should be used depending on the context (Dehghanzadeh et al., 2021). The benefits that students can reach because of having good English proficiency are understanding what people from other countries because English is the international language, accelerating people's education since many aspects in education such as books use English, getting new information from internet and press as the majority of articles of information in internet and press use English, giving confidence to travel around the world, and giving opportunity to access a world of entertainment (Nishanthi, 2018).

English proficiency contains listening, reading, speaking, and writing (Runde & Nealer, 2017). The basic proficiency that students need to understand first is listening proficiency. It is because people learn language and know particular language from listening to something. The more frequently students listen to English language, the more they can differentiate between words spoken (Paimè & Peters (2019).

English proficiency of students can be measured by using some standard measurements, one of which is CEFR (Common European Framework of Framework of Reference for Language). CEFR provides six different levels that can indicate the English proficiency of students from A1 for beginner and C2 for advanced students (Suryani & Amalia, 2018). However, because the subject of this research of junior high school students, the questions and difficulty level provided for conducting research are adapted. Richards (2017) states that the objective of a listening proficiency exam is to showcase one's aptitude to comprehend different forms of spoken language that an English instructor would utilize for both educational and career growth purposes. The listening test usually involves three to four recordings of spoken discourse, which are played only once, and assesses both the input and output aspects of language proficiency. When students have high listening proficiency, they will have higher implementation of English as well.

Engaging Class Situation Based on Secondary Students' Characteristics

Young et al., (2014) in Richards (2017) noted that the importance of having qualified English language instructors with the requisite expertise and proficient language skills to teach English effectively, especially for elementary and high school students. When teachers are able to create teaching and learning, the outcomes of students in particular subject. This learning and teaching strategy should see the preference and the characteristics of the secondary students.

The characteristics of the secondary school students, according to the Ministry of National Education, is that secondary school students experience adolescence, a period of development as a transition from childhood to adulthood. There are three characteristics development in secondary school students, one of which is cognitive aspect development (Fadilah et al., 2020).

Cognitive aspects refer to intellectual or abilities, such as comprehension, information retention, and problem-solving skills. Students experience an increase in the ability to express themselves. Language ability become better and more sophisticated, more vocabulary. When adolescents reach maturity, they will have the ability to formulate rational reasons, apply information, implement knowledge, and analyze situations critically. Thus, they need to have learning method that involves themselves in learning. It means, they need to put themselves as the main character when learning (Komalasari & Saripudin, 2018).

In addition, primary school students are into the interactive things such as game. Even, they are addicted to it. However, when teachers can use this shortcoming to motivate students

in language learning, they will reach out the outcomes expected (Männikkö et al., 2018). Therefore, using game in reaching the attention and motivation from primary school students are the best option. This is proven by the research conducted by Buranda (2020) that stated game online can enhance the motivation of SMPN 3 Palopo students in learning.

Gamification and Duolingo App to Enhance Language Learning

Gamification is aimed at enhancing the motivation of students in learning a particular material such as language learning. In order to invite the students to have engagement in language learning, there are some aspects that need to maintain that game needs to be (1) fun (activity of choosing favorite character), (2) separate (has limit in time and place), (3) uncertain (the outcome or contents cannot be predicted), (4) governed by rules (having different rules from real life, and (5) fictitious (awareness of a different reality) (Chen & Hsu, 2020). Not all game can be identified to have gamification. It is because gamification should contain aspects such as levels, badges, points, ranks, and scores to solve materials non-game.

Duolingo is an application that apply the gamification technique to help students learning some languages such as English, Arabic, Spanish, French, etc (Ajisoko, 2020). There are some features in Duolingo App that can enhance students' motivation and achievement in language learning according to Kreisa & Cristiano (2020), which are (1) it has organized and progressive lessons separated in levels, (2) users can have opportunity to strengthen their skills and give some tips to strengthen them, (3) immediate sentence building will be trained by Duolingo App even when it is the first time users do the test, but the sentence will be the easiest to difficult one, (4) Duolingo App contents gamification to make the learning a language like a game which it is because it has levels, points, and rankings on leaderboard to lead the real learning, (5) Duolingo offers a bunch of add-ons for certain languages for practicing reading and listening comprehension through Duolingo Stories, (6) to practice listening skill, users are required to accomplish some questions such us listen-translating, listen-speaking, and listen-arranging words, and (7) it also has reminder on a certain date to make sure users learn consistently.

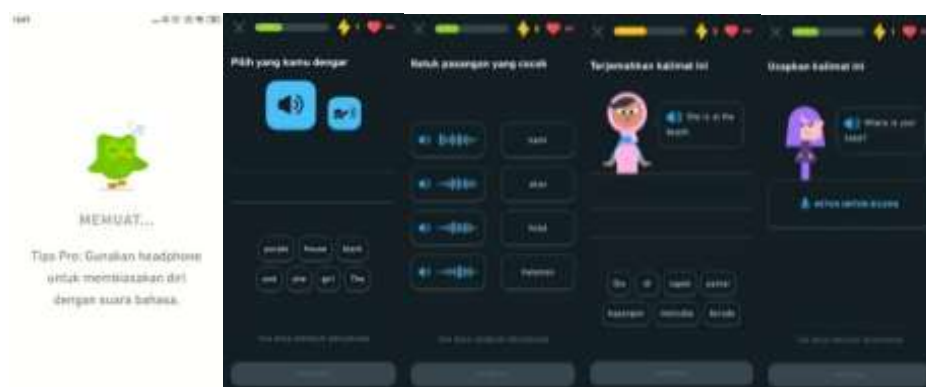


Figure 1. Features in Duolingo (Researchers' Data)

Material and Method

Research Design

This research aims to investigate whether gamification in Duolingo can improve the listening proficiency English of the junior high school students. Thus, this research is considered as experimental research. Experimental research is research conducted to prove a hypothesis by involving manipulated variable(s), or independent variable(s), and measured variable(s), or dependent variable(s) (Dindar et al., 2021); in which, it involves gamification in Duolingo as the independent variable and listening proficiency in English of junior high school students as dependent variable.

This study utilizes a quasi-experimental research design with a nonequivalent group pre-test and post-test design. This type of design allows the researchers to provide distinct teaching and learning interventions to the experimental group, as compared to the control group, without randomly assigning the classes (Anwar, 2019).

Research Procedure

This research is conducted by implementing (1) preliminary study, (2) research instrument development, (3) research data collection, (4) research data analysis, and (5) conclusion. Research procedure is used by researchers to maintain research conducted to be structured, coherent, logical, and systematic (Gushendra, 2017). The detail of every stage in this research procedure is identified in figure 2.

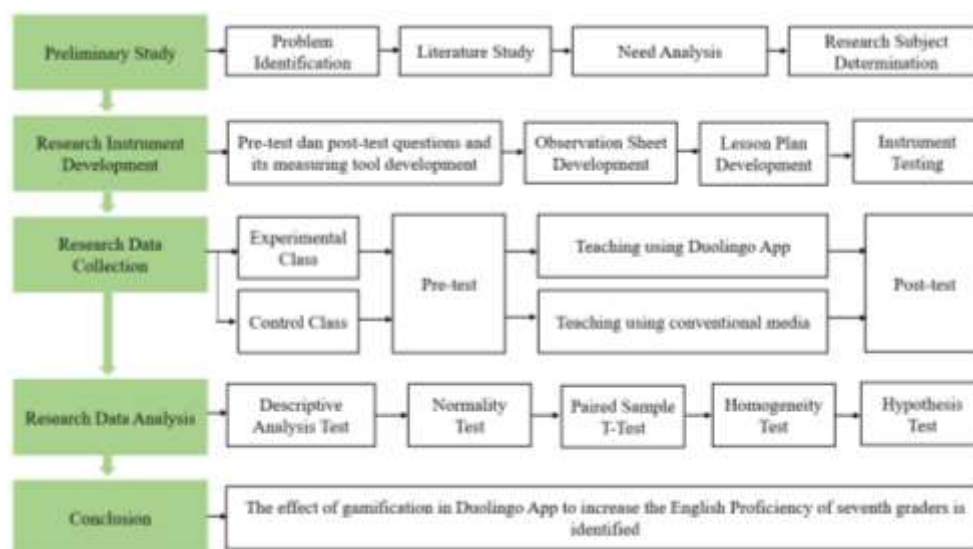


Figure 2. Experimental Research Procedure (Adapted from several sources, 2022)

In every meeting, the research is conducted according to the lesson plan developed by the researchers in advance based on the basic competency for 3.4 of 2013 curriculum. Both classes are given the same opportunity to improve their listening proficiency during research because the researchers want to see the different results of class with Duolingo App usage and textbook usage whether the experiment class has higher outcomes than control class. In addition, they also have the same opportunity to ask questions if they have not understood with the material yet.

The first meeting of experiment and control class is conducted by giving pre-test to the students to know their knowledge before giving treatment. After pre-test section, the students are given the descriptive text introduction such as what descriptive text, the function, and the examples of the descriptive text is. It aims to prepare students regarding preliminary knowledge of descriptive text. The activities in both experiment and control class remain the same in order to equalize the understanding and knowledge of the students.

From the second to the fourth meeting, the learning activities between the experiment and control class are distinguished to determine the different results the utilization of Duolingo toward the English listening proficiency of junior high school students in SMPN 1 Jatiroto. In addition, during the second to fourth meeting, the students are given instructions in English and they are invited to pronounce the descriptive sentences or words in order to make students used to listening to English.

In the second meeting, students in control class are invited to read and understand the descriptive text in their textbook as well as to identify language features in which is simple present tense and adjective. Meanwhile, in experiment class, the students are introduced the Duolingo app, check their open levels by doing the test provided in the app, and introduce the language feature in which is simple present tense and adjective using the help of Duolingo

app. In addition, the experiment class students are asked to play the Duolingo app to open higher levels in their own home while experiment class students are asked to do several activities in their textbook.

In the third meeting, control class students are invited to discuss about their previous meeting assignment. After that, they are given descriptive text structure material and invited to identify the text structure from the text provided in their textbook. However, the first activity for experiment class students is that they are invited to discuss regarding the question and answer presented in their levels of Duolingo app about what they do not understand. After that, they are given material about social function and text structure and invited them to identify the structure and function of sentences in Duolingo app.

In the last meeting, the activities in experiment and control class are mostly re-discussing the previous material in the first to the third material given. The difference is that in experiment class, students are invited to discuss their answer in their levels of Duolingo app about what they do not understand before discussing further about the descriptive text while control class students are invited to discuss their homework in their textbook. After finishing the session, the last activity in both classes is giving the students post-test to discover the score difference between students taught using Duolingo app and students taught using conventional media such as textbook.

Research Subject

Because this experimental research is conducted in formal school, in which the classes and its members cannot be assigned randomly, this research uses purposive sampling. Purposive sampling is sampling technique in which it reflects a group of sampling technique that depends on the researcher's consideration when determining the group(s) (Sharma, 2017).

Thus, the population of this research is the junior high school students of SMPN 1 Jatiroto with the sample is the students of grade VII A and VII B with the total of 31 students for VII A and 32 students for VII B. VII A and VII B are selected to be the sample because, approximately, the students of VII A and VII B have similar characteristics in English ability and understanding level according to the English teacher for seventh graders. It is aimed at obtaining the fair outcomes or results from both classes.

Data Collection

The data in this research is collected using test and observation (during the treatment). Test is a systematical measurement of a sample of behavior by giving a set of questions (Lu, 2020). The test involved is pre-test and post-test. The total questions for pre-test and post-test used in this research are 10 questions. Other than that, observation is aimed at investigating the progress of the students in experimental and control group every meeting.

Data Analysis

The data analysis uses quantitative approach utilizing SPSS (Statistical Package for the Social Sciences) 26 App to discover whether there are differences between the scores of pre and post-test of experimental and control group. The analysis procedure is (1) descriptive analysis test, (2) normality test, (3) homogeneity test, and (4) hypothesis test.

Results and Discussion

Results

Instrument Data Analysis

Validity Test

A validity test is conducted to assess the reliability of the testing instrument used in a study. Anastasi and Urbina (1997, cited in Sürücü & MASLAKÇI (2020)) define validity test as a means to evaluate whether a measuring tool effectively assesses the behavior or quality it is designed to measure and determines how well it performs its intended function. An item in

a questionnaire is considered valid when the r-count value is greater than the r-table value. In this study, a validity test is conducted on the pre-test and post-test before administering them to the experimental and control groups. The tests are given to VIIC that have 32 students in total. Table 3 in the following shows the results of the validity test.

Table 3
Validity Test Result

No	Pre-test			Post-test		
	R-count	R-table	Result	R-count	R-table	Result
1	0.389	0.349	Valid	0.501	0.349	Valid
2	0.491	0.349	Valid	0.545	0.349	Valid
3	0.526	0.349	Valid	0.404	0.349	Valid
4	0.531	0.349	Valid	0.404	0.349	Valid
5	0.538	0.349	Valid	0.654	0.349	Valid
6	0.418	0.349	Valid	0.389	0.349	Valid
7	0.489	0.349	Valid	0.351	0.349	Valid
8	0.404	0.349	Valid	0.394	0.349	Valid
9	0.358	0.349	Valid	0.394	0.349	Valid
10	0.498	0.349	Valid	0.389	0.349	Valid

Because the total students of VIIC is 32 students, the r-table identified is 0.349. From the table provided, it is determined that from 10 questions given, r-count of 10 questions of pre-test and 10 questions of post-test are more than r-table. Therefore, all pre-test and post-test questions are considered valid.

Reliability Test

The term of "reliability" is defined as its ability to maintain stability and consistency of instruments throughout the time. In other words, reliability test is a test used whether instruments in research conducted is consistent, in which the test is reliable to produce stable and steady scores (Sürücü & MASLAKÇI, 2020). The instrument is considered reliable if the value of Cronbach's Alpha is more than r-table. In this research, reliability test is used to test the pre-test and post-test before it is given to the experiment and control class. The tests are given to VIIC that have 32 students in total. The results of validity tests are written in table 4.

Table 4
Reliability Test Result of Pre-Test and Post-Test

Pre-test	
Cronbach's Alpha	N of Items
0.598	10
Post-test	
Cronbach's Alpha	N of Items
0.572	10

From the table above, the Cronbach's Alpha of pre-test and post-test are 0.598 and 0.572. It is identified that the results are more than r-table ($0.598 > 0.349$; $0.572 > 0.349$). Those scores indicate that the pre-test and post-test questions are reliable. Because all pre-test and post-test questions are considered valid and reliable, thus, all instrument questions are involved in this research to test experiment and control class.

Test Analysis

Descriptive Analysis Test

Descriptive analysis test is a test that is used to describe the existing data without intending to draw general conclusions or generalizations. In addition, the descriptive data

shown is the additional data to understand the research results (Nassaji, 2015). The descriptive analysis result is shown in table 5.

Table 5
Descriptive Analysis Test Result

	N	Min	Max	Mean	Std. Deviation
Experiment Class Pre-Test	31	20	80	57.42	16.118
Experiment Class Post-Test	31	30	100	68.39	16.145
Control Class Pre-Test	31	20	70	51.29	14.316
Control Class Post-Test	31	20	90	55.81	15.005
Valid N (listwise)	31				

From the result of the descriptive analysis data, it is indicated that the minimum score of pre-test in experiment class is 20 and the maximum score is 80. In addition, after given the treatment using Duolingo, the post-test becomes 30 for the minimum and 100 for the maximum, with the mean of 68.39. Other than that, the control class gains 20 for the minimum score and 70 for the maximum score of pre-test. After given treatment using conventional media, the score becomes 20 or the minimum and 90 for the maximum scores of post-test.

Normality Test

To determine if the data is distributed normally, a normality test is performed. The Kolmogorov-Smirnov test is used to evaluate normality in this particular study. It is because the total sample in this research is 62, in which 31 from experiment class and 31 from control class. According to (Le Boedec, 2016), if the total sample involved is <50 , the normality test method used is Shapiro-Wilk while if the total sample involved is >50 , the normality test method used is Kolmogorov-Smirnov.

The significance level implemented in this research is 0.05. The data is said to be normal if the output of sig. is more than 0.05 ($p > 0.05$) and vice versa. The results of normality test result utilizing Kolmogorov-Smirnov method are shown in table 6.

Table 6
Normality Test Result

	Class	Statistic	df	Sig.
Result	Pre-Test of Experiment	.921	31	0.230
	Post-Test of Experiment	.957	31	0.230
	Pre-Test of Control	.916	31	0.183
	Post-Test of Control	.956	31	0.462

From table 6, it can be identified that the results of sig. in pre-test and post-test of experiment class and pre-test and post-test of control class are 0.230, 0.230, 0.183, 0.462. Because the sig. results are more than 0.05 ($0.230 > 0.05$; $0.230 > 0.05$; $0.183 > 0.05$; $0.462 > 0.05$), it means that all data are distributed normally.

Homogeneity Test

Because all data are distributed normally, the next step to carry out is homogeneity test using Levene test. The homogeneity test is utilized to ascertain if multiple data distributions in a study have equal variances. In this research, the significance level implemented is 0.05. The data is said to be homogeneous if the output of sig. is less than 0.05 ($p > 0.05$) and vice versa (Bloomfield & Fisher, 2019). The results of homogeneity test result are shown in table 7.

Table 7
Homogeneity Test Result

		Levene Statistic	df1	df2	Sig.
Result	Based on Mean	0.041	1	60	0.841
	Based on Median	0.057	1	60	0.813
	Based on Median with adjusted df	0.057	1	59.976	0.813
	Based on trimmed mean	0.037	1	60	0.848

From table 8, it can be identified that the result of significant value is 0.841, in which is more than 0.05. This indicates that all of the data is similar in terms of variance. When the data is homogenous, the independent samples t-test can be used as a parametric statistical test to analyze the differences between the means of the experimental and control groups.

Hypothesis Test

Hypothesis test is a test to determine if the findings of a survey or experiment are relevant and have meaningful result (Gerald, 2018). In this research, the hypothesis utilized is independent sample t-test to test whether there is significant difference between experiment and control class. This method is utilized because the data is distributed normally and homogenous. The hypothesis formed is:

H₀ = There is no effect of gamification in Duolingo app toward listening proficiency in English of the junior high school students

H₁ = There is an effect of gamification in Duolingo app toward listening proficiency in English of the junior high school students

According to Santoso (2014) in Sidik et al. (2020), the guidelines to decide in independent sample t-test based on significance level are in the following.

1. If the sig. (2 tailed) level is < 0.05, H₁ is accepted and H₀ is rejected;
2. If the sig. (2 tailed) level is > 0.05, H₀ is accepted and H₁ is rejected.

The results of hypothesis test are shown in following table 8.

Table 8
Hypothesis Test Result

Result	Class		Group Statistics			t-test for Equality Means									
	Experiment Class	Control Class	N	Mean	Std. Deviation	Std. Error Mean	F	Sig.	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Result	Experiment Class	Control Class	31	68.39	16.145	2.900	0.041	0.841	3.178	60	0.002	12.581	3.959	4.662	20.499
	Control Class	Experiment Class	31	55.81	15.005	2.695									
Levene's Test for Equality of Variances															
t-test for Equality Means															
Equal variances assumed															
Equal variances not assumed															

Based on the data presented in table 9, it can be inferred that the mean score of the post-test for the experimental group is 68.39 while for the control group is 55.81 ($68.39 > 55.81$). This indicates that the mean score of the experimental group is higher compared to the control group. Other than that, the sig. (2 tailed) indicated in the table is 0.002. Because the significance level is less than 0.05, it is identified that H_0 is rejected and H_1 is accepted. It means that there is difference in the English proficiency score between the use of Duolingo App and conventional media which indicates that there is an effect of gamification in Duolingo app toward English proficiency of junior high school students in SMPN 1 Jatiroto.

Discussion

From the data analyzed in this research, it is obtained that the minimum score of experiment class before giving the treatment is 20 and the maximum score is 80; while the minimum score of control class before given treatment is 20 and the maximum score is 70. The scores show that the ability of the two classes is equal. After given treatment, the experiment class gains 30 for the minimum score and 100 for the maximum score while the control class gains 20 for the minimum score and 90 for the maximum class. These scores identify that the learning outcomes of experiment class increases more than the control class. Moreover, from the hypothesis tested, the sig. (2 tailed) indicated in the table is 0.002 which means that there is difference between post-test of experiment class and control class indicating that there is an effect of gamification in Duolingo app toward English proficiency of junior high school students.

The above identification is proven by the observational note that in the first meeting, the act of students in experiment class and control class has the same characteristic which they seem to be quiet because they do not understand many parts of English learning. However, the different feedback between students in experiment class and control class starts to be seen in meeting two to meeting four. Most of the students in control class do not even do the assignments given and still have less than five students can answer questions provided correctly while experiment class students can reach more than 90% of the students who do the assignments well and correctly.

This study's finding indicates that using the Duolingo App in the experimental group led to better learning outcomes than the control group. In addition, the use of Duolingo App can increase the English proficiency of junior high school students. The result of this research is supported by research conducted by Niah (2019). They stated that the utilization of Duolingo App can improve the eight graders' listening skill in SMP IT Al-Hafit Pekanbaru. Other than that, according to Purwanto et al. (2022), the Duolingo App has been found to enhance the listening skills of both high and low-achieving students.

In language learning, especially English, students need to have and achieve a certain level of proficiency. It will determine how well students can apply English in their daily life (Rose et al., 2020). When they start learning English language, they need also to maintain their proficiency, including listening English proficiency. Listening English proficiency focuses on mental processes of listeners (perception, parsing and utilization) (Liu & Yuan, 2021). This listening proficiency contributes the basic learning method in English language learning as humans will learn language from listening their environment. Therefore, the proficiency that needs to develop first is listening proficiency (Hsieh & Huang, 2020).

To enhance this listening proficiency, based on this research, the appropriate medium is using gamification. According to Yulisa (2018), learning English listening proficiency can be a daunting task that induces stress and anxiety. It demands significant time and persistence to improve through regular practice. In the absence of sufficient motivation, students are more likely to abandon their efforts. However, incorporating gamification elements has demonstrated positive effects on student engagement, dedication, and motivation. Furthermore, it has offered a visible record of the English listening proficiency learning journey (Waluyo & Bucol, 2021).

Moreover, gamification entails integrating game concepts and elements into educational materials for learning a new language, with the aim of meeting high-level expectations (Klemke et al., 2018). With the engagement rewards system, levels, and ranking can grow the competition spirit inside them to reach up their friends or their other opponents and become the number one (Perry, 2021). Therefore, when the students are given gamification, their motivation to learn and apply their listening proficiency will also increase (Chen et al., 2020).

Most gamification tools make approach to content delivery in such environments, such as Duolingo. The English language is not the only language that can be studied on Duolingo; students have access to around 95 more languages (Wagner, 2020). The user selects the target language and, if they have prior knowledge, takes the placement test. They choose a daily XP goal and are rewarded if they achieve it (Su & Zou, 2022). The streak increases by one day for each achievement (lesson) completed, and resets to zero if no achievements are performed on any given day (reinforcement) (Loewen et al., 2019). Occasionally, the app will give the user with challenges, such as maintaining the streak for a predetermined amount of days, ranking their experience points relative to those of other users in different leagues, or unlocking a bonus upon completing the challenge (fun orientation and competition) (Fauzan & Kasim, 2020). With the help of Duolingo to preserve the Gamification existence, students can maximize the enhancement of the English listening proficiency (Yana, 2021).

From the description of how gamification in Duolingo App can affect the increase of experiment class students' learning outcomes, the Duolingo App holds the potential to serve as a future tool for teachers and educators to enhance the English proficiency of junior high school students. With the technology advances in this globalization era, the utilization of Duolingo App is able to be implemented in learning activities of junior high school students. In addition, with the material diversity in Duolingo, this app can also be utilized in other levels of education to ease them in learning English.

Conclusion

Students are assigned to control and experimental group to determine the gamification of Duolingo app usage increases students' English listening proficiency. From the experimental research conducted, it shows specific increase of listening proficiency score of experimental class compared to control class. The score means of experimental class students increases from 57.42 to 68.39 indicating the 10.42-point increase. However, the score means of control class students only gain 4.52-point increase with scores of 51.29 to 55.81. Moreover, from the hypothesis tested, the sig. (2 tailed) indicated in the table is 0.002 meaning that the difference between post-test of experiment class and control class existing indicate that there is an effect of gamification in Duolingo app toward English proficiency of junior high school students.

The study findings suggest that using gamification through the Duolingo App in the experimental class led to better learning outcomes than the control group, as well as an improvement in English listening proficiency among junior high school students. As a result, the Duolingo App holds promise as a future tool for teachers and educators to enhance the English proficiency of junior high school students, and it can potentially be used in other educational levels to facilitate English language learning. In addition, gamification can be one of the effective basic techniques for technological learning media development.

This research has limitation that it only focuses on investigating the effect of gamification in Duolingo App toward English Proficiency of SMPN 1 Jatiroto students. Other than that, the listening proficiency focused in this research is the ability of the students to listen that requires students to listen to recordings and answer the provided questions. Due to the limitations of this research, further studies are required with different levels of education, media, and longer experiment durations. This would enable the production of more detailed and valid results that can be generalized to the entire population.

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References

- Ajisoko, P. (2020). The use of Duolingo apps to improve English vocabulary learning. *International Journal of Emerging Technologies in Learning (IJET)*, 15(7), 149–155.
- Akbari, Z. (2015). Current challenges in teaching/learning English for EFL learners: The case of junior high school and high school. *Procedia-Social and Behavioral Sciences*, 199, 394–401.
- Al-Azawi, R., Al-Faliti, F., & Al-Blushi, M. (2016). Educational gamification vs. game based learning: Comparative study. *International Journal of Innovation, Management and Technology*, 7(4), 132–136.
- ANWAR, A. D. I. K. (2019). *THE EFFECTIVENESS OF USING THIEVES AND CSR STRATEGIES TO IMPROVE THE READING COMPREHENSION OF GRADE 8 STUDENTS OF MTsN 2 JEPARA*.
- Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, 22(2), 27–30.
- Brian, I. P. F. C. K., Saputra, I. N. P. H., & Wedhanti, N. K. (2018). THE EFFECT OF TEACHING USING AUDIOVISUAL (VIDEO) MEDIA, ON SEVENTH GRADE STUDENTS' LISTENING COMPREHENSION AT SMP NEGERI 1 MENGWI ACADEMIC YEAR 2017/2018. *Jurnal Pendidikan Bahasa Inggris Undiksha*, 5(2).
- Chen, S., Zhang, S., Qi, G. Y., & Yang, J. (2020). Games literacy for teacher education. *Educational Technology & Society*, 23(2), 77–92.
- Dalle, J., Hadi, S., & Baharuddin, H. N. (2017). The development of interactive multimedia learning pyramid and prism for junior high school using macromedia authorware. *The Turkish Online Journal of Educational Technology*, 16(3), 714–721.
- Dindar, M., Ren, L., & Järvenoja, H. (2021). An experimental study on the effects of gamified cooperation and competition on English vocabulary learning. *British Journal of Educational Technology*, 52(1), 142–159.
- Gangaiamaran, R., & Pasupathi, M. (2017). Review on use of mobile apps for language learning. *International Journal of Applied Engineering Research*, 12(21), 11242–11251.
- Gerald, B. (2018). A brief review of independent, dependent and one sample t-test. *International Journal of Applied Mathematics and Theoretical Physics*, 4(2), 50–54.
- Gilakjani, A. P., & Sabouri, N. B. (2016). Learners' Listening Comprehension Difficulties in English Language Learning: A Literature Review. *English Language Teaching*, 9(6), 123–133.
- Gushendra, R. (2017). AN EXPERIMENTAL STUDY: IMPROVING STUDENTS' VOCABULARY MASTERY BY USING ENGLISH SONGS. *Indonesian Journal of Integrated English Language Teaching*, 3(1).
- Hafifah, H. (2021). The Effectiveness of Duolingo in Improving Students' Speaking Skill at Madrasah Aliyah Bilingual Batu School Year 2019/2020. *Language-Edu*, 10(3).
- Hsieh, Y., & Huang, S. (2020). Using an E-book in the secondary English classroom: Effects on EFL reading and listening. *Education and Information Technologies*, 25(2), 1285–1301.
- Huynh, D., Zuo, L., & Iida, H. (2016). Analyzing gamification of "Duolingo" with focus on its course structure. *International Conference on Games and Learning Alliance*, 268–277.
- Jusuf, H. (2016). Penggunaan gamifikasi dalam proses pembelajaran. *Jurnal TICom*, 4(3), 92772.
- Khaleel, F. L., Ashaari, N. S., & Wook, T. S. M. T. (2020). The impact of gamification on students learning engagement. *International Journal of Electrical and Computer*

- Engineering*, 10(5), 4965.
- Klemke, R., Eradze, M., & Antonaci, A. (2018). The flipped MOOC: using gamification and learning analytics in MOOC design—a conceptual approach. *Education Sciences*, 8(1), 25.
- Le Boedec, K. (2016). Sensitivity and specificity of normality tests and consequences on reference interval accuracy at small sample size: a computer-simulation study. *Veterinary Clinical Pathology*, 45(4), 648–656.
- Lestari, S. (2018). Peran teknologi dalam pendidikan di era globalisasi. *EDURELIGIA: Jurnal Pendidikan Agama Islam*, 2(2), 94–100.
- Liperote, K. A. (2006). Audiation for beginning instrumentalists: Listen, speak, read, write. *Music Educators Journal*, 93(1), 46–52.
- Liu, M., & Yuan, R. (2021). Changes in and effects of foreign language classroom anxiety and listening anxiety on Chinese undergraduate students' English proficiency in the COVID-19 context. *Frontiers in Psychology*, 12, 670824.
- Loewen, S., Crowther, D., Isbell, D. R., Kim, K. M., Maloney, J., Miller, Z. F., & Rawal, H. (2019). Mobile-assisted language learning: A Duolingo case study. *ReCALL*, 31(3), 293–311.
- Lu, K. (2020). Experimental research of English teaching management model based on personalized multimedia technology. *Open Access Library Journal*, 7(4), 1–13.
- Maili, S. N., & Hestningsih, W. (2017). Masalah-masalah pembelajaran Bahasa Inggris pada Sekolah dasar. *Media Penelitian Pendidikan: Jurnal Penelitian Dalam Bidang Pendidikan Dan Pengajaran*, 11(1).
- Mubarak, A. Z. (2016). THE CURRICULUM 2013 DESIGN: ENGLISH TEACHERS' VOICE AND ITS IMPACT TOWARD TEACHING PROFESSIONALISM. *SILIWANGI INTERNATIONAL ENGLISH CONFERENCE PROCEEDINGS "ENGAGING ENGLISH LEARNERS IN NEGOTIATED LANGUAGE LEARNING,"* 12.
- Nassaji, H. (2015). Qualitative and descriptive research: Data type versus data analysis. In *Language teaching research* (Vol. 19, Issue 2, pp. 129–132). Sage Publications Sage UK: London, England.
- Niah, S. (2019). The Utilization of Duolingo to Improve the Speaking and Listening Skills of Junior High School Students in Pekanbaru. *International Conference of CELSciTech 2019-Social Sciences and Humanities Track (ICCELST-SS 2019)*, 102–107.
- Nurbainah, N., Hafifah, G. N., & Hesmatantya, V. (2017). *THE EFFECTIVENESS OF DUOLINGO APPLICATION TO INCREASE STUDENT GRAMMAR ABILITY ON PERSONAL PRONOUN FOR SEVENTH GRADES OF TARUNA JAYA 1 JUNIOR HIGH SCHOOL SURABAYA*. Universitas Muhammadiyah Surabaya.
- Nushi, M., & Eqbali, M. H. (2017). Duolingo: A Mobile Application to Assist Second Language Learning. *Teaching English with Technology*, 17(1), 89–98.
- Panjaitan, M. (2013). Analysis of Content Standards for English in Junior Secondary School and Senior Secondary School. *Pusat Kurikulum Dan Perbukuan*, 19, 140–155.
- Perry, B. (2021). Gamified mobile collaborative location-based language learning. *Frontiers in Education*, 6, 689599.
- Pinter, A. (2017). *Teaching young language learners*. Oxford University Press.
- Purwanto, H. N., Faridi, A., & Rozi, F. (2022). The Effect of DuoLingo and SPADA to Teach Listening to Students with Different Achievement Levels. *English Education Journal*, 12(1), 86–94.
- Romadhon, S. A., & Sungkar, M. S. (2020). Peningkatan vocabulary dan grammar dengan menggunakan metode Make a Match bagi siswa panti asuhan Putera Muslimat Brebes. *JP3M: Jurnal Pendidikan, Pembelajaran Dan Pemberdayaan Masyarakat*, 2(2), 175–180.
- Rose, H., Curle, S., Aizawa, I., & Thompson, G. (2020). What drives success in English medium taught courses? The interplay between language proficiency, academic skills, and motivation. *Studies in Higher Education*, 45(11), 2149–2161.
- Sari, B. W., Utami, E., & Al Fatta, H. (2015). Penerapan Konsep Gamification pada

- Pembelajaran Tenses Bahasa Inggris Berbasis Web. *Sisfotenika*, 5(2), 155–166.
- Saxton, M. (2017). *Child language: Acquisition and development*. Sage.
- Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749–752.
- Sidik, G. T., Kelana, J. B., Altaftazani, D. H., & Firdaus, A. R. (2020). The Effect of Macromedia Flash Based Learning Media To Improve the Ability To Calculate of Students in Elementary School. *PrimaryEdu-Journal of Primary Education*, 4 (2), 241.
- Simmons, R. G., & Blyth, D. A. (2017). *Moving into adolescence: The impact of pubertal change and school context*. Routledge.
- Su, F., & Zou, D. (2022). Learning English with the mobile language learning application 'Duolingo': the experiences of three working adults at different proficiency levels. *International Journal of Mobile Learning and Organisation*, 16(4), 409–428.
- Sürücü, L., & MASLAKÇI, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, 8(3), 2694–2726.
- Teske, K. (2017). Duolingo. *Calico Journal*, 34(3), 393–401.
- Wagner, E. (2020). Duolingo english test, revised version july 2019. *Language Assessment Quarterly*, 17(3), 300–315.
- Waluyo, B., & Bucol, J. L. (2021). The impact of gamified vocabulary learning using Quizlet on low-proficiency students. *Computer Assisted Language Learning Electronic Journal*, 22(1), 164–185.
- Wijaya, R. K., Yufrizal, H., & Kadaryanto, B. (2016). Improving vocabulary through Duolingo application in Call at the seventh grade of SMP. *U-JET*, 5(1).
- Yana, D. (2021). Applying Duolingo as English Learning Media: How do Students Perceive it? *INTERNATIONAL JOURNAL OF LANGUAGE PEDAGOGY*, 1(2), 62–66.
- Yordanova, Z. (2019). Gamification as a tool for supporting Artificial Intelligence development—State of Art. *International Conference on Applied Technologies*, 313–324.
- Yulisa, D. (2018). Learning to listen: Listening strategies and listening comprehension of Islamic senior high school students. *Edukasi: Jurnal Pendidikan Dan Pengajaran*, 5(1), 22–30.
- ZA, A. M. (2017). *THE IMPLEMENTATION OF DUOLINGO AS MEDIA TO IMPROVE STUDENTS' ENGLISH LANGUAGE SKILL AT IAIN LANGSA*. INSTITUT AGAMA ISLAM NEGERI LANGSA.