



The Effect of Gamification in Board Game to Improve Students' English Vocabulary

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Abstract

This study aims to determine whether there is a difference between the learning outcomes of English vocabulary improvement in descriptive text learning for students before and after the Gamification method is applied. The subjects of this study were 41 students of Junior High School. Data collection using tests in the form of multiple choice and essay to measure learning outcomes in English vocabulary improvement. The method used is quantitative method, data analysis using paired sample t test. The results show that the mean score of the post-test is higher than the mean score of the pre-test, this means that there is an increase in learning outcomes of English vocabulary after the Gamification method is applied, the results also show that the significance obtained is 0.000, which is smaller than 0.05, thus H_0 is rejected and H_a is accepted. This means that there is a significant difference between the learning outcomes of English vocabulary in descriptive text learning before and after the implementation of learning strategies using the Gamification method.

Keywords: Vocabulary; Gamification method; Learning Media

Introduction

Language is a fundamental aspect of community life to communicate between community members (Sirbu, 2015). Humans as social creatures communicate using a variety of tools from the time they are born including sounds, gestures, expressions, symbols and words (Christensen, 2018). Language and communication affect various aspects of human life including education. Learning a language is important because language is considered a window to the world that can open doors across countries, cultures and traditions (Smoloktjou, 2018). English is one of the languages spoken around the world and has become an international language. English is considered to be an international language influenced by several factors including historical geography and socio-cultural factors. This makes English a medium of accessing

various knowledge including in education. This relationship is the main reason many countries make English their official or second language (Crystal, 2016). In schools, especially in the era of Globalization, English is a critical aspect that must be prepared early to face the world of work in the future (Sri Andayani, 2022).

English consists of four skills which are divided into two parts, the first part of the skill is called Productive Skills (Active Skills) which consists of Speaking and Writing while the second part is called Receptive Skills (Passive Skills) which consists of Listening and Reading (Sharma, 2021). In addition to these skills, English also consists of language components which between them are a unity that supports each other and cannot be separated, these components include vocabulary, grammar, pronunciation, and spelling (Andriani & Sriwahyuningsih, 2020). Vocabulary is the basic of learning a language, this makes vocabulary a benchmark for learning language skills. Language mastery depends on a person's level of understanding of vocabulary selection which affects the level of clarity and effectiveness of a person in language (Maskor et al., 2016). This makes vocabulary an important component, the more someone masters a lot of vocabulary, the more likely they can master speaking, reading, writing, and listening skills easily (Rohmatillah, 2010). The problem often faced by teachers in teaching vocabulary is students' laziness in memorising, this can be caused by several factors. Based on research conducted by (Layli, 2018) these factors include difficulties in pronunciation of words, sound-spelling mismatches and short-term memory. This can be overcome by applying learning media, enumeration of items, and using mimics, expressions, and gestures.

The characteristics of students in learning have a tendency through a fun approach such as playing (Parker et al., 2022). Learning through playing is a useful strategy to increase students' active involvement in learning in a fun way and can develop cognitive, social, emotional, and creative abilities. This is in line with the implementation of the "Merdeka Belajar" curriculum which requires teachers to think more creatively and innovatively in the learning process. To support enjoyable learning, attractive learning media are needed. The attractive materials and media in teaching are important, by applying this, students can understand the topic more easily and with a pleasant atmosphere (Sukratiningsih & Sahid, 2022). One method that can be used to support this is gamification. Gamification is a game-based learning method that applies the use of game design elements to non-game contexts to acquire knowledge and skills (Welbers et al., 2019). In relation to education, gamification is the application

of game elements to learning design with diverse contexts and subject areas and aims to take a participatory, collaborative and independent approach (Gressick & Langston, 2017). The learning media that can be collaborated with this method is a board game. A board game is a game using a game board with rules and tokens that allows interaction between players (Barbara, 2017).

Gamification in education refers to the use of game aspects for academic growth in formal and informal contexts. Paul Denny analyzed how badges could be used to encourage students to study English in a study of an MCQ-based learning system (Denny, 2013). In Gamification there are elements that can be applied to learning. These elements according to Katie Seaborn include (Seaborn & Fels, 2015) : Points are units of measurement for progress. Badges are visual symbols for accomplishments. Leaderboards are display of ranks for each player. Progression is achieving significant goals. Status to indicate the progress. Levels is increasingly difficult stages. Rewards are things that are tangible and desirable. Roles is playing an element character.

Gamification as a method to support the Board Game media the researchers use the Descriptive Text according to Kemendikbud, descriptive text is a part of the English curriculum in Indonesia (Kemendikbud, 2016).

For both the students who must master it and the instructor who is responsible for delivering it in the classroom, understanding the ideal composition of the text is crucial. Descriptive Text is a type of text that serves as informational material The description of a specific thing, animal, person, or other is the context of this type of prose. It is a text that describes a specific thing, such as a scene, an animal, a person, or something that occurs in nature (Panjaitan & Elga, 2020).

Based on the pre-observations of the researchers in Junior High School, the English teacher from 7 grade teaching English only explain the definition and giving the example. The researchers found several problems faced by seventh grade students in learning vocabulary. Vocabulary becomes a subject whose range and interest are very limited for some students. It is caused by several factors. For general factors, students get bored easily with the teacher's explanation and the lack of learning media used. Students are only asked to memorize some vocabulary from their books during the learning process and only listen to explanations. In addition, another factor is that 7 grade students of Junior High School have not used this Gamification method in learning media and had used the form of Flash Cards to increase English vocabulary but this

media is also considered not sufficient to increase students' interest in learning vocabulary.

Based on the problems that have been described, it can be seen that it is necessary to increase English skills in terms of increasing vocabulary or vocabulary in learning English, therefore a game will be developed using the concept of gamification in Board Game. It is expected to increase student motivation and commitment in terms of honing the ability to learn English.

Some previous studies related to the topic to be studied are adapting gamification in board game media to improve English vocabulary in junior high school is "The Effect of Gamification in Board Game to Improve English Vocabulary in Junior High School". There are three previous studies in the form of thesis works and scientific journals which will be described below.

Dita Fitriana & Rahmawati Khadijah Maro in a study entitled "Teaching Vocabulary Through Snake and Ladder Board Game in The Tenth Grade of SMA Muhammadiyah 1 Malang". The study used quantitative method related to Teaching Vocabulary Through Snake and Ladder Board Game. The data collection technique was carried out by using Pre-test and Post-test. This research was conducted to find out more about Teaching Vocabulary by using Board Game. The result was shown that Due to the fact that the pre-test score in the control group was higher than the pre-test score in the experimental group. Otherwise, the post-test score of control group was lower than post-test of experimental group so the snake and ladder board game may help students become more proficient in vocabulary (Fitriana & Maro, 2018).

Wahyu Nugroho & Suprpto in a study entitled "The Effectiveness of Picture Crossword Puzzle Game in Teaching Vocabulary". The study used the Quasi Experimental method to divide the group into two groups, namely the experimental group which was given treatment in the form of Crossword Puzzle Game and the control group which was not given treatment. Data collection techniques were carried out by distributing questionnaires to find out the opinions of students on the treatment that had been given. This study was conducted to describe the differences in students' vocabulary mastery between them using the crossword puzzle game and to describe the effectiveness of the crossword puzzle game in learning. The results showed that picture crossword is a good-method in teaching vocabulary. The result from the questionnaire shows that students give positive effect to the picture crossword game. students enjoy

learning using picture crossword, they memorize vocabulary more easily and are able to answer the test easily (Nugroho & Suprpto, 2017).

Previous research tends to review board games and gamification as different aspects of each other, rather than being a single entity. However, the gamification method can be used to support the Board Game to increase the attractiveness and create a sense of competition among students. Based on this, the researcher wants to conduct a trial by applying the collaboration of Gamification method on Board Game to improve students' English vocabulary. This research is expected to be an alternative learning option that is enjoyable and creative. Based on the description above, it is known that the Research Question in this research is how the effectiveness of learning methods that apply gamification using board game playing media to improve vocabulary mastery skills in students of Junior High School. The Research Objective of this study is to determine the improvement that occurs before and after the application of the gamification method on board game learning media in mastering vocabulary in English subjects in Junior High School.

Research Methodology

The research method used in this design is quantitative method (Creswell & Creswell, 2018). This suggests that this type of research is one type of educational research where researchers decide what to study, limit questions, collect measurable data from participants, analyze numbers using statistics, and objectively make observations. Quantitative Research requires a sample of the population and relies heavily on numerical data and statistical analysis. The research used an experimental design in which there is an experimental class. An experimental study involves a study of the effect of systematic manipulation of one variable on another variable known as the experimental treatment. The first stage consists of a pre-test which is the initial stage before the experiment is held to measure students' abilities in the learning material to be tested. The second stage consists of a research trial experiment that uses this gamification concept to be tested on students according to the material tested in the pre-test. The third stage consists of a post-test of the results of the experimental trials that have been tested and the final data collection (Leavy, 2016). From the definition previously explained, it can be concluded that quantitative methods are methods that collect data through experimental models by analyzing numbers using statistics. This design does not have a control group class to compare with other classes by using the treatment (Creswell, 2003).

The research has conducted an experimental hypothesis in MTS Muhammadiyah 1 Taman. Therefore, this research called as experimental study. The experimental hypothesis, there is a prediction that the treatment given certain effect. The hypothesis shows expectation as a result that the treatment class will have the effectiveness class by learning English Vocabulary. In the research process, the researchers use one class as sample, where the class has given pre-test, treatment by using Board Game, and post-test after giving the treatment. In experimental class, the researcher applied the Board Game as the media. The population target of this research is the students from seven grade of Junior High School and the researchers use the t test as their data analysis method; the results of the computation are reported; if the significance is 0.05, H_0 is rejected but H_a is accepted; if the significance is >0.05 , H_0 is accepted but H_a is rejected. The t test will be used in the decision-making hypothesis test to see whether the media variable for the board game affects the reading comprehension variable (S., 2010). The design of the research is illustrated as follows:

Tabel 1
Design of the Research

Group	Pre-Test	Treatment	Post-Test
1	Y1	X	Y2

Note:

1 : Experimental Group

Y1 : Pre-test

Y2 : Post-test

X : Independent Variable

One variable was measured in this research is independent variable. The independent variable is the first variable that influence or predict the outcome (Merris & Sari, 2019). In this research, the independent variable is the Gamification in Board Game.

The instruments that used during data collection are lesson plans, pre-test, post-test, learning media for the treatment, and documentation. In this study the researchers had taught in Junior High School in the VII grade by using

Gamification in Board Game as a treatment. Meanwhile, to get accurate data, the researchers has recorded the data sources with video recorder. The experimental class sample is also one of the main data sources in the study by taking the results of the experimental trials in the classroom. The researchers also took documentation in the form of photos of the activities carried out.

After collecting pretest and posttest data from the experimental group, the data will be analyzed. The next step is to determine the difference between each group's pretest and posttest scores. The data is then analyzed using the calculation t-test to determine whether or not the difference between them is significant. Before using t-test for analysis requirements in the form of a data normality test. The data normality test uses Kolmogorov-Smirnov. The researchers then used the t-test to analyze the pretest scores of the experimental group, and this was followed by an analysis of the posttest scores. The last, the researchers used t-test to analyzed the significance different between pretest and posttest to the experimental group. All calculations are performed using SPSS Statistic 22.0, a statistical calculation computer program. The researchers employed the Independent Sample Test and the Paired Sample t-test in this study. The researchers used an independent sample test to determine the difference in students' scores in the experimental group's pretest and posttest. Finally, from the result of t-test, the researchers known that the effectiveness of Gamification in Board Game to Improve English Vocabulary by the significant of pretest and posttest between the students who are taught by Gamification method.

Finding and Discussion

Findings

The researchers were conducted in Junior High School. Its purpose is any significant effect of gamification in board game to improve English vocabulary in Junior High School. The design of this research was quasi-experiment. The participants were students in VII Grade of regular class as the experimental group. For the experimental group, the students were given the treatment by using gamification method in board game media to increase English vocabulary. The researchers used three meeting to conduct this research.

The board game concept is adapted from the snakes and ladders game combined with elements in gamification. The snakes and ladders game was selected because it is a common game and easy to understand the flow of the

game so that it can be applied to teaching. The learning material used for the board game concept using this gamification method is descriptive text which focuses on increasing English vocabulary. The elements in this game can be explained below:

1. The User/Avatar is represented by the "gacho" in the snakes and ladders game which consists of five players with different colors representing each player. Each player will choose the "gacho" that will be used in the game.



Picture 1. Avatar in the Snake and Ladder Design
(Source: Rahmawati, 2023)

2. Challenge/Task (flash cards) is a challenge in the form of passing each square in the snakes and ladders game according to the number of dice rolled and answering the questions on the card according to the colors of the last square.



Picture 2. Yellow Flash Card Design
(Source: Rahmawati, 2023)



Picture 3. Red Flash Card Design
(Source: Rahmawati, 2023)



Picture 4. Blue Flash Card Design
(Source: Rahmawati, 2023)

3. Levels are the game levels represented by each plot on the playing mat. There are 30 squares. The higher the number on the grid, the closer the player is to winning the game.



Picture 5. Levels of Board Game Design
(Source: Rahmawati, 2023)

4. Points are obtained if the player can answer the question on the card correctly.



Picture 6. Points in Score Board Design
(Source: Rahmawati, 2023)

5. User Rank is the total player rank based on the number of points earned by the player.



Picture 7. Score Board Design
(Source: Rahmawati, 2023)

6. Badges/Rewards are achievements that players earn by obtaining the top rank.



Picture 8. Badges/Rewards Design
(Source: Rahmawati, 2023)

Before giving the treatment to the class was given pre-test to make sure the students ability about the material. After giving the pre-test for the class and after giving treatment by using gamification method in board game, the post-test was given to receive the data and to be measured the gamification in board game to improve English vocabulary give effect or not toward students' writing

vocabulary in descriptive text. However, before the test was given the questions of the pre-test and post-test should be valid and reliable. The tryout was conducted to make the questions are valid and reliable. The researchers conducted try out in VII Grade in ICP Class. The test consists of 15 items to measure students' vocabulary in descriptive text. Quantitative data analysis was used to examine the test scores that were derived from the students' responses. In the descriptive statistical analysis, frequency counts, percentages, mean scores, and standard deviation of the data were displayed. Using an independent sample t-test and a paired-sample t-test, the study's hypotheses were examined.

This research is conducted to find out the effectiveness of using Gamification in Board Game to Improve English Vocabulary. The subject of the research is one class, this is experimental group. The researchers conducted the experiment (Pre-test, Treatment, and Post-test). The data computation includes the results of the students' tests. The data are collected from students' pre-test and post-test results.

Description of Pre-test Results descriptive text

Before the research was conducted, a pre-test was conducted to the students who would be involved in the research to find out the initial abilities possessed by them related to the subject of descriptive text. The results of the pre-test in descriptive text learning are as in the table below:

Table 2

Pre-test data of descriptive text					
	N	Min	Max	Mean	Std.D
Pre-test	41	50	85	72,195	8.877

Table 2 shows that the average value of the pre-test results of vocabulary learning outcomes in descriptive text learning material is 72.195, with a standard deviation of 8.877, while the maximum value obtained is 85 and the minimum value is 60.

Description of Pos-test Results descriptive text

The post-test results of descriptive text learning materials in this study were obtained after the research subject group was treated with the gamification method. The results of the descriptive text post-test are shown in table 3 below.

Table 3**Post-test data of descriptive text**

	N	Min	Max	Mean	Std.D
Post-test	41	75	100	88.853	6.039

Analysis Requirement Test

In order to test the hypothesis proposed in this study, the variables studied, both the independent variable, namely the gamification method and the dependent variable, namely the improvement of English vocabulary, were tested using analysis through a paired sample t test. Before conducting the analysis, the data from the research results were first examined with the Paired Sample t Test analysis requirement test, namely the normality test.

Normality Test

Normality test is used to determine whether the data is normally distributed or not as one of the prerequisite tests for conducting Paired Sample t test analysis. The following are the results of the normality test of pre-test and post-test data on the improvement of English vocabulary in descriptive text learning materials:

Table 4**Tests of Normality One-Sample Kolmogorov-Smirnov Test**

		Pre Test	Post Test
N		41	41
Normal Parameters ^{a,b}	Mean	72.1951	88.8537
	Std. Deviation	8.87755	6.03971
Most Extreme Differences	Absolute	.161	.205
	Positive	.108	.205
	Negative	-.161	-.189
Test Statistic		.161	.205
Asymp. Sig. (2-tailed)		.009 ^c	.000 ^c

Test distribution is Normal

Based on the table above that One Sample Kolmogorov-Smirnov Test normality test table using the help of SPSS 22.0 for windows, it shows that the significance (p) for the research subjects before the pre-test and after the post-

test is greater than the significance of 0.05, which means that the data is normally distributed.

Research Hypothesis Analysis

There are two hypotheses as follows:

1. The null hypothesis (Ho) is a hypothesis that shows there is no significant difference before (pre-test) and after (post-test) after using the Gamification method in learning English.
2. The alternative hypothesis (Ha) is a hypothesis that shows there is a significant difference before (pre-test) and after (post-test) after using the Gamification method in learning English.

The hypothesis above was tested using paired sample t test analysis and is described in the form of paired sample statistic, paired sample correlation, and paired sample test (sig-2tailed) as the following:

Tabel 5

Paired Samples Statistics

		Group Statistics			
Group	N	Mean	Std. Deviation	Std. Error Mean	
Pre-test Score	1 41	72.1951	8.87755	1.38644	
Post-test Score	1 41	88.8537	6.03971	.94324	

Based on table 5, It shows that the calculation of writing descriptive text total pre-test scores is 2960 and its mean is 72.20. Meanwhile, the calculation of writing descriptive text total post-test is 3643 and its mean is 88.85. In this data from the research the highest score of writing descriptive text is 3643 in post-test and the lowest is 2960 in pre-test. After giving the treatment by using gamification method the score is increasing in post-test.

Table 6

Paired Samples Correlations			
	N	Correlation	Sig.
Pre-test & Post-test	41	.792	.000

Based on the paired sample correlation test table data above shows the results of a significance value of 0.000, where the sig value is > from 0.00, this means that the pre-test and post-test have a correlation or there is a significant correlation.

Table 7

The analysis of Paired Sample T-test between Pre-test and Post-test of Writing Descriptive Text (Experimental Group)

Subject	Research Group	Mean	Standard Deviation	N	Df	T	Sig. (2-tailed)
Experimental Group	Pre-test	72.19	8.877	41	40	-19.352	.000
	Post-test	88.85	6.039	41	40		

From table 7 above, the output of paired sample test shows that t-test result is -19.352, its degree of freedom (df) is 40, mean score of writing descriptive text pre-test is 72.19 and writing post-test is 88.85. by comparing the significance, if probability > 0.05, so null hypothesis (Ho) is rejected and if probability < 0.005, alternative hypothesis (Ha) is accepted. This shows that there is a difference in learning outcomes before (pre-test) and after (post-test) using the Gamification method in learning English.

Discussion

The research results from the applying gamification method showed that students' learning outcomes after being given the treatment had increased from before being given the treatment. Based on the results of research and data analysis, a comparison of score was obtained which showed that the number of samples (n) 41 students, the score of the pre-test for the lowest score was 43

(forty-three) and the highest score was 85 (eighty-five). While the post-test value for the lowest score is 75 (seventy five) and the highest score is 100 (one hundred). The mean score of the pre-test was 72.19 and the mean score of the post-test was 88.85 and the standard deviation of the pre-test was 8.87 and the standard deviation of the post-test was 6.03. This shows that the scores obtained by students in the post-test are higher than the scores of students in the pre-test.

The results of statistical inferential analysis based on the results of hypothesis testing using SPSS 22.0 for windows obtained a significance score of hypothesis testing of 0.000 with a significance level of 0.05. Because the significance value of the hypothesis test is smaller than 0.05 (sig. <0.05 = 0.000 <0.05), H_0 is rejected and H_a is accepted. So it can be concluded that there is an effect of the Gamification method on the learning outcomes of descriptive text to improve English vocabulary in class VII regular students at Mts Muhammadiyah 1 Taman.

The previous studies to observe the effect of snakes and ladders game media on student learning outcomes in improving English vocabulary, the result showed that students' vocabulary could improve English vocabulary and could understand the meaning of words. This means that there is an increase in learning outcomes after using snakes and ladders game media (Prabantari et al., 2017). In this research also using snake and ladders game as a learning media by using Gamification method, the result showed that gamification method using snake and ladders as a learning media could improve English vocabulary in descriptive text. The effect of scramble game to improve students' vocabulary and the result showed that the scramble game could improve the students' vocabulary and students are motivated to learn vocabulary through scramble games and the use of scramble games to improve vocabulary is successful (Umasugi et al., 2018). Using games as a method could improve English vocabulary and the result is also significant in this research using gamification method could also improve the students' vocabulary.

The findings of this research were also in line with Katie Seaborn's explanation (Seaborn & Fels, 2015). that gamification method using snakes and ladders game as media can be useful for language learning that can motivate and get enjoyment in non-games while interacting with other people involved in it. For example: the students were asked to divide the group into 6 with each group of 5 members, then the students were asked to answer the question cards that they get according to the color in the snakes and ladders game box, the students have to answer the questions in the question cards consisting of English

vocabulary and sentences and they have to answer them by mentioning the Indonesian version of the vocabulary and the characteristics of the explanation contained in the card. In this case, the researchers took the theme of "descriptive text" and took the version of "animal" to give real things around them to teach, then after the students answer the questions, they have to remember the vocabulary they have got before and also the characteristics of the animal on the card in case they get the same question later. Thus, in this game students have the opportunity to explore their knowledge into daily life and can also interact with other students if they find difficulties in answering the questions. Using gamification method was not only use the board game and card but gamification method there were 6 elements to be more helpful students learning.

Effective learning methods can affect the improvement of English vocabulary in learning, as stated by Zhihong Bai (Bai, 2018). Helping students in improving learning outcomes if the methods used can be applied effectively, one of which is by using gamification methods that can improve English vocabulary while playing snakes and ladders board game.

Conclusion and Suggestion

Based on the results of the study, it can be concluded that to build students' interest in learning English and improve vocabulary, media that attracts students' attention is needed, namely Board Game media in the form of Ladder Snakes using the Gamification method. In addition, the results showed that there was an effect of applying the Gamification method in descriptive text learning to increase the English vocabulary of seventh grade students in Junior High School. The average results showed that the students' learning outcomes before the treatment was 72.19 while the average score of learning outcomes after the treatment was 88.85. This proves that there is an increase in English vocabulary learning outcomes in descriptive text learning using the Gamification method. SPSS output hypothesis test is $0.000 < 0.05$, then H_0 is rejected and H_a is accepted, which means that the application of the Gamification method can affect and improve student learning outcomes. It is expected that learning media in the form of Board Game media with Gamification method can improve English vocabulary, especially vocabulary about animals.

This research has suggestions for teachers and researchers. Suggestions for English teachers in Junior High School to always innovate in learning media so

that students are more interested and not bored during the lesson. Suggestions for researchers to be able to further develop learning media that can help students in understanding the material in school. The suggestions for the next researchers to be able to develop in accordance with the advice that has been submitted.

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