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The Efficacy of Literacy Teaching Reading: How Can Students' Extrinsic and Intrinsic Motivation and Reading Comprehension Proficiency Be Increased by Game-Based Learning with Kahoot?

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Abstract

This study intended to determine whether game-based learning with Kahoot may enhance students' intrinsic and extrinsic motivation for reading comprehension. The objectives of the study were: (1) to show the effectiveness of game-based learning using Kahoot to improve extrinsic and intrinsic motivation. (2) to demonstrate the effectiveness of game-based learning using Kahoot in reading comprehension. (3) to show the relationship among the game-based learning using Kahoot, extrinsic and intrinsic motivation, and reading comprehension. The aim of the study was to teach students in Walisongo Senior High School Pecangaan's XI Kesehatan class learning for reading analytical exposition texts. The test, observation sheet, and questionnaire sheet were the instruments employed. The Test was divided into pretest and posttest. The test consisted of reading analytical text by using multiple choice test. And to assess intrinsic and extrinsic motivation, motivation's scoring criteria in questionnaires sheet of a closed-ended question was employed in this study. The post-test results showed that the students' post-test after utilizing Kahoot was greater than the students' pretest before to receiving the treatment. The study's conclusions demonstrated the effectiveness of game-based learning with Kahoot in improving students' reading comprehension extrinsic and intrinsic motivation. The further researchers could advance the research area in the field of Kahoot by examining the effectiveness of the use of Kahoot for other English skills. By examining the quality of Kahoot, further researchers can also explore the experiences of teachers and students.

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INTRODUCTION

According to Staker and Horn (2012), there are still many schools that employ traditional learning methods in which the source of knowledge is solely on the teachers, and they spend a lot of time in the classroom just listening to the teacher, which leaves students feel bored. Throughout the teaching and learning process, the teacher takes the lead and the students are passive. The teacher normally instructs the students to read silently, find the difficult word, then open their dictionary. To create a lively atmosphere in the classroom, current technology can be employed as a supplement to the traditional classroom teaching technique. As a result, it is critical to use technology as a media to enhance teaching and learning materials without regard to time constraints.

One of media technology that popular in learning reading comprehension is Kahoot application. Game-based learning tools like Kahoot supplement educational techniques with new technological alternatives. Kahoot is a digital game-based student response system that allows teachers and students in classroom settings to interact through competitive knowledge games using existing infrastructure. There are some studies related to Kahoot conducted by Fuchs (2022). The goal of the study is to investigate undergraduate students' perceptions of the use of Kahoot in their classrooms. The findings revealed that gamification improved students' learning progress. However, gamification did not keep them motivated throughout the entire course. Furthermore, international students regard gamified learning as more beneficial than Thai students. Another study by Bice (2018); Lin et al. (2018) found that incorporating a gamification method increased student interest in the class and student ambitions for success.

The implementation of interactive media, like games, into learning environments has received a lot of praise and attention. Media such as games are very interesting and popular in teaching and learning. It is in line with Licorish et al. (2018); Yuruk (2019); Licorish & Lotter (2022), who found that using educational games in the classroom will reduce distractions, thereby improving the quality of teaching and learning above and beyond what is provided in traditional classrooms, the teacher will manage the students with fun learning by using this media, as the Kahoot tagline makes learning awesome. Another study by Fathan & Syafii (2018). It aims to discover the case of Kahoot and bring innovation. As a result, media the teacher will manage the students with fun learning, as kahoots' tagline "make learning awesome" suggests. It will make English learning more appealing to students. In addition, Plump & Larossa (2017) concluded that Kahoot! Reinforces that with some effort and a desire to engage students, this eLearning platform can provide an engaging environment that supports learning and adds active participation in the classroom. It was confirmed by Korkmaz (2021); Ratnasari, Nurhidayat, & Fakhruddin (2019); Laureman & Barbosa (2018); Marsa, Kuspiyah, & Agustina (2021); Chotimah & Rafi (2018). They investigate that Kahoot can effectively motivate EFL learners and improve their ability to comprehend various reading materials. Related to the student's motivation there are two kinds of motivation. Such as intrinsic and extrinsic motivation. It was revealed from the studies of Martinez et al. (2022); Hanus & Fox (2015); Laremenko (2017). They explored the differences in the intrinsic motivation of university students when working with specific content using digital tools and virtual gamified strategies. It is still difficult to find research on the effectiveness of game-based learning using Kahoot to improve students' extrinsic and intrinsic motivation in reading comprehension. Use the intrinsic motivation of game-based learning to keep students' attention and engagement high in the classroom. Extrinsic motivation refers to incentives acquired as a result of an activity rather than as a result of the action itself. Both inner and extrinsic motives are employed in classroom learning. As a result, is required to undertake an analysis study of the effectiveness of game-based learning using Kahoot to improve students' extrinsic and intrinsic motivation in reading comprehension.

Game-Based Learning

Game-based learning, also known as gamification, is the use of games as learning tools. (Chiang, 2020, p. 33). Garris, et al. (2002) established the Game Based Learning Model, which focuses on individual learning through play. A game-based learning model has input, process, and output components. Kahoot Game is a real-time response framework game (Kaur & Nadarajan, 2020). Kahoot serves three functions. The game promotes student involvement, motivation, fun, and focus, resulting in a higher-quality learning experience in class (Wang & Tahir, 2020).

Kahoot

In collaboration with the Norwegian University of Technology and Science, Johan Brand, Jamie Brooker, and Morten Versvik established Kahoot. Wang (2015, p. 218) stated Kahoot is a game-based student response system (GSRS) that temporarily transforms the classroom into a game show, with the teacher as the game show host and the students as contestants.

According to Kapuler (2015), Kahoot is one of the top 100 new applications to use in the classroom and ranks 36 on the list of apps related to educational trends. As a game, Kahoot increase the students' motivation and prepared to acquire reading comprehension. They will not feel compelled to learn to read, but will do so as a result of their own interests.

Kahoot is a free game-based learning tool for outstanding teachers, superheroes in the classroom, and all students. Teachers and students will learn and play the game with Kahoot. The goal of Kahoot is to make learning enjoyable. Instructors and students may design their own games, such as jumbled words, answering questions with shapes and sounds, and making sounds that made us nervous. They could readily and freely produce. After they have finished playing, they can share their scores on the scoreboard. The scoreboard will motivate them to carefully and correctly answer the question. Furthermore, Kahoot is a game-based learning platform that serves as a responsive system for students, providing an engaging way for students to practice previously learned vocabulary (Dellos, 2015).

Intrinsic and Extrinsic Motivation

According to, Kusuma & Bharati (2018) decided that Motivation is essential in teaching and learning activities. Meanwhile, according to Brophy and Good's (1990) theory of motivation to learn, the dimensions and indicators of motivation are: (1) The intrinsic dimension of actively participating in learning activities, encouragement to know things related to lessons, and encouragement to learn independently. (2) Avoiding penalties Teacher extrinsic dimension, the desire to receive a compliment from a teacher, the desire to please their parents, the desire to get good grades, and the encouragement of friends. encouragement to know things related to lessons and encouragement to learn independently.

According to Hoyenga (1984) recognize that extrinsic motivation refers to motives that exist outside of and apart from the behaviours they cause. Extrinsic motivation refers to external causes that compel, initiate, or direct a person to perform or accomplish something. However, Lepper and Malone (1987) define intrinsic motivation as what learners accomplish in the absence of extrinsic rewards or inducements. When a person acts for the sake of fun or challenge rather than for external prods, pressures, or incentives, that person is said to be intrinsically motivated.

In order to cover the observed gaps, this study's main goal is to find out how is the effectiveness of game-based learning using Kahoot in improving students' extrinsic and intrinsic motivation in reading comprehension?

The following is an explanation of the detailed research questions:

How is game-based learning using Kahoot effective in improving extrinsic and intrinsic motivation?

How is the effectiveness of game-based learning using Kahoot to improve students' achievement in reading comprehension?

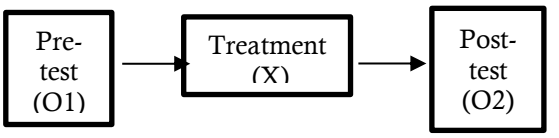
What is the relationship between game-based learning using Kahoot, extrinsic and

intrinsic motivation, and reading comprehension?

METHOD

Research Design

This study employed an experimental design and a quantitative research approach to examine how game-based learning with Kahoot can increase students' intrinsic and extrinsic motivation for reading comprehension. Pre-experimental research was employed in this study with a single group pre- and post-test design. This study focused on one group that was to receive a pre-test prior to treatment and a post-test following treatment. It will be utilized for assessing the impact of students' reading comprehension achievement as well as intrinsic and extrinsic motivation. This study's design involves one experimental class. Before receiving treatment, a pretest was administered to determine the student's beginning ability to read. The following experimental class was treated with game-based learning using Kahoot. To classify students as intrinsic or extrinsic, a pretest consisting of a questionnaire was given to them before the Test. Five groups of students are formed in a single lesson after it has been determined that the students meet the criteria for motivation. Multiple students in each group possess both intrinsic and extrinsic motivation. After receiving and discussing an analytical exposition text, each group was required to play the Kahoot! Game and respond to questions based on the material they have studied. Students must then complete tasks independently on Kahoot questions, with rewards going to the top scorers. After the treatment, a posttest was administered to determine the student's final reading comprehension ability. This design can be seen in the following table:



(Gay, 1981)

Figure 1. One Group pre-test and post-test Design

According to the table above, this study was supported by one class, an experimental group. That class will be identified as the experimental class, with a pretest and a posttest administered.

Participants

The study was conducted at Pecangaan's Walisongo Senior High School. There were 149 students participated in the eleventh grade at Walisongo Senior High School Pecangaan during the academic year 2023–2024, thus becoming the research population. For probability sampling in this study, simple random sampling was applied. XI KESEHATAN 1 was the only experimental class employed in this study. In this study, two variables were employed. dependent and independent variables. Using Kahoot for game-based learning is an independent variable in this study. and the research's dependent variables include students' extrinsic and intrinsic motivation as well as their reading comprehension achievement.

Intruments

This study used a reading comprehension test that consists of a pre-test, a post-test, and an analytical exposition test to gather data on the students' ability to achieve in reading comprehension. In this test, multiple choice was used. to measure the level of student achievement, the rubric of scoring reading comprehension utilized by Hammer (1955). There were test scoring criteria, there were our categories. The following of test scoring criteria for reading comprehension:

Table 1. Test Scoring Criteria

Interval	Categories
86-100	Very Good
76-85	Good
66-75	Fair
55-65	Less
<55	Very Less

The pre-test administered prior to the researcher treatments in order to assess the student's reading comprehension capacity. After the treatments, the students were given a post-test to determine their reading comprehension skills. Kahoot applied in three steps of reading: pre-reading, while reading, and post reading in this research. In pre-reading, the students given a pre-test to read a text and analyze a text. Then, while reading the students divided into several groups, they assigned a text to study and discuss in groups. Every group discussion competed each other in playing a Kahoot games. In the post-reading every student doing a test by using Kahoot game. This study's questionnaire constructed of a closed-ended question. There were 14 multiple-choice questions. Tests, questionnaires, and observation were employed in this study to gather data.

The result of Validity Test

The items for the test checked by the validator to utilized in this research and will be validated by an expert in their field. The Pearson product moment formula in SPSS v.20 will be used to compute the questionnaire items. If r-count > r-table, the decision will be interpreted, the test is valid and if r-count < r-table, the test is not valid (sig. 2 tailed > 0.05).

The results of the validity test were each indicator for the Pretest Score and Post-test Score, which includes 30 questions, has a computed r value > r table = 0.3673. Thus, the Pretest and Posttest Score indications are declared valid.

The result of Validity Questionnaire

This study employed the same strategy to verify the validity for the questionnaires. It compared the value of Sig. (2-tailed) with 0,05 significance. The result validity test was every result for the Pre-test and Post-test Motivation variables, which include 24 items, has a computed r value greater than r table = 0.3673. Thus, the Motivation Pre-test and Post-test variables' indicators, which number 24 in total, are considered valid.Kahoot and Its Effectiveness for English Language Learning: Student's Intrinsic and Extrinsic Motivation are Improved.

Reliability for the Test

This research used Cronbach's Alpha reliability test using 0,06 significance. The validity test results are the Cronbach's Alpha values of 0.716 and 0.862, respectively, which are greater than 0.6. As a result, the Pretest and Posttest scores have been declared reliable.

Reliability for the Questionnaires

This study employed an internal consistency reliability technique, employing Cronbach's Alpha in SPSS v.25 to determine the relationship between the test item and the research instrument. The reliability test are the variables Pre-test and Post-test motivation have Cronbach's Alpha values of 0,852 and 0,859, respectively, which are less than 0.6. Pre-test and post-test motivation variables are considered reliable

The Result of the Normality Test

A pretest and post-test were employed to determine how much both internal and extrinsic motivation had improved. the data was generated using Paired Sample Statistics, Paired-Sample Correlations, and Paired Sample T-test. The results of the analyses are as follows:

Table 2. Normality Test of Students' Pre and Post-Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.139	29	.162	.955	29	.242
Posttest	.120	29	.200*	.961	29	.350

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Based on table **2**, showed that the significance value of pre-test in the class was 0,242 it was higher than 0,05. And the significance value of pos-test was 0,350 it was more than 0,05. Based on the content of the table above, it appears that all of the class's pre and post-test results are normally distributed.

The Result of Homogeneity Test

The Lavene statistic test used to assess homogeneity in this study, The table below shows the homogeneity test results for students' pre and post-tests.

Table 3. Homogeneity Test of Students' Pre and Post-Test

Levene Statistic	df1	df2	Sig.
.213	1	56	.647

Table **3** showed that the pre-test significance level was more than 0.05. The test of homogeneity's significant value from the students' pre and post-tests was 0.647. It showed that the data was homogenous.

Data Analysis

A t-test was especially used in the data analysis method's statistical analysis. The data from the pre-test and post-test assessed using SPSS v.25 with paired sample t-test to analyze whether there is the difference between pre-test and post-test score using Kahoot media and students' extrinsic and intrinsic motivation. To examine the data, SPSS 25's MANOVA function will be employed. This study utilized MANOVA to examine the relationship between reading comprehension, student extrinsic and intrinsic motivation, and game-based learning with Kahoot media.

RESULTS AND DISCUSSIONS

Result of Pre and Post Test Score

Table 4. Paired Sample of Statistics of using Kahoot to Improve Students' Extrinsic and Intrinsic Motivation.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	74.66	29	5.300	.984
	Posttest	80.90	29	3.716	.690

According to the table above, the pre-test mean score of 29 students was 74.66 with a standard deviation of 5.300, but the post-test mean score was 80.90 with the standard deviation of 3.716. It may be concluded that the post-test mean score of students was greater than the pre-test mean score of students, indicating that extrinsic and intrinsic motivation of students improved after receiving the treatment by Game-based learning using Kahoot for the teaching in the classroom. In addition, the significant result in the table below:

Table 5. Paired Samples Test of using Kahoot to Improve Students' Extrinsic and Intrinsic Motivation**.**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pretest Posttest	-6.241	5.736	1.065	-8.423	-4.059	-5.859	28	.000

According to the table above, the mean score pre-test and post-test of students was -6.241. Furthermore, the significant values resulted in 0.000, which is less than 0.05. This suggests that H0 was rejected but Ha was accepted. As a result, it was concluded that Game-based learning using

Kahoot significantly improved students' extrinsic and intrinsic motivation.

The Beneficial Effects of Kahoot for English Language Learning: An Improvement in Students' Reading Comprehension.

The data on students' reading achievement were gathered for this study through the distribution of pre- and post-tests. The data was calculated using Paired Sample Statistics, Paired-Sample Correlations, and Paired Sample T-test. The results of Paired Sample Statistics, Paired-Sample Correlations, and Paired Sample T-test are shown in the table below:

Table 6. Paired Sample Statistics of using Kahoot in Reading Comprehension Students

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE TEST	67.8621	29	7.00369	1.30055
	POST TEST	77.5172	29	6.30544	1.17089

According to table 10 it presented the pre-test mean score of 29 students was 67.8621 with a standard deviation of 7.00369, but the post-test mean score was 77.5172 with the standard deviation of 6.30544. It may be concluded that the post-test mean score of students was greater than the pre-test mean score of students, indicating that reading comprehension of students improved after receiving the treatment by Game-based learning using Kahoot for the teaching in the classroom. In addition, the Paired Samples Correlations results will be explained in the table below:

Table 7. Paired Samples Correlations of using Kahoot in Reading Comprehension Students

		N	Correlation	Sig.
Pair 1	PRE TEST & POST TEST	29	.811	.000

Table 7 showed that in the class of XI KESEHATAN I, the correlations were 0.811 with a significant value of 0.000, and the total number of students for pre- and post-tests was 29. the following table explained the result of Paired Sample T-test of Students' pre- and post-tests to answer the significant influence of Game-based Learning Using Kahoot to improve reading comprehension of students:

Table 8. T-test of Students' pre- and post-tests

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
PRE TEST - POST TEST	-9.65517	4.14277	.76929	-11.23100	-8.07935	-12.551	28	.000

According to the table 8 above, the mean score pre-test and post-test of students was -9.65517. Furthermore, the significant values resulted in 0.000, which is less than 0.05. This suggests that H0 was rejected but Ha was accepted. As a result, it was determined that game-based learning using Kahoot considerably improved students' reading comprehension.

A Substantial Relationship of Students' Motivations and Teaching Tool: Intrinsic-extrinsic Motivation and Kahoot.

In this study, the researcher examined the relationship between game-based learning using Kahoot, extrinsic and intrinsic motivation, and reading comprehension. In order to answer this hypothesis, the researcher used MANOVA to calculate the results. The table below elaborates on the results of Between-Subjects Factors, Descriptive Statistics, Lavene's Test, and Multivariate Test to answer the third hypothesis:

Table 9. Between Subject Factors

		Value Label	N
Kahoot	1	Reading	29
	2	Motivation	29

Based on the table 9, the data was separated into two parts. The strategy was Kahoot in reading comprehension and Kahoot which included extrinsic and intrinsic motivation. The number of each category was 29 students. Both of the class was taught by using Kahoot. According to this interpretation, only one class is used to assess significant differences in the pretest and post-test. Furthermore, once the number of students in each class has been determined, the following table will elaborate on the descriptive statistics of students extrinsic and intrinsic motivation and reading comprehension.

Table 10. Descriptive Statistics Independent Variable: Game-based Learning using Kahoot

	Model Pembelajaran	Mean	Std. Deviation	N
Reading Comprehension	Pretest	67.86	7.004	29
	Posttest	79.45	6.162	29
	Total	73.66	8.769	58
Motivation	Pretest	74.66	5.300	29
	Posttest	80.90	3.716	29
	Total	77.78	5.522	58

Table 10. displayed descriptive statistics that included students' pre and post-test mean score in reading comprehension and motivation, standard deviation, and the number of students. The mean score of pretest students in reading comprehension who were treated with Kahoot was 67.86 with the standard deviation 7.004. Meanwhile, the mean score of post-test students in reading comprehension who were treated with Kahoot was 79.45 with the standard deviation 6.162. As a result, the sum of the mean scores from the students in reading comprehension that was taught by Kahoot was 73.66 with the total standard deviation 8.769 and 58 students in total. Furthermore, the mean score of pretest students in extrinsic and intrinsic motivation was 74.66 with the standard deviation 5.300. Then, the mean score of post-test students' extrinsic and intrinsic motivation who were treated with Kahoot was 80.90 with the standard deviation 3.716. As a result, the sum of the mean scores from the students' motivation that was taught by Kahoot was 77.78 with the total standard deviation 5.522 and 58 students in total. It suggests that the students improved significantly in their extrinsic and intrinsic motivation and reading comprehension when they were taught in the classroom using Kahoot. After collecting descriptive statistics for the students' pre and post-tests, the table below indicated the homogeneity of students' pre and post-tests that was taught by using Kahoot across groups in motivation and reading using Lavene's test:

Table 11. Lavene's Test of Equality of Error Variances

	F	df1	df2	Sig.
Reading Achievement	.678	1	56	.414
Motivation	2.304	1	56	.135

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Kahoot

The accompanying table 15 demonstrated the homogeneity of the dependent variable across the reading and motivation of students According to the table above, the significant value of students' reading achievement was 0.414, which

was greater than 0.05. Subsequently, the significant value for motivation of the students was 0.135, which higher than 0,05. It demonstrated that the data was equal across groups or that the data was homogeneous. In contrast, H0 was accepted while Ha was rejected based on the hypothesis. Thereafter if the data was homogenous, it can calculate the equality covariance matrices. The following table shows the results of the Box's test of equality of covariance matrices:

Table 12. Box's Test of Equality Covariance Matrices

Box's M	4.310
F	1.381
df1	3
df2	564480.000
Sig.	.246

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + Kahoot

According to table 16 it showed the test examines whether or not the variance of dependent variables is the same. Therefore, the significance (sig.) value should be greater than the threshold evaluated (0,05). The significant was 0,246 it was higher than 0,05. The covariance matrix/variance matrix do not differ between groups, indicating that the sample is homogeneous. Thus, the research can proceed with the investigation and have met the assumption of covariance homogeneity. Therefore, if the variance of dependent variables is same. The following table represented Wilk's Lambda test results:

Table 13. Multivariate Test

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.997	10257.695[b]	2.000	55.000	.000	.997
	Wilks' Lambda	.003	10257.695[b]	2.000	55.000	.000	.997
	Hotelling's Trace	373.007	10257.695[b]	2.000	55.000	.000	.997
	Roy's Largest Root	373.007	10257.695[b]	2.000	55.000	.000	.997
Kahoot	Pillai's Trace	.525	30.364[b]	2.000	55.000	.000	.525
	Wilks' Lambda	.475	30.364[b]	2.000	55.000	.000	.525
	Hotelling's Trace	1.104	30.364[b]	2.000	55.000	.000	.525
	Roy's Largest Root	1.104	30.364[b]	2.000	55.000	.000	.525

a. Design: Intercept + Kahoot

b. Exact statistic

The table 13 shows the results of Wilk's Lambda test to often employed in multivariate analyses. It was examined the Wilk's Lambda test findings for two categories of reading comprehension and motivation. F value = 30.364 with the significant of Wilks' Lambda was 0,00 when the p-value is less than 0.05. This suggests that there is no difference between learning to read and student motivation as taught through Kahoot. Furthermore, the relationship between extrinsic and intrinsic motivation and reading comprehension can be calculated using Test Between-Subject Effects. The following table elaborates on the data's Test Between-Subject Effects.

Table 14. Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Reading Achievement	1946.483[a]	1	1946.483	44.735	.000	.444
	Motivation	564.845[b]	1	564.845	26.961	.000	.325
Intercept	Reading Achievement	314654.897	1	314654.897	7231.603	.000	.992
	Motivation	350846.914	1	350846.914	16746.279	.000	.997
Kahoot	Reading Achievement	1946.483	1	1946.483	44.735	.000	.444
	Motivation	564.845	1	564.845	26.961	.000	.325
Error	Reading Achievement	2436.621	56	43.511			
	Motivation	1173.241	56	20.951			
Total	Reading Achievement	319038.000	58				
	Motivation	352585.000	58				
Corrected Total	Reading Achievement	4383.103	57				
	Motivation	1738.086	57				

a. R Squared = ,444 (Adjusted R Squared = ,434)

b. R Squared = ,325 (Adjusted R Squared = ,313)

The data in the above result are strategies such as Kahoot, extrinsic and intrinsic motivation, and reading achievement. The following are the evaluation criteria:

1) If the significant value <0,05, there was a significant difference between Kahoot, extrinsic and intrinsic motivation, and reading achievement.
2) If the significant value >0,05, there was no significant difference between Kahoot, extrinsic and intrinsic motivation, and reading achievement.

The hypotheses are as follows:

1) Ha: There is a relationship between game-based learning using Kahoot, extrinsic and intrinsic motivation, and reading comprehension
2) H0: There is no relationship between game-based learning using Kahoot, extrinsic and intrinsic motivation, and reading comprehension.

The results of the between-subjects effects tests were shown in the table above to analyze the relationship between Kahoot, students' extrinsic and intrinsic motivation, and students' achievement in reading comprehension. The significance value of game-based learning using Kahoot was 0.00, which suggests that the significance value was lower than 0.05 in this case. Thus, based on the pre and post- test results, there was a substantial difference between Kahoot in teaching reading comprehension. Furthermore, the significant value of students' motivation was 0.00 rather than 0.05. It suggests there was a considerable difference in the student's motivation. Moreover, as with the strategy and the student's motivation level, the significant value of the relationship between the Kahoot approach as the teaching technique and students' motivation level was less than 0.05 points. The meaningful value was 0.00. It revealed a link between Kahoot and students' extrinsic and intrinsic motivation and reading comprehension.

Discussion

The Effectiveness of Game-Based Learning Using Kahoot to Improve Students' Extrinsic and Intrinsic Motivation

This result is also in line with Chen, W. et al (2017) the results reveal that Kahoot! pushed students to be engaged and encouraged engagement in the classroom. Students were encouraged to pay attention in order to perform well in Kahoot's. This, in turn, pushed students to interact with the presenter, their peers, and the

lecture subject. Dornyei and Ushioda (2011) corroborate this theory, stating that motivation and engagement are connected. Reverse to popular opinion, games can boost intrinsic motivation as well, the students' responses to the open-ended questions revealed that Kahoot, which may appear to be an extrinsic incentive at first, aided in the creation of intrinsic motivation by changing students' views about foreign language learning in the long run. This finding is consistent with previous research (Iaremenko, 2017; Kang & Tan, 2014; Mirici, 2015; Mawhinney, Dickinson, & Taylor, 1989). The potential of interactive games to promote language learning should not be ignored, since the source of extrinsic motivation may assist students in becoming intrinsically driven learners. In addition, Tosun Some classroom activities and exercises should try to raise students' awareness of their own learning, as motivation comes before methods.

The Effectiveness of Game-Based Learning Using Kahoot to Improve Students' Reading Comprehension

This study's findings are consistent with those discovered by Wisbisono (2019) that game-based learning in the Kahoot! application for language learning, particularly in enhancing reading comprehension, has a beneficial impact on students, which can affect their interest in conducting the exercises. Furthermore, it is in line with Marsa, S. et al (2021) there are effects of the Kahoot! Game in teaching reading comprehension achievement to fourth-semester students of STKIP Nurul Huda Sukaraja's English Education Program. These are pupils who have a large influence on perception, motivation, and a positive attitude. Meanwhile, Chiang's (2020) study discovered that the Kahoot! Game can improve the presentation of warm-up activities and the administration of assessments in a reading class.

Relationship Between Game-Based Learning Using Kahoot, Extrinsic and Intrinsic Motivation, and Reading Comprehension

The findings of this investigation agree with previous research from Slavin, (2013) there is a link between reading motivation and students reading comprehension. That is, the more driven students were to read, the greater their comprehension of the contents. The level of incentive to read is proportional to one's comprehension of the reading topics. Furthermore, the findings of this study support Guthrie and Cambria's (2010) study, which discovered various characteristics influencing a person's ability to absorb reading content, including interest, self-confidence, and devotion. These three factors are classified as intrinsic motivation, which is one of the types of reading motivation. Furthermore, extrinsic reading incentive influences the success of text comprehension. This finding supports chon motivation. Another study, by Cheong, and Filippou (2013), explored the influence of gamification on learning, engagement, and enjoyment and discovered that gamification significantly increased students' learning.

Limitations

The limitation of this study is located in the sample size, where only one class was used in this research, and the one-group pre-and post-test design, which includes no control group, was used in this research. It is aligned with Korkmaz (2021). The small sample size is the most obvious limitation of his study. Only two of the Basic English department's classes were selected for this study. As a result, not all school environments can use the results. However, the sample size in this study was determined by random sampling. Despite the limitation, the attention might be directed toward students who receive treatment in small sample sizes.

Additionally, connectivity and interface responsiveness are acceptable since students use their own devices and can access a strong network. Based on the study's results, which were obtained by collecting and processing data with SPSS, they demonstrated that students' test scores had improved both before and after receiving treatment. Throughout the learning process, students' motivation increases. The results

indicate that students can incorporate game aspects into language classes. Thus, using Kahoot in the classroom effectively teaches reading and increases students' extrinsic and intrinsic motivation even when there is only one class of samples and no control class. Therefore, to optimize learning, interactive games like Kahoot! should be customized to students' specific interests and skill development in language learning.

CONCLUSION

According to the study's findings, the researcher would like to recommend the following students, teachers, and future researchers: For Students are **t**echnological advancement in today's era has helped people in many ways, especially in education. In other words, current students should use technology to help them learn English, for example, using Kahoot for their learning, specifically in reading comprehension. Kahoot offers multiple tools, such as games, that increase students' motivation and attract the students' attention. or teachers, the ability to integrate technology into the classroom is essential in today's age. Kahoot is one of the media tools that can assist in teaching English skills—reading, listening, speaking, and writing—by promoting text engagement and encouraging student involvement in interactive games. For future researchers, Kahoot provides a wealth of tools for teaching English vocabulary, spelling, and writing. Future research could explore the effectiveness of Kahoot in teaching various English skills and examine the experiences of teachers and students using this technology.

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