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The Effect Of Using Kahoot Media In Improving Students' Motivation And Learning Outcomes In The Economics Subject Of Grade XI

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Abstract

The low motivation and unsatisfactory learning outcomes of students in economics subjects have encouraged the need for innovative teaching approaches that integrate technology into the classroom. This study aimed to analyze the effect of Kahoot!, a game-based learning platform, on students' learning motivation and academic achievement in economics at SMA Swasta Bandung Percut Sei Tuan in the 2024/2025 academic year. A quantitative method with a quasi-experimental design using a non-equivalent control group was employed, involving 59 students divided into experimental and control classes. Data were collected through tests, questionnaires, and classroom observations, then analyzed using normality tests, homogeneity tests, and independent sample t-tests. The results demonstrated that the use of Kahoot! had a significant positive impact on both motivation and learning outcomes. Students in the experimental class showed substantial improvement, with their average score increasing from 53.33 on the pretest to 82.67 on the posttest, while the control class only improved from 42.76 to 55.07. Moreover, motivation levels in the experimental group increased considerably, as evidenced by higher enthusiasm, stronger engagement, and more active participation during learning activities. These findings suggest that Kahoot! is not only effective in enhancing cognitive achievement but also fosters affective aspects of learning by creating a dynamic, enjoyable, and competitive learning environment. The integration of such interactive digital media can be considered an important strategy for teachers to improve the quality of instruction, particularly in economics subjects that often appear abstract and less engaging for students. Therefore, Kahoot! holds great potential to serve as a complementary tool in modern pedagogy, supporting both immediate academic success and long-term motivation in learning.

Keywords: Kahoot!, game-based learning, student motivation, learning outcomes, economics education

INTRODUCTION

Education is a systematic process for developing an individual's potential, both intellectually, emotionally, socially, and morally. Through education, it is hoped that students will acquire the knowledge, skills, and values necessary to contribute positively to society. The quality of education can be seen in the education system that provides relevant and quality learning experiences for students, reflected in the extent to which the education system is able to achieve educational goals effectively and efficiently. The quality of

education encompasses various aspects, namely learning outcomes, skills, curriculum, learning methods, and the availability of educational resources (Wang & Tahir, 2020).

According to Law Number 20 of 2003 concerning the National Education System, it explains that, "Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, human moral intelligence and the skills needed by themselves, society, the nation and the state."

In the era of the Fourth Industrial Revolution (Evolution 4.0), education has significantly improved the quality of education. With technological advancements, traditional teaching methods are beginning to be combined with technology-based learning media to attract interest and increase student motivation. The quality of education can be measured by the learning outcomes achieved by students, from elementary school to higher education. These learning outcomes refer specifically to students' learning outcomes at school.

Learning media is a crucial part of the teaching and learning process. The use of tools, materials, or resources can help make the learning process more effective, engaging, and improve student understanding. These media can take various forms, such as images, videos, audio, books, software, or even other digital technologies, that serve to convey information or lesson materials to students. Good media will influence the variety of teaching methods in the classroom and is also expected to improve student achievement (Kohnke & Moorhouse, 2022).

In today's digital era, where information is so easily accessible, the role of learning media in the learning system is becoming increasingly important. There are many technology-based learning media available that can be utilized to make the learning process more interesting and interactive, one of which is the *Kahoot application* . Kahoot is a game - *based learning platform* that allows students to actively participate in learning through interactive quizzes. Kahoot not only can improve the fun learning atmosphere, but is also designed to help increase student learning motivation but also improve student learning outcomes in economics subjects (Basuki & Hidayati, 2019).

Additionally, Kahoot provides students with immediate feedback on their level of understanding of the material. This can increase students' awareness of their strengths and weaknesses in learning, leading to improved learning outcomes. In the context of economics learning, where many concepts are abstract, the use of engaging learning media like Kahoot can bridge the gap between theory and real-world practice (Bawa, 2019).

Economics plays a crucial role in equipping students with relevant knowledge to understand economic dynamics in society. However, monotonous and less interactive delivery methods often lead to students losing interest in learning. This, in turn, impacts student learning outcomes, leading them to rely solely on memorization without understanding the essence of the concepts being taught. Therefore, innovations in interactive teaching methods are needed to create a more engaging and enjoyable learning

environment, effectively enhancing student participation and understanding. These innovations can take the form of digital platforms, educational games, or discussion- and simulation-based approaches that encourage active student involvement in the learning process (Lin, Ganapathy, & Kaur, 2018).

The learning process in schools has a clear goal: to ensure all students achieve high levels of motivation and achieve satisfactory learning outcomes. To achieve this, various factors influence it, both internal and external to the student. The quality of student learning outcomes is influenced by several factors, one of which is the learning media used by teachers to clarify and enrich the subject matter (Pintor Díaz, 2017).

Based on the results of the researcher's observations of grade XI students at Bandung Private High School Percut Sei Tuan, it appears that they have low motivation in trying to achieve good learning outcomes, especially in the subject of Economics. During the learning process, students appear less enthusiastic in paying attention to the teacher's explanations (Bicen & Kocakoyun, 2018) . This is evident from their minimal participation in class discussions and lack of response to questions asked. In fact, many of them exhibit non-conducive behavior, such as chatting with their deskmates, disturbing the concentration of other friends, and causing noise in the classroom (Downie, Gao, Bedford, Bell, & Kuit, 2021a) . In addition, some students appear to lose focus and show signs of fatigue, such as falling asleep in class, which indicates their low level of engagement in learning. Consequently, this negatively affects their learning outcomes. Students generally only study when facing exams and rarely engage in regular learning (Downie, Gao, Bedford, Bell, & Kuit, 2021b) . This situation is not without reason, as students tend to feel bored and tired during learning, caused by the teacher's use of monotonous lecture methods. The problems faced by 11th-grade students at Bandung's Percut Sei Tuan Private High School, such as low motivation and learning outcomes, are caused by many students not achieving the Minimum Completion Criteria (KKM) score of 75.

Table 1. Data on students who achieved the KKM and those who did not achieve the KKM for the Economics Subject, Class XI, Bandung Private High School, Percut Sei Tuan

No	Class	Number of students	Minimum Competency (KKM)	Students who achieve KKM		Students who do not achieve the KKM	
				<75	%	<75	%
1	XI-1	29	75	10	34.4 %	19	65.5%
2	XI-2	30	75	13	43.3 %	17	56.6%

Based on table 1.1 above, there are 65.5% of students who did not reach the KKM of 75 in class XI-1 and 56.6% of students who did not reach the KKM of 75 in class XI-2. Low

student learning outcomes are evident from the mid-term exam scores, where many students have not yet reached the KKM. Therefore, researchers observed that Kahoot media is able to improve student learning outcomes. The results of the observations that have been made, the researchers are interested in conducting research with the title "The Effect of Using Kahoot Media in Improving Student Motivation and Learning Outcomes in the Economics Subject of Class XI of Bandung Private High School Percut Sei Tuan".

METHOD

This research is a type of research using a quantitative approach with a quasi-experimental method. (Pokhrel, 2024) This method was used to test the effect of using Kahoot learning media on student motivation and learning outcomes in economics. This study used a nonequivalent control group design, where there were two groups, namely the experimental group and the control group. In the Control class, learning used the Conventional method and in the Experimental group, learning used Kahoot learning media. Sample selection did not need to go through randomization, the two groups being compared did not have to be truly equivalent and almost the same. This research was experimental in nature, so all variables were tested using measurement instruments or tests that had been standardized and standardized because the purpose of obtaining information was an estimate of the actual data that could be obtained. According to (MARBUN, 2022) Quantitative research methods such as Quasy Experiments are usually used in conditions that do not allow for control or manipulation of relevant variables. The purpose of this type of experimental research is to test whether variables in a study have an influence on other variables.

In accordance with the title of the research, this research was conducted at Bandung Percut Sei Tuan Private High School located at JL. Pengabdian No. 72, Bandar Setia, Percut Sei Tuan District, Deli Serdang Regency, North Sumatra Province. This research will be conducted in class XI of Bandung Percut Sei Tuan Private High School in the 2024/2025 academic year.

According to Sugiyono (Mudanta, Astawan, & Jayanta, 2020) A population is a generalized area that includes objects or subjects with certain characteristics and qualities determined by the researcher to be studied and conclusions drawn. Population refers not only to the number of objects or subjects studied, but also includes all the characteristics and traits possessed by those objects or subjects. Thus, a population is not limited to humans alone, but also includes other objects or natural phenomena.

The population in this study was all grade XI students of Bandung Private High School Percut Sei Tuan in the 2024/2025 Academic Year, consisting of 2 classes with a total of 59 students.

A sample is a part of the population used for research according to Sugiono. (Asterina & Sukoco, 2019) A sample is "a portion of the number and characteristics possessed by a population." According to another opinion, a sample is a portion of a population, as an

example taken using certain methods." So the sample is part of the existing population, so that sampling must use certain methods based on existing considerations. In this sampling technique, the author uses a purposive sampling technique. Sugiyono (Nas, 2019) explains that "purposive sampling" is a sampling technique based on specific considerations. The considerations used in selecting a purposive sample in this study were based on certain criteria previously established by the researcher.

In this study, the research took classes XI1, XI2 of Bandung Private High School Percut Sei Tuan in the 2024/2025 Academic Year with the respective numbers

Thus, the sample taken in this study was the total number of students in grades XI-1 and XI-2, totaling 59 people. Therefore, this study took grade XI-1 as the experimental class and grade XI-2 as the control class.

The data analysis technique aims to test whether there is a significant effect between the use of Kahoot learning media in improving student motivation and learning outcomes. In general, there are several data analysis steps that can be applied to analyze the results of this quantitative research.

RESULTS AND DISCUSSION

Research result

This research was conducted in class XI of SMA Swasta Bandung Percut Sei Tuan in the 2024/2025 academic year. This research used a quantitative approach with a quasi-experimental method involving two class XI classes, namely the experimental class and the control class. The experimental class used Kahoot media while the control class used conventional learning. Data collected included pretest and posttest results as well as student learning motivation using a questionnaire (Arifin & Mahmud, 2022) .

Prior to conducting the research, the instrument was pre-tested using validity and reliability tests for use in the pre-test and post-test questions. The results of the validity and reliability tests are shown in the appendix.

Description of Learning Outcome Research Data

Research data analysis is carried out to obtain conclusions from the research carried out.

Normality Test

Table 1. Normality Test of Learning Outcomes

'ests of Normality

		:olmogorov-Smirnov [a]			hapiro-Wilk		
	earning outcomes	tatistics	f	ig.	tatistics	f	ig.
retest	:ontrol Class	.55	9	)73	)33	9	)66
	xperimental Class	.38	0	.47	)43	0	.13
osttest	:ontrol Class	.22	9	:00 *	)47	9	.57
	xperimental Class	.50	0	)82	)51	0	.75

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

The normality test aims to determine whether the student learning outcome data in each group, namely the experimental class and the control class, is normally distributed. This test is crucial because one of the prerequisites for using parametric statistical tests such as the t-test is that the data must be normally distributed. In this study, normality testing was conducted on pretest and posttest data using two methods: the Kolmogorov-Smirnov and the Shapiro-Wilk test. However, because the sample size in each group was less than 50 students, decision-making was based more on the results of the Shapiro-Wilk test, which is considered more appropriate for small sample sizes (Rivai, 2021) .

Based on the results of the normality test for learning outcomes using the Shapiro-Wilk method, it can be seen that the pretest data in the control class has a significance value of 0.066. Because this value is greater than 0.05, the pretest data in the control class can be said to be normally distributed. This indicates that the distribution of pretest scores in the control class is quite even and does not deviate from the normal distribution (Sukayana, Telagawathi, & Rahmawati, 2023) . Furthermore, the pretest in the experimental class obtained a significance value of 0.113. This value also exceeds the 0.05 limit, so it can be concluded that the pretest data in the experimental class is normally distributed. The normal distribution in this group indicates that the initial conditions between the two classes tend to be balanced and meet the requirements for further statistical testing (Lestari, Ardana, & Suryawan, 2022) . For the posttest, the control class showed a significance value of 0.157 and the experimental class 0.175. Both of these values are also greater than 0.05, which means that the posttest data from both classes are normally distributed. Thus, all data—both pretest and posttest from the control and experimental classes—met the assumption of normality. Therefore, the data can be further analyzed using parametric tests, such as the t-test, to identify significant differences in results between the two classes.

Table 2. Normality Test of Learning Motivation

Tests of Normality

	Motivation to learn	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
Pretest	Control Class	.131	29	.200 *	.947	29	.155
	Experimental Class	.157	30	.057	.959	30	.290
Posttest	Control Class	.118	29	.200 *	.948	29	.160
	Experimental Class	.152	30	.073	.962	30	.343

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Processed by researchers

The results of the normality test for learning motivation data using the Shapiro-Wilk method showed that the student learning motivation data in each group showed a normal distribution. In the pretest for the control class, the significance value was 0.155 and in the experimental class it was 0.290. Both of these values are greater than 0.05, indicating that the learning motivation data before treatment in both groups was normally distributed. Furthermore, for the learning motivation posttest data, the control class had a significance value of 0.160, while the experimental class had a significance value of 0.343. Similar to the pretest data, the posttest significance value was also above 0.05. This indicates that the distribution of learning motivation data after treatment also meets the assumption of normality (Nande, Banda, & Mbaru, 2021) . Thus, all learning motivation data both before and after treatment in the control and experimental classes were normally distributed based on the Shapiro-Wilk test. Therefore, the data is suitable for further analysis using parametric statistical tests, such as the t-test.

Table 3. Homogeneity Test of Learning Outcomes

Test of Homogeneity of Variances

		Levene Statistics	df1	df2	Sig.
Pretest	Based on Mean	1,768	1	57	.189
	Based on Median	1,667	1	57	.202
	Based on Median and with adjusted df	1,667	1	54,599	.202
	Based on trimmed mean	1,763	1	57	.190
Posttest	Based on Mean	.253	1	57	.617
	Based on Median	.309	1	57	.581
	Based on Median and with adjusted df	.309	1	56,999	.581
	Based on trimmed mean	.247	1	57	.621

Source: Processed by researchers

The homogeneity of variance test aims to determine whether two data groups, namely the experimental class and the control class, have the same variance. This test is important as a prerequisite in the application of parametric statistical tests, especially the independent t-test, which requires equality of variance between groups. In this study, the homogeneity test was conducted using the Levene method, which tests the equality of variance based on the average (mean), median, median with adjusted degrees of freedom (adjusted df), and

trimmed mean. Decisions are made based on the significance value (Sig.) resulting from the test (WATI, 2019) .

Based on the results of the Levene test to determine whether the variance between the two groups (control class and experimental class) in the pretest data And post-test is homogeneous (the same). The significance values (Sig.) obtained in the pretest, both based on the mean of 0.189, median of 0.202, and trimmed mean of 0.190, are all greater than 0.05. Likewise in the posttest, the significance values obtained, both based on the mean of 0.617, median of 0.581, and trimmed mean of 0.621, are also greater than 0.05. Because these significance values are greater than 0.05, it can be concluded that there is no significant difference in variance between the two groups. This means that the pretest and posttest data from the control and experimental classes meet the assumption of homogeneity of variance, so that parametric statistical tests such as the t-test can be used for further analysis.

Table 4. Homogeneity Test of Learning Motivation

Test of Homogeneity of Variances

		Levene Statistics	df1	df2	Sig.
Pretest	Based on Mean	.611	1	57	.438
	Based on Median	.548	1	57	.462
	Based on Median and with adjusted df	.548	1	56,768	.462
	Based on trimmed mean	.610	1	57	.438
Posttest	Based on Mean	3,896	1	57	.053
	Based on Median	3,604	1	57	.063
	Based on Median and with adjusted df	3,604	1	54,446	.063
	Based on trimmed mean	3,964	1	57	.051

Test of Homogeneity of Variances table above shows the results of Levene's test, which is used to determine whether the variances between two groups, namely the control class and the experimental class, are homogeneous—both in the pretest and posttest data. This test is important for determining whether further analysis can use parametric statistical tests such as the independent t-test, which requires equality of variance between groups.

In the pretest data, the significance values (Sig.) obtained from various approaches, namely based on the mean (0.438), median (0.462), median with degrees of freedom adjustment (0.462), and trimmed mean (0.438), were all greater than 0.05. This indicates that the variance between the control and experimental classes is homogeneous. on the pretest.

Meanwhile, in the posttest data **,** the significance value is at the threshold, namely based on the mean (0.053), median (0.063), median with adjusted df (0.063), and trimmed mean (0.051). Although these values are slightly close to 0.05, in general they can still be considered insignificant **,** so The variance in the posttest was also considered homogeneous. Therefore, it can be concluded that both the pretest and posttest data meet the assumption of homogeneity of variance, so that the independent t-test can be used in analyzing the differences between the two groups.

Table 5. Regression Test of Learning Outcomes

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8512.009	1	8512.009	73,562	.000 [b]
	Residual	6595.618	57	115,713		
	Total	15107.627	58			

a. Dependent Variable: Learning Outcomes

b. Predictors: (Constant), Media_Kahoot

total Sum of Squares value was 15,107.627 which showed the overall variation in the dependent variable, namely *Learning Outcomes* . Of this amount, 8,512.009 was explained by the independent variable, namely *Kahoot Media* (regression), while the remaining 6,595.618 was explained by other factors outside the model (residual/error). With **df regression = 1** , **the Mean Square regression was obtained = 8,512.009** , while **the Mean Square residual = 115.713** . The comparison of the two resulted in **a calculated F value of 73.562** . The significance value (Sig.) of 0.000 was smaller than 0.05, so the regression model was declared significant. This means that there is a very real influence between the use of Kahoot Media on student learning outcomes. The higher the use of Kahoot Media in learning, the greater its contribution in explaining variations in learning outcomes, compared to other factors outside the research model.

Table 6. Regression Test of Learning Motivation

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	926,710	1	926,710	9,434	.003 [b]
	Residual	5599.324	57	98,234		
	Total	6526.034	58			

a. Dependent Variable: Learning Motivation

b. Predictors: (Constant), Media_Kahoot

Source: Processed by researchers

the total Sum of Squares value was 6,526.034, which shows the total number of variations in the dependent variable, namely *Learning Motivation* . Of this total, **926.710** is explained by the independent variable *Kahoot Media* (regression), while the remaining **5,599.324** comes from other factors outside the model (residual/error). With **df regression = 1** and **df residual = 57** , **the Mean Square regression = 926.710** and **Mean Square residual = 98.234 were obtained** . The results of the comparison of the two produced **a calculated F = 9.434** with a significance value of 0.003 <0.05. This shows that the regression model is significant, so it can be concluded that the use of Kahoot Media has a real influence on student *Learning Motivation* . The amount of variation in learning motivation that can be explained by Kahoot Media is not as large as other factors outside the model, but it is still proven to make a significant contribution in increasing student learning motivation in the classroom.

Discussion

The results of this study prove that the use of Kahoot! media in the learning process has a significant impact on student learning outcomes in Economics. A quite striking difference is seen in the comparison of the average score of the experimental class, which increased from 53.33 in the pretest to 82.67 in the posttest, while the control class only increased from 42.76 to 55.07. This indicates that the application of interactive game-based learning media can create a more interesting learning atmosphere and make it easier for students to understand the material being taught. Students who were previously passive in the learning process became more active when faced with interactive quizzes presented by Kahoot!. With the competition and ranking features displayed directly, students are encouraged to concentrate more, thus improving understanding of the material. These findings also indicate that learning about economics, which tends to be abstract, can be more easily accepted when presented through a technological approach that combines elements of entertainment with evaluation. In addition to having a positive impact on learning outcomes, this study also shows that student learning motivation has increased quite significantly. Based on the results of the questionnaire, student motivation in the experimental class increased from 65.44 to 82.56, or around 26%. This improvement can be interpreted as students feeling more excited, enthusiastic, and motivated to participate in the learning process when teachers use Kahoot! media in delivering material. The more lively, interactive learning situation, along with a healthy sense of competition with friends, encourages students to participate actively and not just be passive listeners (Sihaloho, Rahayu, & Wibowo, 2018) . This condition is in line with the theory of learning motivation which emphasizes the important role of external factors, such as learning media, in fostering students' internal drive to learn (Andriyansyah, 2020) . Thus, Kahoot! functions not only as a means of evaluating learning outcomes, but also as a stimulus that can motivate students to be more active and consistent in learning.

The findings of this study are also consistent with previous research conducted by Mukhlis (Parwati, 2022) , which demonstrated that Kahoot! is effective in increasing student interest, motivation, and learning outcomes. Comparison with previous research shows that the application of Kahoot! is not only relevant to certain subjects but can be implemented in various fields of study, including economics (Gunawan & Asrifan, 2020) . This means that this medium is flexible and adaptive to learning needs in secondary schools. Furthermore, this study makes an important contribution by examining two aspects simultaneously, namely motivation and learning outcomes, thus producing a more comprehensive picture of Kahoot!'s effectiveness. With the simultaneous increase in motivation and learning outcomes, it can be understood that Kahoot! is able to create a fun and meaningful learning experience. Therefore, teachers can use Kahoot! as an innovative alternative learning strategy to improve the quality of education in the digital era (Vivitri & Sunardi, 2018) .

The use of *Kahoot!* provides a fun, challenging, and interactive learning environment, encouraging students to be more active in their lessons. Healthy competition and direct feedback from this platform make learning more engaging, so students not only understand the material better but are also motivated to actively participate (Aditiany & Pratiwi, 2021) . Therefore, it can be concluded that *Kahoot!,* as an innovative learning medium, can significantly improve both students' cognitive and affective aspects (Mariatun, Arisinta, & Ali, 2020) .

The uniqueness of this research lies in the use of *Kahoot! media* not only to improve learning outcomes, but also to simultaneously measure and analyze its influence on students' learning motivation in the context of real learning in high schools.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the use of Kahoot! learning media has a significant influence on improving student learning outcomes and motivation in the Economics subject at Bandung Private High School Percut Sei Tuan. This can be seen from the increase in the average score of the experimental class taught with Kahoot! from 53.33 in the pretest to 82.67 in the posttest, while the control class taught with conventional methods only increased from 42.76 to 55.07. These findings indicate that Kahoot! is able to help students understand the material better, because this media provides a fun, interactive, and competitive learning atmosphere, so that students are more focused and motivated to achieve more optimal results.

Furthermore, students' learning motivation also experienced a significant increase when learning using Kahoot!. Based on the results of the questionnaire, the average motivation of students in the experimental class increased from 65.44 to 82.56, or approximately 26%. This increase proves that Kahoot! not only functions as an evaluation medium, but also as an effective means of fostering student enthusiasm, interest, and activeness in the learning process. Thus, it can be concluded that Kahoot! is an innovative learning medium capable of improving the quality of learning, both in terms of cognitive

learning outcomes and student motivation, making it suitable for use as an alternative learning strategy in the digital era

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