ENHANCING STUDENT LEARNING OUTCOMES: A COMPARATIVE STUDY OF KAHOOT AND WRITTEN TESTS IN SOCIAL STUDIES

Nuryana[1], Indah Nurkasih[2], Euis Puspitasari[3]

UIN Siber Syekh Nurjati Cirebon[1,2,3]

nuryana@syekhnurjati.ac.id.; indahnurkasih071820@gmail.com.; euis@syekhnurjati.ac.id

ABSTRACT

The difference in student learning outcomes between using Kahoot as an evaluation media and written tests in social studies subjects. This study aims to determine the use of kahoot as an evaluation media, learning outcomes and differences in student learning outcomes between using kahoot as an evaluation media and written tests. This type of research is quantitative with a quasi-experimental approach with a nonequivalent control group design. The population in this study were seventh grade students of MTs Salafiyah Bode as many as 675 students, and the sample of this study was taken purposively as many as 35 students. Data collection was done through observation, tests, questionnaires, and documentation. The collected data were analyzed using descriptive and inferential statistical tests using the independent sample t-test. Based on the results of the study, the results obtained are: 1) The use of Kahoot as an evaluation media for social studies subjects at MTs Salafiyah Bode Cirebon Regency is perfect, with a percentage of 86 5%, 2) The learning outcomes of experimental class students have increased after using Kahoot in the implementation of the evaluation, 3) The learning outcomes of students who use Kahoot as an evaluation media and written tests on social studies subjects at MTs Salafiyah Bode Cirebon Regency are evidenced by the difference in descriptive statistical results with a value of 81.57> 73.57 and the results of the independent sample t-test with a significance value of 0.00. The value of terse
Keywords: Kahoot, evaluation, test, IPS.

ABSTRAK

Perbedaan hasil belajar siswa antara penggunaan media evaluasi Kahoot dengan tes tertulis pada mata pelajaran IPS. Jenis penelitian ini adalah quasi eksperimen dengan desain nonequivalent control group design. Populasi dalam penelitian ini adalah siswa kelas VII MTs Salafiyah Bode Kabupaten Cirebon dan sampel diambil secara purposive sampling. Pengumpulan data dilakukan dengan observasi, tes, angket, dan dokumentasi. Data yang terkumpul dianalisis menggunakan uji statistik deskriptif dan inferensial dengan menggunakan independent sample t-test. Berdasarkan hasil penelitian diperoleh hasil sebagai berikut: 1) Pemanfaatan Kahoot sebagai media evaluasi mata pelajaran IPS di MTs Salafiyah Bode Kabupaten Cirebon sudah sempurna dengan presentase 86,5%, 2) Hasil belajar siswa kelas eksperimen mengalami peningkatan setelah digunakan Kahoot pada pelaksanaan evaluasi, 3) Hasil belajar siswa dengan menggunakan Kahoot sebagai media evaluasi dan tes tulis mata pelajaran IPS di MTs Salafiyah Bode Kabupaten Cirebon dibuktikan

dengan perbedaan hasil statistik deskriptif dengan nilai 81,57 > 73,57 dan hasil uji independent sample t-test dengan nilai signifikansi 0,00. Nilai tersebut lebih kecil dari 0,05 (0,000<0,05). Dengan demikian terdapat perbedaan hasil belajar siswa antara pemanfaatan Kahoot sebagai media evaluasi dan tes tulis mata pelajaran IPS di MTs Salafiyah Bode Kabupaten Cirebon.
Kata kunci: Kahoot, evaluasi, tes, IPS

A. INTRODUCTION

Education is a conscious effort made to maximize and improve the quality of human resources through learning activities. Law No. 23 of 2003 concerning the National Education System states that education is an effort that allows students to actively participate in developing the potential that exists in themselves, including religion, self-control, intelligence, skills and personality needed in the life of society, nation and state (Hakiki & Puspitasari, 2018). It cannot be denied that education is the main capital in improving the quality of human resources.

The quality of human resources can be seen from the quality of learning that has been carried out so that it can be concluded if the learning that has been carried out has been successful or not. In the Indonesian education system, the success of learning can be seen from student learning outcomes. Student learning outcomes are obtained after students have gone through an evaluation process that has been prepared in a structured manner (Nur, Raharjo, & Wahid, 2023; Ningsih et al., 2023). Both evaluations are carried out summatively and formatively, the results of which can be given in the form of numbers.

Today, the development of technology is so rapid that technology affects the joints of life and brings changes to patterns of behavior and culture in society. technological developments provide benefits for life because technology facilitates community activities so that community activities become effective and efficient. The rapid development of technology has also changed the pattern and system of education today. Where the conventional education system is now changing to a digital education system by presenting technology to help the process of teaching and learning activities in the classroom.

In this digital era, the use of technology in education can be optimized with the aim that students can actively participate and the learning atmosphere that tends to be boring and lack of interaction between students and teachers can change. Such conditions can encourage students to become the next generation of quality in accordance with the demands of the times. To determine the success of a learning objective, a learning evaluation must be carried out.

Based on preliminary observations at MTs Salafiyah Bode, Cirebon Regency, it was found that there were problems regarding the ability to understand student material which was still low so that it had an impact on the number of students who obtained learning outcomes below the standard minimum completeness criteria of 70, besides that the learning activities carried out were still using conventional methods so that students

quickly felt bored and then had an impact on students who could not participate in learning optimally. Another thing that can cause students to get low learning outcomes is that students are not serious in participating in learning, learning material reviews are rarely carried out, students often leave the class, evaluation activities still use paper-based written tests, and teachers are not innovative in making evaluation questions. Such conditions must be changed, especially in learning evaluation activities that must be innovated. Because evaluations with paper-based written tests are not effective, this is because teachers need a long time to prepare for these activities. On the other hand, this evaluation activity has an impact on students who tend to be bored, uninterested, and not excited in working on questions so that students work on questions carelessly and not seriously so that teachers have difficulty in mapping students' abilities. This is what causes the decline in student learning outcomes (Amalia, 2019).

In this digital era, evaluation can not only be done conventionally, but can also be done digitally by utilizing technology. Evaluation carried out digitally can be used on an ongoing basis with the aim of providing feedback and controlling the success of learning (Riyanto & Saluky, 2023; Meilani, 2023). This digital evaluation can be done using the kahoot application because kahoot has features that can be used for evaluation activities with an attractive and varied appearance so as to make students more motivated and competitive so as to create a supportive learning environment.

According to Wang (2014), kahoot is a game-based student response system (GRS) that is usually used by teachers as a reward for their students (Atherton, 2018). Kahoot is a tool used to collect student responses that is provided free of charge to manage quizzes, discussions, and surveys that are played in realtime and can be utilized to see student abilities through questions provided on an online platform for formative assessment and can be used in learning activities. Kahoot can increase students' participation and cognition because it features audio, music, and scoreboard and can be projected on a shared screen via smartphone, tablet, or computer (Student Educ, 2022).

Kahoot can be accessed easily through a smartphone, tablet, or PC through a browser as well as applications available with internet-connected iOS and android versions (Wichadee & Pittanapichet, 2018). In use, kahoot has two different url addresses to use. The url https://kahoot!.com is for teachers and the url https://kahoot!.it is for students. There are three stages that must be done when playing kahoot, including: 1) run kahoot from the teacher's account and display it on the screen then click play, 2) students can access kahoot.it and join using the pin that appears. Students are expected to prepare a nickname or team name if using group mode, and 3) wait until the student's name appears on the teacher's main monitor and click start (Putri & Muzakki, 2019). This research reveals how gamification elements in Kahoot can influence students' learning motivation compared to conventional evaluation methods.

Kahoot has advantages including: 1) does not require software on both computers and smartphones because it is made through web-based software and does not require special hardware and software in its use, 2) easy registration of teacher accounts using

gmail or facebook, 3) students do not have to have an account. Students only need to enter the pin from the teacher's account when using kahoot, 4) smartphones are facilitated by a mobile app that can be downloaded for free via google playstore, 5) there is an analysis feature of each student's learning evaluation and points making it easier for teachers to make feedback. The weaknesses of kahoot include: 1) requires high-speed internet facilities, 2) there are school/madrasah rules that prohibit students from bringing smartphones or laptops to school/madrasah, 3) overhead projectors must be available in conditions where electricity is always available while using kahoot (Bunyamin, 2020).

B. RESEARCH METHOD

This research uses a quasi-experimental method (quasi experimental design) and the research design used is nonequivalent control group design. This type of research is quantitative with a quasi-experimental approach with a nonequivalent control group design. The population in this study were seventh grade students of MTs Salafiyah Bode as many as 675 students, and the sample of this study was taken purposively as many as 35 students. The research design is as follows:

Table 1. Research Design

Sample	Class	Pre-Test	Treatment	Post Test
Non-Random	Experiment	O_1	X	O_2
Non-Random	Control	O_1	-	O_2

The population in this study was MTs Salafiyah Bode Cirebon Regency. Sampling using purposive sampling with class VII A as the experimental class and class VII E as the control class. Data collection techniques using observation, tests, questionnaires, and documentation. The data obtained were analyzed with descriptive statistics and hypothesis testing was carried out with independent samplet-test (Rukajat, 2018). The data analyzed has passed validity and reliability tests. Before the hypothesis test, the prerequisite tests of normality and homogeneity were carried out which resulted in sig values of more than 0.05.

C. RESULTS AND DISCUSSION
Result

Based on the distribution of questionnaires to students, the use of kahoot as an evaluation media in social studies subjects at MTs Salafiyah Bode Cirebon Regency has a very good category (86.5%). This is supported by research Atherton (2018) which states that the use of kahoot as an evaluation media is unique because the answers to each

question in the kahoot application are represented by colors and images that represent the answers so that students feel happy because it is like playing games. In line with this research, research Barnes (2017) states that the use of kahoot as an evaluation media can increase student motivation so that students are more competitive. Student learning outcomes improved after using kahoot as an evaluation media. Before using kahoot, the average student learning outcomes were 59.57 then after using kahoot as an evaluation media.

The average student learning outcomes increased to 81.57. This is in line with research which states that before using kahoot, student learning outcomes were low with an average of 43.1 and had not exceeded the minimum limit of 75, then after kahoot was used as an evaluation media, the average student learning outcomes increased to 88, 1. This is because students are very enthusiastic about learning so that activeness in learning activities increases. Then research Damayanti & Dewi (2021) stated that the increase in learning outcomes was due to students wanting to be the best by getting the top score. Based on the results of hypothesis testing, there are differences in student learning outcomes between using kahoot as an evaluation media and written tests. Where the tcount> ttable value with a significance of 5%. With tcount 3.877 and ttable 1.66757 (3.877>1.66757) and a significance level of 0.000 where the result is smaller than 0.05 (0.000<0.05). These results are supported by research Kusumaningrum & Pramudiani (2021) which states that students who use kahoot have high enthusiasm in learning compared to students who use traditional methods in learning activities. the findings of the study, refined by research Ningrum (2018) which states that there is a significant difference in learning outcomes with an average of 85.8 for experimental classes and 74.1 for control classes. The difference in learning outcomes was caused by students' participation, learning style, and emotional control.

The use of kahoot as an evaluation media is known through distributing questionnaires to 35 experimental class students with a total of 10 questions. The results of the questionnaire were then analyzed with a percentage scale and the results obtained were 86.5% where these results had a "very good" category with a percentage range of 85%-100.

Table 1. Recapitulation of Questionnaire Results

No	Skala Likert								Jumlah	
	4		3		2		1			
	F	S	F	S	F	S	F	S	F	S
1	20	80	8	24	7	14	0	0	35	115
2	14	96	6	18	12	24	3	3	35	141
3	13	72	14	72	8	16	0	0	35	160
4	24	96	7	21	4	8	0	0	35	125
5	17	68	8	24	9	18	1	1	35	111
6	15	60	16	48	3	6	1	1	35	115
7	11	44	10	30	14	28	0	0	35	102

8	16	64	11	33	7	21	1	1	35	119
9	11	44	13	52	10	20	1	1	35	117
10	12	48	15	45	6	12	2	2	35	107
Total	153	672	108	367	80	167	9	9	35	1215

Based on the recapitulation table 1, the ideal score for the questionnaire is the number of questionnaire items x 4 (highest score) x number of respondents. Then the results obtained are 10 x 4 x 35 = 1,400. The total score of the questionnaire recapitulation is 1,215.

Student learning outcomes in the experimental class in pre-test activities have an average of 59.57. With the lowest score in the pre-test activity being 30 and the highest score being 100. In the post test activity, the average student learning outcomes were 81.57 with the lowest score being 60 and the highest score being 100. While the average student learning outcomes in the control class in the pre-test activity was 62.57 with the lowest score of 35 and the highest score was 100. In the post test activity, the average student learning outcome was 73.57 with the lowest score of 60 and the highest score was 95. Student learning outcomes are known by conducting evaluations. Where the experimental class did 20 multiple choice questions through kahoot and the control class did 20 written test questions in multiple choice form. Based on the description above, it can be concluded that the learning outcomes of the experimental class> from the control class (81.57> 73.57) in the post test activities.

Table 2. Student Learning Outcomes

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test Experiment	35	30	100	59.57	17.251
Post Test Experiment	35	60	100	81.57	8.726
Pre-Test Kontrol	35	35	100	62.57	13.632
Post Test Kontrol	35	60	95	73.57	8.538
Valid N (listwise)	35	–	–	–	–

The average initial score before the treatment was 59.57, with a standard deviation of 17.251. After using Kahoot as an evaluation tool, the average score increased to 81.57, with a lower standard deviation of 8.726, suggesting an improvement in students' understanding and a more consistent distribution of scores. The average initial score before the treatment was 62.57, slightly higher than the experimental group, with a standard deviation of 13.632. After using conventional evaluation methods (written tests), the average score increased to 73.57, with a standard deviation of 8.538. Improvement in

learning outcomes was more significant in the experimental group than in the control group. The post-test average score for the experimental group (81.57) was higher than that of the control group (73.57).

Before hypothesis testing is carried out. The data collected were tested for normality and homogeneity.

Table 3. Test Normality

	Kelas	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
Social Studies Learning Outcomes	Pre-Test Eksperimen (Kahoot)	.090	35	.200[*]	.974	35	.550
	Post-Test Eksperimen (Kahoot)	.147	35	.053	.953	35	.138
	Pre-Test Kontrol (Konvensional)	.142	35	.071	.966	35	.343
	Post-Test Kontrol (Konvensional)	.148	35	.051	.950	35	.111

The normality test results show that all Sig. values from both the Kolmogorov-Smirnov and Shapiro-Wilk tests are greater than 0.05, indicating that the data follows a normal distribution. This applies to both the experimental (Kahoot) and control (conventional) groups in pre-test and post-test conditions. Therefore, parametric statistical tests such as t-tests or ANOVA can be appropriately used for further analysis.

Based on the table above, normality testing using the saphiro wilk test the data is declared normal. This can be seen from the testing of experimental class and control class data exceeding the test significance limit of 0.05 (>0.05). With the results of each pre-test and post-test data of the experimental and control classes as follows: The significance for the experimental class pre test data is 0.550, this shows that the experimental class pre test data is greater than the test significance limit of 0.05 (0, 550> 0.05) and the experimental class post test data is 0.138 where these results are also greater than 0.05 (0.138> 0.05). Control class data on pre-test activities showed a result of 0.343 where the result was greater than 0.05 (0.343>0.05) and post-test activity data showed a result of 0.111 where the result was also greater than 0.05 (0, 111> 0.05).

Furthermore, after the data is declared normal. Then a normality test is carried out as one of the requirements for conducting hypothesis testing with an independent sample t test. Homogeneity test results show the following results.

Table 4. Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
.050	1	68	.824

The homogeneity test was carried out with the F test through the spss version 16 program. Based on the output table above, the significance result is 0.824 with a significance limit of 0.05. This shows that 0.824> 0.05. This it can be concluded that the experimental class and control class data are homogeneous (the same). Based on the results of normality and homogeneity testing which states that the data is normally distributed and the data is homogeneous. Then hypothesis testing with independent sample t test can be done. This hypothesis testing uses the decision-making criteria H0 is accepted if tcount < ttable with a significance level of 5% and dk n1 + n2-2.

Table 5. Independent Sample T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Learning outcome IPS	Equal variances assumed	.050	.824	3.877	68	.000	8.000	2.064	3.882	12.118
	Equal variances not assumed			3.877	67.968	.000	8.000	2.064	3.882	12.118

Based on the table, the results of hypothesis testing with the tcount value is 3.877 and the ttable is 1.66757 and the calculation of the ttable tα/2 (df) = 0.025 (68) and a significance level of 0.05. This the results obtained tcount> ttable (3.877> 1.66757) and significance count < α significance of 0.05 (0.000 < 0.05) so that the results obtained that Ha is accepted and H0 is rejected. This means that there is a difference between students using kahoot as an evaluation media and written tests in social studies subjects at MTs Salafiyah Bode, Cirebon Regency.

Discussion

This study aims to compare student learning outcomes in social studies subjects at MTs Salafiyah Bode, Cirebon Regency, which were evaluated using Kahoot media with conventional written test evaluations. Based on the results listed in the tables above, there

are several important findings that show significant differences between these two evaluation methods.

Student learning outcomes using Kahoot as an evaluation medium showed a more significant improvement compared to the conventional written test method. Based on Table 2, the mean post-test score in the experimental group (who used Kahoot) reached 81.57 with a standard deviation of 8.726, while the control group (who used the written test) only reached a mean score of 73.57 with a standard deviation of 8.538. This difference indicates that the use of Kahoot can be more effective in improving students' understanding and learning outcomes (Zhang & Yu, 2021).

Based on the results of the normality test conducted, as shown in Table 3, it shows that the learning outcomes data from both groups follow a normal distribution. This is evidenced by the significance values in the Kolmogorov-Smirnov and Shapiro-Wilk tests which are all greater than 0.05. Therefore, it can be concluded that the results of further statistical tests are valid for use (Field, 2018).

The results of the homogeneity of variance test conducted through Levene's Test in Table 4 show that the variance between the two groups is homogeneous (p > 0.05). This indicates that direct comparisons between the learning outcomes of the experimental and control groups can be made without bias due to differences in variance (Tabachnick & Fidell, 2019).

In Table 5, the results of the independent t-test show that there is a significant difference between the learning outcomes of students evaluated using Kahoot and those evaluated with a written test (p = 0.000, t = 3.877). This p value, which is smaller than 0.05, indicates that there is a real difference in the effectiveness of the two evaluation methods. This finding is in line with previous research showing that technology-based evaluation tools such as Kahoot can increase student engagement and motivation in the learning process (Wang & Lieberoth, 2016; Altawalbeh, 2023).

The results of this study indicate that the use of Kahoot as an evaluation medium has a greater positive impact on student learning outcomes than the conventional written test-based evaluation method. This is likely due to the interactive and gamification nature offered by Kahoot, which encourages students to be more active and enthusiastic in learning (Plump & LaRosa, 2017).

In the context of modern education, these results provide important implications for educators in choosing the right evaluation methods to improve student learning outcomes. The integration of technology in evaluation, as demonstrated by the use of Kahoot, can be an effective strategy to achieve better learning outcomes (Putri, 2019).

The results of the study provide empirical evidence regarding the superiority of Kahoot as an evaluation medium, the results of this study are also in line with a number of previous studies that show the effectiveness of technology-based evaluation tools in improving student learning outcomes. One of the literatures supporting this finding is a study conducted by Wang and Lieberoth (2016), where they found that the use of Kahoot in learning not only increased student engagement, but also contributed to improved

academic outcomes. Their study stated that the competition and gamification elements contained in Kahoot were able to motivate students to actively participate, which in turn improved understanding of the material (Wang & Lieberoth, 2016; Fuster-Guilló et al., 2019).

Another study by Plump and LaRosa (2017) also found similar results, where the use of Kahoot as an interactive learning tool was able to increase the speed and accuracy of student responses in answering questions. They concluded that students who learn using Kahoot tend to have higher learning outcomes compared to traditional evaluation methods. This supports the findings of this study that students evaluated using Kahoot showed better learning outcomes than those evaluated with written tests (Plump & LaRosa, 2017).

In addition, research by Bicen and Kocakoyun (2018) stated that the use of game-based learning platforms such as Kahoot is not only beneficial for cognitive learning but also for students' affective aspects. According to them, students are more motivated and enjoy the learning process more when interactive technology is used, which can reduce evaluation anxiety and improve learning outcomes. This is relevant to the results of this study which showed that students evaluated using Kahoot obtained higher post-test scores (Bicen & Kocakoyun, 2018).

According to Sung, Chang, and Liu (2016) also found that technology-based learning methods can reduce the achievement gap between students. Their study showed that the use of evaluation tools such as Kahoot can help students with learning difficulties to achieve better results as this platform allows for a more personalized and adaptive approach to students' needs. This supports the observation in this study that Kahoot can be an effective tool to improve learning outcomes in heterogeneous classes (Sung, Chang, & Liu, 2016; Latifah, Choirudin, & Ningsih, 2024).

According to Kartimi et al. (2024) through their research of technology in education found that the integration of technology-based tools in evaluation and learning can produce significant effects on improving student learning outcomes. They emphasized that interactive evaluation tools such as Kahoot allow for quick and accurate feedback, which is an important factor in effective learning. This is consistent with the results of this study which showed significant differences in learning outcomes between students evaluated with Kahoot and conventional methods.

D. CONCLUSION

Based on the description above, it can be concluded that the use of kahoot as an evaluation media has a very good category with a percentage of 86.5%, student learning outcomes in the experimental class are greater than the control class. Where the experimental class has an average student learning outcome of 81, 57 and the control class of 73, 57 (81.57>73.57), and based on hypothesis testing there are differences in learning outcomes between students who use kahoot as an evaluation media with written tests in social studies subjects at MTs Salafiyah Bode Cirebon Regency with the results of

significance count < α significance (0.000 < 0.05). The use of Kahoot as an evaluation media is different and better than conventional media in the form of written tests, it is possible that Kahoot is more interesting, practical and motivates students to learn.

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