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Utilization of Learning Game Kahoot to Improve Students Preparedness in Facing Disasters Forest and Land Fires at SMAN 1 Rantau Badauh

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Abstract

The application of learning using the kahoot game media can be applied to improve student learning outcomes. This research is aimed at finding out the effect of using the Kahoot learning game media on student learning outcomes. The population of this research is class XII IPS 2 students at SMAN 1 Rantau Badauh, with a total of 22 students. The research carried out is included in the type of experimental research. The method in this research is Pre-Experimental Design (Pre-Experimental Design) using a quantitative approach with a series of One-Group Pretest-Posttest research. The results of the research using the N-Gain test are an average value of 56.4989 or 56%, which is quite effective and according to the N-Gain category is moderate. Based on the hypothesis using a paired difference test (Paired Sample t-Test) it is known that the Sig value. (2-tailed) is 0.000 < 0.05, so H0 is rejected and H1 is accepted. So the conclusion is that there is a difference in the average of pretest and posttest learning outcomes, meaning that there is an influence on the use of the Kahoot learning game media on student learning outcomes to increase preparedness in facing forest and land fire disasters in class XII IPS 2 at SMAN 1 Rantau Badauh.

Keywords: Game Kahoot, Learning Result, Disaster Preparedness

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1. Introduction

Forest and land fires (karhutla) are a phenomenon that often occurs in Indonesia, especially on peatlands. This fire disaster usually occurs every year during the dry season. Forest and land fires in South Kalimantan often reach quite a large scale because the area is a forest and peatland area that is prone to burning (Kumalawati et al., 2019). The causes of forest and land fires can be divided into two factors, namely natural factors and human factors. Natural factors arise when a prolonged dry season causes friction between dry objects such as twigs which triggers a small fire which then develops into a widespread fire. Causes of human factors include deliberate land

burning, especially in the context of agricultural land preparation, as well as a lack of public awareness in throwing away cigarette butts carelessly (Heriady, 2021). Sometimes, forest fires can be a source of disaster that threatens human life and environmental ecology, especially when the fire is difficult to control or extinguish by humans (Wijaya 2021).

The most striking impact of forest and land fires is the formation of smoke haze which disrupts public health and the transportation system, whether by river, land, sea or air. Smoke from forest and land fires has an impact on air quality. Smoke from forest and land fires significantly affects air quality, resulting in reduced visibility and potentially disrupting public health (Irawan & Sobatnu 2018; Rahmini & Sopiana, 2021). In terms of sectoral impacts, forest and land fires include the transportation, health, economic, ecological and social sectors (Bilqis 2020).

The rapid development of the internet has opened up access to a variety of information that is useful for individual development. The variety of the latest information on the internet can be used as a learning medium. Learning media includes various tools used in the learning process, including means for sending messages from teachers to students (Suryani et al., 2018). The use of technology such as gadgets and laptops in learning can increase student interest, so that the learning process and achievement of learning outcomes can be optimized. Educators can utilize various online applications available to support the achievement of learning objectives, one of which is using the online Kahoot application.

Kahoot is an online platform that creates a fun and entertaining quiz atmosphere in the classroom. Using laptops, mobile devices, and projectors, Kahoot becomes an effective tool for collaborative learning in the classroom. Kahoot games are fun and motivate students to achieve high rankings in quiz games that have been presented by teachers through the Kahoot game media (Lukman, 2019). Kahoot emphasizes the active learning style of students in the learning process. One of the advantages of Kahoot is that it is an online quiz application that creates a competitive spirit among students because their scores can be seen directly on the projector screen in the classroom, this encourages students to compete and achieve the highest score (Indriani 2022). Through the Kahoot game, the learning process becomes more fun and prevents students from getting bored when following material that is difficult to understand. Kahoot is designed as a group game, it can also be played individually (Mustikawati 2019).

Learning innovation with Kahoot games and balanced with teaching materials that relate to students' real lives, especially forest and land fires, which still often occur in villages around SMAN 1 Rantau Badauh, especially fires in forests and rice fields during the dry season. Fires originate from the friction of dry wood or human actions themselves. The aim is to provide a deeper understanding of the importance of this material in their daily lives, and to be able to form quality, superior human resources who care about the environment. It is hoped that learning using Kahoot game media can improve students' learning outcomes, so that their understanding of preparedness in dealing with forest and land fire disasters can also be improved.

Kahoot is an effective, non-boring and fun media. According to (Hartanti 2019) In previous research, the use of Kahoot media can stimulate students' interest and motivation to learn actively. This can result in increased student knowledge and support their understanding of the material taught by the teacher. This research is also in line with research (Setiawati & Sihkabuden, 2018), with Kahoot media on student learning

outcomes, there is an increase in student learning outcomes after teaching using Kahoot. By implementing learning through the Kahoot application in the form of a quiz, it is hoped that it can increase students' enthusiasm and interest in learning. It is hoped that this will have an impact on improving students' overall learning abilities (Sakdah et al., 2021).

The material applied in this research is material about types of natural disasters and how to deal with them. The selection of materials is adjusted to the conditions around the school or the student's place of residence. Forest and land fire disasters are disasters that often occur around the research area, therefore students are expected to be able to better understand their preparedness in dealing with disasters that often occur in their area. This research is in line with previous research according to (Purwanto, et al., 2021), there is a positive influence that can be seen in improving student learning outcomes after using the online game media Kahoot in Geography subjects.

The research conducted by this researcher is based on the previous research above, therefore the researcher conducted proof of the results of the research to see the preparedness of forest and land fire disasters for class XII IPS 2 students at SMAN 1 Rantau Badauh, by looking at student learning outcomes after using Kahoot game media in the learning process. This research has to strengthen, encourage and prove that the use of Kahoot game media can provide learning motivation to students, which will ultimately influence increased learning outcomes. Based on observations of students, it appears that students' learning motivation is still low, which results in difficulties when they try to solve problems during the learning process. This research is important to be carried out as an effort to increase students' knowledge of disaster preparedness and to add to the literature on research that has similarities. The title of this research is "Utilization of Kahoot Game Learning Media to Improve Student Preparedness in Facing Forest and Land Fire Disasters at SMAN 1 Rantau Badauh".

2. Method

The method used in this research is Pre-experimental Design with a quantitative approach. The design in this study is One-Group Pretest-Posttest Design. The design in this study used one group of subjects by giving an initial test, treatment with the Kahoot game, and a final test (Purwanto, et al., 2021). Research with Pre-experimental and One-Group Pretest-Posttest designs has weaknesses because there is no control group, so changes from the initial test to the final test may be caused by the treatment given. According to Sugiyono, 2010 experimental method using the Pre-experimental One-Group Pretest-Posttest design, the treatment can be known more accurately, because it can be compared with the conditions before treatment.

Research using this design, begins with giving an initial test (Pretest) to students as samples, then treatment will be given using the Kahoot game in learning about forest and land fire disaster mitigation, and will end with a final test (Posttest).

Table 1. One Group Pretest-Posttest Design

Pretest	Treatment	Posttest
O_1	X	O_2

Source: (Sugiyono, 2010)

Information:

O_1: Initial test (Pretest)
X : Treatment by using the Kahoot media learning model
O_2: Final test (Posttest)

The variables in this study are the independent variable (X) and the dependent variable (Y). The independent variable is the variable that influences or causes the change or emergence of the dependent variable. The dependent variable is said to be the output variable, determinant, consequence. In Indonesian it is called a dependent variable. The dependent variable is a variable that influences or is the cause, because of the existence of the independent variable (Ridha, 2020). The independent variable (X) is the use of Kahoot game learning media, while the dependent variable (Y) is the results of the students' pretest-posttest on disaster preparedness.

Table 2. Research Variable and Indicator

Variable	Indicator
Use of Media	• Use of Kahoot learning games
Disaster Preparedness	• Explanation of disasters • Explanation of types of disasters • Explanation of characteristics of disasters

The population of this study was students of class XII of SMAN 1 Rantau Badauh in the 2022/2023 academic year with a total of 77 students consisting of 4 classes, XII IPA 1, XII IPA 2, XII IPS 1, and XII IPS 2. This study uses a purposive sampling method to determine the research. Purposive sampling is a non-random sampling method where researchers selectively choose samples that are in accordance with the research objectives, by ensuring that the selected samples have certain characteristics or identities that are relevant to the research topic. Thus, it is expected that the sample can provide in-depth and relevant insights into the research case being studied (Lenaini 2021). The sample selected was class XII IPS 2 with a total of 22 students. Determination of the number of samples based on students' lack of understanding of forest and land fire disaster preparedness in class XII IPS 2 SMAN 1 Rantau Badauh students, understanding related to disaster material such as forest and land fires is still low as seen from the results of observations by providing questions about forest and land fire disasters. The instrument tests applied in this study were the N-gain test and the Paired Sample t-Test. Testing was carried out using IBM SPSS software version 25.

According to Hake in Sundayana (2014), the N-gain test is a test that can provide a general picture of the increase in scores in learning outcomes before and after a treatment is applied. The determination of the N-gain score is based on the N-gain value and the N-gain value in the form of a percentage (%). Then the Gain Value and Percentage Gain Value (%) are entered into a table for interpretation.

Table 3. Interpretation of N-gain Values

N-gain interval	Category
g < 0.3	Low
0.3 ≤ g ≤ 0.7	Currently
g > 0.7	Tall

Table 4. Interpretation of N-gain Percentage Value (%)

N-gain interval (%)	Interpretation
< 40	Ineffective
40 - 50	Less Effective
56 - 75	Quite Effective
> 76	Effective

3. Results and Discussion

A. Results

The N-gain test was conducted to determine the differences in the application of learning using Kahoot learning game media to improve student learning outcomes, by measuring the results of the pretest and posttest scores. The sample tested in the study was 22 students in class XII IPS 2. The results of the N-gain score (%) test on the results of students' pretest-posttest scores using IBM SPSS STATISTIC 25.

Table 4. N-Gain Test Results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_score	22	.25	1.00	.5650	.17888
Ngain_persen	22	25.00	100.00	56.4989	17.88821
Valid N (listwise)	22				

The results of the N-gain test can be concluded from the table above, namely the average value is 0.5650 for the average N-gain score and 56.4989 or 56% for the average N-gain percentage. Based on these values, the N-gain score results are in the moderate category and the N-gain percentage (%) is interpreted as quite effective, so it can be concluded that the application of learning using the Kahoot learning game can improve student learning outcomes for class XII IPS 2 at SMAN 1 Rantau Badauh.

Paired Sample t-Test is a statistical method used to test hypotheses when the data used are not independent (paired). This test model is suitable for analyzing data from research involving pretests and posttests or data before and after the application of a treatment (Juliana & Sumani 2019). Basis for decision making If the significance value

< 0.05 then H_0 is rejected and H_1 is accepted. On the other hand, if the significance value is > 0.05, then H_o is accepted and H_1 is rejected.

H_1 : There is an influence on the results of student learning about the material on forest and land fire disaster preparedness which will increase after using the Kahoot game media.
H_0 : There is no influence on increasing student learning outcomes after using Kahoot game media.

Table 5. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	pretest - posttest	-28.63636	12.06942	2.57321	-33.98765	-23.28508	-11.129	21	.000

Based on the results of the paired sample difference test (Paired Sample t-Test) in the table above regarding the significance value (2-tailed) 0.000 < 0.05, it shows that there is a real influence of the learning results using the Kahoot learning game media from the pretest and posttest value data. After conducting a Paired Sample t-Test on the pretest and posttest results to measure the use of Kahoot learning game media on geography learning outcomes, a hypothesis test will be conducted.

Based on the Paired Sample t-Test output table above, it is known that the Sig. (2-tailed) value is 0.000 < 0.05, so H_0 is rejected and H_1 is accepted. So it can be said that there is a difference in the average of the pretest and posttest learning results, which means that there is an influence in the use of Kahoot game learning media to increase student preparedness to face forest and land fire disasters at SMAN 1 Rantau Badauh.

B. Discussion

This study discusses the application of the Kahoot learning game to improve students' preparedness to face forest and land fire disasters. The research was conducted at SMAN 1 Rantau Badauh in class XII IPS 2 with pretest and posttest. Pretest and posttest tests were conducted to evaluate student learning outcomes before and after being given treatment using Kahoot game learning media.

Research at SMAN 1 Rantau Badauh was conducted using the Kahoot game media. The results of the research conducted at SMAN 1 Rantau Badauh can be seen that the application of this Kahoot game media has an influence on improving student learning outcomes for class XII IPS 2, which can be seen from the results of calculating students' pretest and posttest scores by conducting the N-gain test and paired sample difference test (Paired Sample t-Test). This research is in line with previous research conducted by (Sakdah et al., 2021), The application of Kahoot game media has been proven to stimulate student creativity and create a fun learning situation. Thus, student learning outcomes tend to increase because they are actively involved in attractive and

interactive learning.

The application of learning using the Kahoot game in geography subjects is expected to make students more active, critical and enthusiastic in following the lesson. The material applied in this research is material about types of natural disasters and how to deal with them. The selection of materials is adjusted to the conditions around the school or the student's place of residence. Forest and land disasters are disasters that often occur around the research area, therefore students are expected to be able to better understand and be prepared to face disasters that often occur in their area. This research is in line with previous research according to (Purwanto, et al., 2021), There is an influence in improving student learning outcomes after using the online game media Kahoot on student grades in geography subjects.

Kahoot is an internet-based learning platform that offers quiz features in the form of games. According to (Sakdah et al., 2021), quizzes on the Kahoot application can be considered as an effective learning medium because they adopt a student-centered learning approach. Through interactive quizzes, students are actively involved in the learning process and have the opportunity to hone their skills and develop their critical thinking abilities. This helps strengthen their understanding of the subject matter and prepares them to face various problems or challenges in the real world. The scoring system in Kahoot displays the students' scores in the top five, encouraging a competitive spirit among students to achieve the highest achievement. Students compete to be the best and at the forefront of the game, which indirectly encourages them to try harder in learning (Haviza et al., 2023).

The success of Kahoot media in improving student learning outcomes is proven by research (Mattawang & Syarif, 2023), and (Alfurqan & Wahyuni, 2023). The success of research that utilizes Kahoot game media to improve student preparedness to deal with forest and land fire disasters, does not only depend on cooperation between teachers and students, but also on the active involvement of both parties in the learning process. The same research as (Hartanti, 2019), Kahoot in its use can trigger students' interest and motivation to learn actively. which ultimately increases their knowledge and deepens their understanding of the material that has been delivered by the teacher.

4. Conclusion

Kahoot is a student response system based on the concept of games, where the classroom atmosphere turns into a game arena where the teacher acts as the host and the students as participants. Students' experiences in the physical world and classroom environment influence their learning outcomes in this game. Student learning outcomes are influenced by experiences with the physical world and its environment. In this study, the material used was about types of natural disasters and how to deal with them. In its implementation, the researcher gave an initial test in the form of pretest questions and continued by providing treatment, namely by using the Kahoot game media. Furthermore, in order to find out the changes after the treatment, a posttest question test was given.

Kahoot is an effective learning tool because it can improve student learning outcomes. From the research results, the use of Kahoot media and then calculations were carried out on the average value of 0,5650 for the average N-gain score and 56.4989 or 56% for the average N-gain percentage (%).Based on these values, the N-gain score is in the moderate category and the N-gain percentage is interpreted as quite effective, so it can be concluded that the implementation of learning using the Kahoot

learning game can improve the learning outcomes of students in class XII IPS 2 at SMAN 1 Rantau Badauh. The results of the hypothesis test show that the Sig. (2-tailed) value is 0.000 < 0.05, so H_0 is rejected and H_1 is accepted. So it can be concluded that there is an influence of the use of Kahoot learning game media in increasing student preparedness in facing forest and land fire disasters at SMAN 1 Rantau Badauh.

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