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Analysis of Differences in the Use of Kahoot and Quizizz Applications in Improving Analytical Thinking of Physics Education Students, Universitas Negeri Yogyakarta

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ABSTRACT

Learning media is one of the important things in determining the results of the learning process. Interesting learning activities by focusing the interaction between lecturers and students will increase motivation in learning. Therefore, it needs to be packaged well, one of which is an interactive quiz after learning. There are several online quizzes that are often used, namely Kahoot and Quiziz, these quizzes provide services for users to create their own quizzes and can share them with others to take quizzes. The purpose of this study was to determine whether there was a difference in the use of the Kahoot and Quizizz quizzes in improving the analytical thinking of students of Physics Education C UNY 2020 on light interference material. The research method used is an experimental research method in quasi experiment with posttest only design where the research subject will do an analytical ability test given in the form of multiple choice questions given through Kahoot and Quizizz. After that, data analysis will be carried out using a t-test, the results of the analysis show that there are differences in the use of the two quizzes, namely Kahoot and Quizizz with a significance value of 0.642.

INTISARI

Media pembelajaran merupakan salah satu hal yang penting dalam menentukan hasil proses belajar. Kegiatan belajar yang menarik yaitu dengan memfokuskan interaksi antara dosen dan mahasiswa akan meningkatkan motivasi dalam belajar. Oleh karena itu, perlu dikemas dengan baik yaitu salah satunya dengan kuis interaktif setelah pembelajaran. Ada beberapa kuis online yang sering digunakan yaitu Kahoot dan Quizizz, kuis tersebut memberikan layanan bagi pengguna agar dapat membuat kuis sendiri dan dapat menyebarkan ke orang lain untuk mengikuti kuis. Tujuan penelitian ini yaitu untuk mengetahui apakah ada perbedaan penggunaan kuis Kahoot dan Quizizz dalam meningkatkan berpikir analitis mahasiswa Pendidikan Fisika C UNY 2020 pada materi interferensi cahaya. Metode penelitian yang digunakan yaitu metode riset eksperimen dengan desain kuasi eksperimen *posttest only* dimana subjek penelitian akan mengerjakan tes kemampuan analitis yang diberikan berupa soal pilihan ganda yang diberikan melalui Kahoot dan Quizizz. Setelah itu akan dilakukan analisis data dengan uji t, hasil dari analisis tersebut dihasilkan bahwa terdapat perbedaan dari penggunaan kedua kuis tersebut yaitu Kahoot dengan Quizizz dengan nilai signifikansi 0,64.

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A. Introduction

The existence of the Covid-19 pandemic has caused all activities to be limited in their implementation. One of the impacts is on learning activities that are transferred to online methods. Online learning is learning that uses the internet network with accessibility, connectivity, flexibility, and the ability to bring up various types of learning interactions[1]. Therefore, it is necessary to have the right learning media to support these problems. In this online learning method, various digital technology platforms are used in the learning model, starting from the Learning Management System (LMS), instant messengers such as WhatsApp, social media such as YouTube and Instagram, to conference platforms such as Zoom Meeting, Webex, Jitsi Meet, and Google Meet[2]. There are positive things from using technology during a pandemic, namely that many students will be more familiar with and explore the technology used in the current era.[3]. As stated by Sagala[4] that interesting learning media is a good motivation to increase students' interest in learning. The growing era of technological development can be a solution for creating interactive learning during a pandemic. Today's technology-based learning can stimulate students to be more enthusiastic in learning and working on various kinds of practice questions, because technology-based learning has various forms of animation, explanations in the form of graphics, and various colors that add to the real impression[5].

Learning media is an important part in the learning process. Aids or media for independent study in the era of technological advances are needed in the learning process. This is needed to create human qualities that do not only depend on verbal transfer of knowledge, whether carried out by schools or non-formal educational institutions at this time[6]. Good learning media will affect the teaching and learning process in the classroom. The lecture method that has been used so far tends to make students bored and sleepy in learning, especially online learning today. According to Rahmah[7] if in the learning process the teacher continues to use the lecture method from the beginning of the lesson to the end, it could be that students are less interested and do not understand what the teacher has conveyed. Then the lecture method is considered to be teacher centered which makes learning monotonous and less active. Therefore, it is necessary to have interesting learning media that can be reached by all students. The use of applications to support learning in this pandemic era is very useful as a form of variation in learning and can make learning more interesting and understand the material presented better.

However, the learning carried out is still with the same pattern as in offline learning, so it can cause the effect of boredom on students. Although online learning is applied in the industrial era 4.0 which is considered very relevant and suitable. However, in the implementation of online learning there are still obstacles or obstacles. Obstacles in online learning are still felt by some teachers and students. There are several obstacles, both from the emotional side of students and lecturers. as

well as technical problems[8]. Boring learning can affect student learning motivation. Therefore, educators must be more creative in making interactive learning media. Regular assignment of formative assessment tasks can support positive student engagement attitudes and behaviors towards learning. An application that has been commonly used for this purpose is Kahoot, Kahoot is a game-based learning platform used for reviewing knowledge, for formative assessment or as a break from traditional class activities[9].

The use of the Kahoot app in 2019 has more than 250 million users from 200 countries. During 2020, due to the transition from school to distance education due to the Covid 19 pandemic, the use of Kahoot increased rapidly in Spanish-speaking Regions, such as Spain and Latin America and increased by more than 100 positions in the list of educational applications reaching number 16 in Spain[10]. Kahoot's success is due to the fact that its main goal is to make learning fun through a learning platform based game[11]. According to research conducted by Young, et al[12], explained that the features in khoot can give an interesting impression so that users feel happy and not bored. The advantages of this application are systems designed using gamification techniques where users can use this application like playing a game. While the drawback of this application is that this e-learning-based system is not designed for individual knowledge.

In addition, there is an application that is almost the same as Kahoot, namely an application called Quizizz. According to Ulhusna[13] Quizizz is one of the digital media in the form of game practice questions and online presentations that help educators/teachers to distribute teaching materials to make it easier for students to understand. It can even increase students' interest and enthusiasm for learning certain materials when using this digital learning media. The use of Quizizz learning media, is one of the efforts to accommodate the problems of learning media in Indonesia that cannot be applied conventionally with other learningbased on Information Technology and Computers. In Kurnia's research[14], mentioned that the use of the quizizz application can help students complete quizzes and make presentation materials easy and fun.

This study will examine the differences in the level of analytical thinking skills on light interference material by presenting several questions that will be packaged in a quiz on the Kahoot and Quizizz applications. Light interference is the combination of two or more light sources to produce a lighter state (maximum interference) and a dark state (minimum interference). The condition for light interference is that the light must be coherent, namely the state of two or more light sources that have a fixed frequency, amplitude and phase difference[15].

The principle of interference is that if two waves are propagating in the same direction (almost the same) with a phase difference that remains constant with time, a situation can occur in such a way that the energy is not evenly distributed, but at

certain points the maximum value is reached, and at some points the maximum value is reached. other points reached the minimum price[15].

Analytical thinking indicators are generally shortened to Distinguishing, Organizing and Connecting, with the following description:

1. Distinguishing, the ability to distinguish includes grouping or classifying into certain parts, after classifying then communicating them into discussion groups, applying the concepts they have to an existing problem and predicting the outcome of a problem based on the concept reference that has been understood.
2. Organizing is a conscious activity to arrange and organize parts (people, objects, etc.), so as to form an orderly and unified whole. To achieve this ability, students are expected to design ideas or ideas (concepts) along with organizing steps, so that when organizing and arranging something, students are not confused because they have previously designed a concept.
3. Linking is the activity of linking one concept to another that is still related to one another.

Based on the explanation of the problems above, researcher wanted to find out whether there were differences in the use of the Kahoot and Quizizz applications. Those two media were used as learning media solutions in the midst of a pandemic. The aim of this research was to determine the difference in the use of the Kahoot and Quizizz quizzes in improving the analytical thinking of students.

B. Method

The type of research used is quantitative research through experimental research method using quasi experiment with posttest only design. The sample selection technique used is probability sampling with random sampling, the research subject is a student majoring in Physics Education C batch 2020, Universitas Negeri Yogyakarta. We tested 16 students of Physics C education, provided that 8 people worked with the Quizizz application and 8 others worked with the Kahoot application.

The instrument consists of taking data in the form of a test of students' analytical abilities that are contained in questions packaged with the Kahoot and Quizizz applications. The analytical ability test given is in the form of multiple choice questions given through Kahoot and Quizizz. The multiple choice test is a test that will measure the analytical thinking ability of students which includes 6 indicators of analytical thinking ability using 2 assessment instruments.

Table 1. Indicators and Instruments of Analytical Thinking Ability

Indicator	Information
Understanding Concept	• Reasoning the pattern of relationship concepts directly • Solving problems through reasoning connected with material concepts
Identify	• Determine relationship pattern • Make the completion of answers with concepts that have been understood systematically
Differentiate	• Splitting certain patterns • Making connections from existing patterns
Organize	• Applicable theoretical reasoning • Apply concepts and theories to problems
Connect	• Making connections between what is given and what is asked for • Determine the main focus of the problem
Applicative Ability	• Understand the concept concretely • Give examples that are closely related to the surrounding life

Researchers used 2 data collection techniques, namely the observation technique of giving questions directly). After the data is obtained, the analysis stage uses data analysis through a descriptive approach, namely extracting information from data that is in accordance with actual conditions. The data here is the analytical thinking ability of students. The data is processed using the t test which is used for n to determine the effect or determine the relationship between the independent and dependent variables, where one of the independent variables is fixed or controlled. So partial correlation is a number that shows the direction and strength of the relationship between two or more variables, after one variable that is thought to be able to affect the relationship between these variables. The t-test formula used in this research was [16].

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \quad (1)$$

Information
t : test value
r : correlation coefficient
r^2 : coefficient of determination
n : number of tables

C. Results and Discussion

In this study, we tested 16 students of Physics C education, provided that 8 people worked with the Quizizz application and 8 others worked with the Kahoot application. Each student will work on 12 questions that have been provided on Quizizz and Kahoot with the question criteria as described above. The scores obtained from the two applications will be continued with testing using the normality test and t test.

Table 2. Data on Quizizz Score Results with Kahoot

Quizizz		**Kahoot**	
Student Name	**Score**	**Student Name**	**Score**
PL	8170	H	9057
P	7830	P	8059
M	7300	N	6707
HV	5490	I	6058
K	4440	R	5992
INK	4060	F	5285
NA	3860	A	4615
SS	3530	J	2618

After getting scores from the two applications, the Normality test and t-test will be carried out on the two scores that have been obtained, here are the details of the results of the normality test and t-test using SPSS.

Table 3. Normality Test

Quiz	**Kolmogorov-Smirnov**			**Shapiro-Wilk**		
	Statistics	**df**	**Sig.**	**Statistics**	**df**	**Sig.**
Result of Thinking Analysis 1.00	,226	8	,200*	,862	8	,127
2.00	,123	8	,200*	,862	8	,973

From the results of the normality test using Kolmogorov-Smirnov and Shapiro-Wilk, the results of the significance test exceed 0.05, so the data above meets the normality test. From this description, it can be seen that there are differences between Quizziz and Kahoot in Physics Education Students C, so that homogeneous tests and t tests can be carried out on this data.

Table 4. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means's		
Analytical thinking results	Equal variances assumed	f	Sig.	t	df	Sig.(2-talled)
	Equal variances not assumed	,163	,693	-,475	14	,642
				-,475	13,971	,642

The results above the F and Sig test values are more than 0.05 so that the two group variants are homogeneous, so it can be seen that there is an average difference between quizziz and kahoot in Physics C education students.

Based on the research we did with these two applications, there were 12 questions with interference material that we presented. When using the quizizz application, students can review the questions that have been done at the end of the quiz. so that students can find out the wrong answers answered when doing the quiz. As for the Kahoot application, students cannot review the questions that have been done, students can only find out the scores that have been obtained.

When viewed from the research that has been done, it was found that most of the participants' errors in answering questions were in the form of applying concepts to calculations, especially in the Kahoot Application. When analyzed in analytical thinking indicators, it is included in identifying indicators. This is because the Kahoot application cannot time settings so that each type of question is only given 20s, even though each question has a different level of difficulty. This is different from the Quizizz application which can set the processing time up to 3 minutes.

In addition, in the Kahoot application to start a quiz, the organizer must display questions so that face-to-face contact is necessary. In online conditions like this, there are obstacles, namely participants leaving the meeting room which causes participants to be unable to answer questions. This can reduce the effectiveness of this quiz in progress.

D. Conclusion

Based on the research that has been done, it was found that there were differences in the results of analytical thinking of students of Physics Education C 2020 in the use of the Kahoot and Quizizz application quizzes which were analyzed through a t-test with a significance value of 0.642.

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