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Using Kahoot! to Increase Students' Motivation in Post-Pandemic Hybrid Learning

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Abstract: The lack of students' motivation is one of the issues in implementing hybrid learning after the pandemic. This study aims to determine the effectiveness of using Kahoot! to increase the motivation of students studying on Hybrid learning after the pandemic. The type of research is a pre-experimental study in the form of one-group pretest-posttest design. This research was conducted at SMA Negeri 3 Kota Jambi from February to March 2022. The subjects of this study were grade 10th students who were determined by cluster random sampling technique. Research data were collected through questionnaires that were distributed to students. Based on the results of the paired t-test which gets the result of the sig value of 0.000 which is smaller than 0.05. Based on the N gain test, the result obtained is 0.36 which is in the medium category. It can be conclude that there is a significant increase in students' learning motivation after using Kahoot! in the hybrid learning.

Keywords: Hybrid learning, Kahoot!, Learning media, Motivation

Introduction

The Covid-19 pandemic has affected all activities, including learning activities at school (Rinaldi et al., 2021). During the pandemic, the Indonesian government implements online learning for more than two years to prevent the spread of the Coronavirus (Sadikin et al., 2020). In early 2022, the government made concessions in the form of Hybrid learning in schools (Wahyuni, 2021). Hybrid learning combines traditional face-to-face learning and online learning simultaneously (Sun, 2020). The implementation of hybrid learning allows teachers to teach students online and offline at the same time using the help of technological devices (Nashir et al., 2021).

The implementation of hybrid learning at SMA Negeri 3 Kota Jambi begins when the Covid-19 pandemic conditions has subsided. In its implementation, half of the students are offline in the classroom, while others are online using zoom or Google Classroom. Based on the observations that have been made, teachers have difficulty in selecting the appropriate media for both online and offline effectively. As a result, students become less motivated and unable to participate in learning. This situation is exacerbated by the number of assignments that cause students to get bored when studying. This is in line with the statement (Hediansah et al., 2020) in hybrid learning, teachers have difficulty in choosing media that can be used effectively. Giving assignments continuously in learning during the Covid-19 pandemic makes students feel bored participating in learning (Burhanudin, 2021).

One of the obstacles faced by teachers when implementing hybrid learning is that teachers have difficulty in choosing the appropriate media to use. This is in line with what was stated by Indarto (2019) teachers do not have many options during hybrid learning and have difficulty in choosing media that can be used effectively for both online and offline students (Akbar et al., 2022). The impact of using media that is not optimal in hybrid learning causes teachers to frequently focus on offline classes while neglecting students in online classes (Lodo, 2021).

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Learning media that can be used in hybrid learning is media that can be accessed anytime, anywhere and by anyone without reducing the use of the media and can create more effective and efficient learning (Lukman et al., 2021). In addition to making learning more efficient, media learning must be able to make students interested in participating in learning (Nurfadillah et al., 2021). For this reason, media that can increase student learning motivation and be accessed by both online and offline students is required (Marcia et al., 2022).

One of the media that can increase students learning motivation is media that has game elements in it, one of which is Kahoot! (Prayoga, 2021). Kahoot! includes game elements such as points, challenges, leaderboards, and podiums. In addition, Kahoot! can increase student learning motivation. Kahoot! is also easy to access anytime, anywhere, and by anyone (Mubarak et al., 2021). Kahoot! is an internet-based learning platform on which there are interesting quizzes (Wang et al., 2020). Kahoot! is a simple website-based game for education and can be accessed for free on the internet (Tenau et al., 2019).

Kahoot! is a game-based learning platform that can be accessed via the internet (Perdana et al., 2020). Kahoot! is an interactive learning medium that can be used in learning activities and used via mobile phones by teachers and students (Nguyen et al., 2019). The interactive medium, Kahoot!, has four features in it, namely quiz games, discussions, and surveys (Lestari, 2019). Quiz games in Kahoot! can be played in team mode or individually (Inspired, 2019). The use of Kahoot is not only suitable for use in offline learning, but also suitable for online learning (Uçar, 2017) (Wang, 2020).

In this study, we applied Kahoot! media in hybrid learning in order to increase students learning motivation in learning physics. The Zoom application is used to facilitate hybrid learning. By using zoom, both students in the classroom and zoom can see the questions, quiz score, leaderboard, and podium simultaneously. This study aims to find out if Kahoot! effective in increasing students learning motivation in Hybrid learning, especially in learning momentum and impulse materials.

Method

This research uses the experimental method. An experimental method tests an independent variable to determine whether it affects a dependent variable (Cresswell, 2012). One group pretest-posttest design has an initial stage in which the sample will be given a pretest before receiving treatment (Houser, 2014). After initial stage and treatments, samples will be given a final test (posttest) to determine the increase or decrease of the measured variables (Grembowski, 2001). In this research, we only use one class without using a comparison class (Bernard, 2000). The use of one class is a consideration for researchers because the research focuses on the effectiveness of Kahoot! media in increasing learning motivation which can be seen from data before and after treatment.

Table 1. Research design one group pretest-posttest design

Pretest	Treatment	Posttest
O1	X	O_2

(Bernard, 2000)

The population is a generalized area of the subject that has its characteristics, while the sample itself is part of the number and character of the population itself (Garaika et al., 2019). In this study, the population was all students of grade 10th MIPA at SMA Negeri 3 Kota Jambi which consisted of 9 classes. The sample for this study consisted of 34 students from grade 10th MIPA selected from the general population of all grade 10th MIPA students at SMA Negeri 3 Kota Jambi. Samples were determined using cluster random sampling. Cluster random sampling is a sampling technique in areas to determine samples when the object to be studied or the data source is broad (Cadima, 2015). The random cluster chosen is not an individual, but a group or area that is then called a cluster.

This study collected data on students' learning motivation before and after treatment. The data were obtained by distributing questionnaires to students. The questionnaire distributed is a student learning motivation questionnaire with a Likert scale that has been tested for validity and reliability and has a value of 0.86 (Arivin, 2018).

In this study, paired t-test and N-gain test were used to determine whether the Kahoot! effective in increasing student motivation (Maftuhah et al., 2020). The paired t-test was used because the data obtained came from the same sample. This paired t-test will later see if there is a significant difference from the dependent variable, namely student learning motivation (Kim et al., 2018), while the N-gain test is used to find out how much increase in learning motivation occurs (Naimah et al., 2022).

The condition of the paired t-test is that the data must be normally distributed. Data on student learning motivation before and after treatment will be tested for the distribution of data whether it is normally distributed or not. The Shapiro Wilk test is used to determine whether or not data is normally distributed. This test was chosen because the number of samples used was under 50 students. According to Setianingsih et al (2020) for samples below 50 ($n<50$), the Shapiro Wilk test provides more precise and accurate results.

Decision making is done by looking at the significance value obtained. If the significance value is greater than 0.05 (Sig>0.05), then the data can be said to be normally distributed (Razali et al., 2011).

The paired t-test was used to test the hypothesis. If the data is normally distributed, this test can be performed. Paired t-test determines the difference in group averages from the treatment of the same sample at two different times so that the data obtained are in the form of pretest and posttest (Pramana, 2012). The decision-making of the paired t-test is if the significance value is below 0.05 (sig. <0.05) then there is a significant difference between the pretest and posttest data. Figure 1 shows the research chart that was conducted

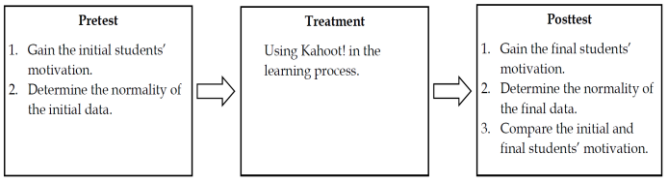

Figure 1. Pretest Data Graph

The last hypothesis test used in this study is the N-gain test. The N-gain test in this study was used to determine how much the increase in students' learning motivation was due to the use of Kahoot! media. The N-gain test is a test that describes the magnitude of the increase caused by the treatment given to the sample (Arisa et al., 2020). The categorization of N-gain scores can be seen in Table 2.

Table 2. category of score

Limitation	Category
g>0.7	Tall
0.3≤g≤0.7	Medium
g<0.3	Low

(Hake, 1998)

Result and Discussion

The data in this study were obtained from the results of the pretest and posttest data. Pretest data was obtained through the provision of a questionnaire of students learning motivation before being given treatment in the form of using Kahoot! on hybrid learning. The posttest data was obtained through a learning motivation questionnaire given after the treatment. After getting the pretest and posttest data, the next step is to process the data using the help of SPSS Software. From the results of SPSS processing, it is found that the description of the pretest data can be seen in Figure 2.

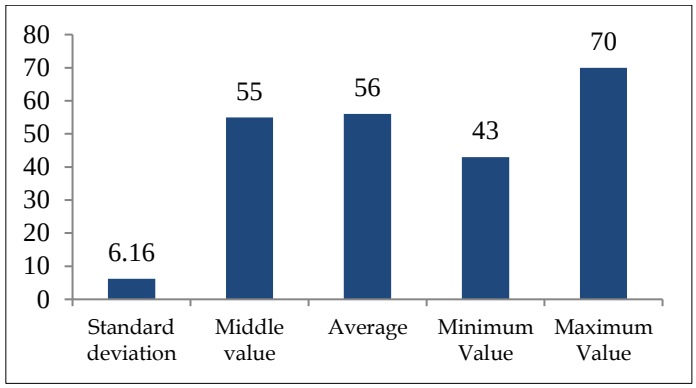

Figure 2. Pretest Data Graph

Figure 2 shows a graph of the results of pretest data processing using SPSS 20. In Figure 1, the mean score = 56.00, the mean score = 55.00, standard deviation = 6.16, maximum value = 70.00, and minimum value = 43.00. After knowing the description of the data in the pretest data, then the posttest data are processed using SPSS and get a description of the data which can be seen in Figure 3.

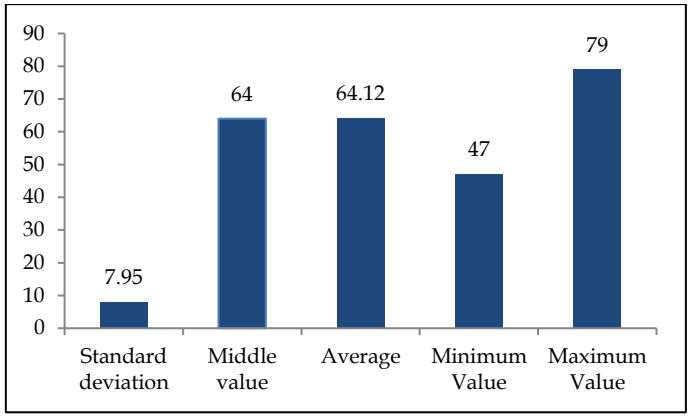

Figure 3. Posttest Data Graph

Figure 3 displays a graph of the results of processing posttest data using SPSS 20. In figure 2, you can find the average score = 64.12, the middle value score = 64.00, the standard deviation = 7.95, the maximum value = 79.00, and the minimum value = 47.00.

Based on data, it will first be tested whether the data is normally distributed or not because the requirement to conduct a hypothesis test in the form of a paired t-test is that the data must be normally distributed. The results of the normality test can be seen in the Table 3.

Table 3. Table of Normality Test Results

			Shapiro-Wilk
	Statistic	Df	Sig.
Data Pretest	0.982	34	0.82
Data Posttest	0.981	34	0.80

Based on Table 3, it is found that the significance value is 0.82 for pretest data and 0.80 for posttest data. Based on the decision-making method, if the significance value is greater than 0.05 (Sig.> 0.05), then the data is said to be normally distributed. The pretest and posttest data were normally distributed based on the Shapiro Wilk test results. After the conditions are met, a paired t-test is carried out as one of the hypothesis tests in this study. Paired t-tests determine whether there are significant differences between pretest and posttest data. The results of the t-test can be seen in Table 4.

Table 4. Paired T-Test Results

T	Df	Sig. (2-tailed)
-9.13	33	0.000

Based on Table 4, it can be seen that the value of the Sig. (2-tailed) is 0.000. Based on the decision-making conditions, if the value of the Sig. (2-tailed) is less than 0.05 then it can be concluded that there is a significant difference between the average pretest data and the posttest data. When the average value between pretest and posttest data is compared, it can be seen that the average of the posttest data is greater than the average of the pretest data, indicating that students' learning motivation has increased.

After the Paired t-test was carried out, it was concluded that there was a significant difference between the pretest and posttest data and there was an increase in learning motivation. The next stage is the N-Gain Test. The N-gain test was used to determine the category of the effectiveness of using Kahoot to increase students' learning motivation. The results of the N-Gain test can be seen in the following Table 5.

Table 5. N-Gain Test Results

Average	0.36
Minimum Value	0.00
Maximum Value	0.93

Based on Table 5 above, we can see that the average gain score in this study is 0.36, so based on the categorization of the gain score, we can conclude that the increasing students' learning motivation are included in the medium category.

The purpose of this research is to determine the effectiveness of Kahoot! in increasing students learning motivation. The study focused on the learning of momentum and impulse materials. Before treatment, students are given an initial test and after treatment, they are given a final test. The treatment is given in accordance with the lesson plan that was developed. Kahoot! is used at the end of each meeting for both offline and online students. Students will take a quiz at this stage. The students who answer the most quickly and correctly receives the most points. In the end of quiz, students with the highest score will take the podium.

Based on the results of paired t-test, there is a significant difference between the pretest and posttest data. From Figure 4, we can see the difference between pretest and posttest data with posttest data having a larger average indicating an increase in learning motivation and supported by the results of paired t-test where the value of sig. (2-tailed) obtained (0.000) is less than 0.05. This is in line with what was conveyed (Hidayat et al., 2021), if the results of the t test are found in pairs with sig values. (2-tailed) smaller, it was concluded that there was a significant difference between the pretest and posttest data. This conclusion is also in line with (Hashim et al., 2021) which says if the value of sig (2-tailed) is less than 0.05 then the two data tested have a significant difference.

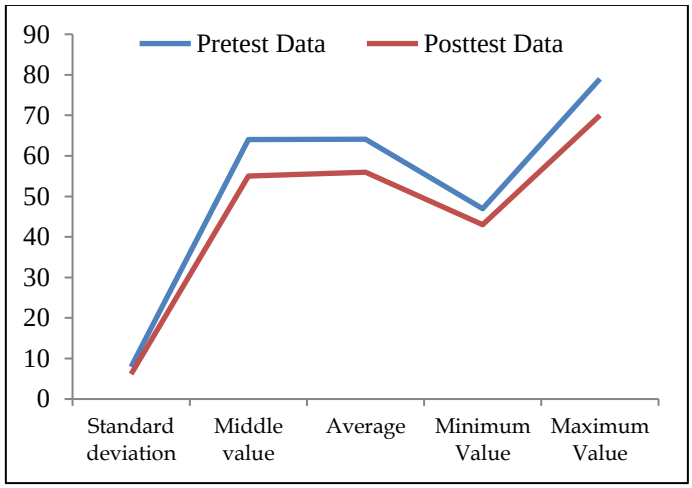

Figure 4. Pretest and Posttests Data Graphs

The N-gain test in this study showed that there was an increase in students learning motivation in the moderate category. The results of the paired t-test and the N-gain test are the basis for the conclusions in this study, according to Wahab et al (2021) if the paired t-test gives the conclusion that there is a significant difference and the N-gain test categorizes the moderate increase, the independent variable is effective in increasing the dependent variable. This is also in line with what was conveyed (Nashiroh et al., 2020), when the average N-gain test is included in the category of moderate increase, it is concluded that independent variables are effective in increasing dependent variables.

The results of this study show the media kahoot! effective in increasing student learning motivation on Hybrid learning. The results of this study are in line with the results of (Irwan et al., 2019), the use of Kahoot! used in the Citizenship Education course with the theme at Padang State University. The research was carried out using a quantitative approach with quasi-experimental

methods. The study was conducted using two classes with a sample of 30 students. The results of research conducted by Irwan et al (2019) showed that Kahoot! can improve student learning outcomes with an F value (1.58) = 0.001, p<0.05 which means that there is a difference between the control class and the experimental class.

Besides Kahoot! there is a similar media that applies game elements in it, namely Quizizz. The results of the study (Wijayanti et al., 2021) obtained corresponding results. The research of Wijayanti et al (2021) uses quasi-experimental with the Randomized Posttest-Only Control Group Design Model. The treatment given is in the form of the use of Quizizz media in mathematics subjects. Based on the paired t-test that they use, the value of Sig. (2-tailed) is less than a significant level (0.000 0.005) in both the results of the motivational questionnaire and the student learning outcomes. This findings indicate that the Quizizz application is effective in mathematics learning in terms of students motivation and learning outcomes.

Based on research results, Kahoot! suitable for use in hybrid learning that combines offline learning (face to face in class) and online learning. In offline classes, use Kahoot! assisted by a projector to display questions and scoreboards. While in online learning the use of Kahoot! used with the help of the Zoom application to display questions and scoreboards to students in their respective homes. This is in line with research conducted by (Ucar, 2017), in his research it was found that Kahoot! effectively used in online and offline learning.

Conclusion

The conclusion of this research is the media Kahoot! effective in increasing students' motivation to learn physics with the Hybrid model. The increasing students' learning motivation based on the results of paired t-test and increasing students' average motivation using the N-gain test. Media Kahoot! can be used as an alternative learning media that is fun for both students in offline classes and students who are zoomed in online.

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