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The Effectiveness of Cooperative Learning Model Type Tgt Assisted by Kahoot Application To Improve Students' Cognitive Learning Outcomes Material Pressure Substance Class VIII Middle School

Ummi Rosyida, Nur Islami*, Azhar

Physics Education Study Program, Riau University, Pekanbaru, 28293, Indonesia

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ABSTRACT

This study describes the effectiveness of the use of cooperative learning model type TGT (Team Games Tournament) assisted by Kahoot application in improving students' cognitive learning outcomes. The type of research used is quasi-experimental using Posttest Only Nonequivalent Control Group Design. The population of this study was 192 students of class VIII MTs N 1 Meranti Islands. The sample of this research is the students of class VIII A as the control class and the students of class VIII B as the experimental class. The data collection instrument was in the form of a cognitive learning outcome test for class VIII students on substance pressure. Data analysis was carried out by descriptive analysis and inferential analysis using the SPSS version 23 application. The results of this study indicate that there are differences in student cognitive learning outcomes between the control and experimental groups and the use of the TGT type cooperative learning model assisted by the Kahoot application is effectively used to improve students' cognitive learning outcomes. class VIII MTs N 1 Meranti Islands on the subject of Substance Pressure.

1. Introduction

In the development of science and technology, education plays a very important role. Education is an effort to help develop the potential and abilities of students so that they are beneficial for themselves and society in general (Astrissi, 2014), as stated in the Law of the Republic of Indonesia No. 20 of 2003 concerning the National Education System that national educators essentially function to develop abilities and shape the character and civilization of a dignified nation in order to educate the nation's life, besides that education also aims to develop the potential

* Corresponding author.

E-mail: nurislami@lecturer.unri.ac.id

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of students to become human beings who have noble character, are healthy, knowledgeable, creative, independent (Fauziyah, 2020; Yanti et al., 2022).

Science learning in schools is the initial foundation in creating students who have scientific knowledge, skills and attitudes, so that they can achieve the best learning outcomes for students, but in reality not all students achieve the expected learning outcomes. Learning outcomes are abilities obtained by individuals after the learning process takes place, which can provide behavioral changes in both knowledge, experience, attitudes, and skills of students so that they become better than before (Ahmadiyanto, 2016).

The main factor that causes the low achievement of learning outcomes is because learning science is often considered a difficult subject because there is a lot of material and students tend to think that science is always synonymous with complex formulas that make students less interested in the learning being taught. This is also stated in research conducted by (Azhar, 2008) that the cause of the difficulty of learning physics, one of which physics products tend to be abstract and in the form of physical knowledge and mathematical logic. Students find it difficult to understand the material also because the supporting media is less attractive (Anggraini et al, 2016). So far it is known that the teaching carried out by teachers mostly uses conventional teaching methods, namely learning by using the lecture method, this makes students feel bored and bored until finally many students do not understand the material and cannot channel the creativity or ideas that have been thought by students.

Based on the needs analysis that has been carried out by researchers on class VIII students at MTs N 1 Meranti Islands regarding students' perceptions of learning science at school, researchers obtained information from 64 students that 65.7% said it was difficult, 2.9% said little. difficult and 28.6% said it was easy. This means that more than 68.6% of students have difficulty in learning science. To improve student learning outcomes, changes are needed in the activities of the teaching and learning process, teachers need to use variations in teaching, one of which is the use of appropriate learning models with the learning materials to be taught. The selection of appropriate and innovative learning models can help students focus and be active during the learning process and provide optimal results (Ratna Dwi Utami, 2020). One of the learning models that provide opportunities for students to be actively involved is the TGT (Teams Game Tournament) type of cooperative learning model. The TGT type cooperative learning model can direct students to develop themselves and emphasize understanding the material taught by the teacher (Latif, 2018; Susanti et la., 2020). It will be more effective and efficient if it is delivered with learning media.

According to Briggs (1977) learning media is a physical means to convey learning content/materials such as books, films, videos and so on, the purpose of learning media is so that educational messages conveyed by teachers can well received by students, so it takes a vehicle for distributing messages called learning media. One of the learning media that can be used is the Kahoot application. Kahoot is an online application that can be used to create interactive and fun online quiz-based

learning media (Misnah, 2019). Kahoot can generate student motivation so as to improve student learning outcomes on learning materials.

Substance pressure material is material related to everyday life. So in the process of learning this material, concentration is needed so that students can understand, distinguish, and classify the types of substance pressure with the aim that students can apply them in daily life correctly (Rohmah, 2021; Khusnul et al., 2022). Based on the results of research that has been carried out by (Anggraeni, 2022; Nurliana et al., 2021) shows the average score of students achieved on the material pressure of substances is 56.52% who get a score above the KKM and the rest there are 43.48% who get a score below the KKM. This is because students assume that science is a difficult subject, so students do not have the motivation to learn. In this type of TGT cooperative learning model, students are trained to discuss and cooperate with heterogeneous groups, so that they can help their group friends who do not understand the material pressure of substances.

In this model students grow a sense of student responsibility in learning the material and can ensure that each group member masters the lessons given, the learning atmosphere is more relaxed so that it can make students understand more, so students do not easily forget the material that has been taught (Pratiwi, 2018). . Based on the description above, the researchers are interested in conducting research with the title "The Effectiveness of the Cooperative Learning Model Type TGT Assisted by Kahoot Applications to Improve Students' Cognitive Learning Outcomes on Substance Pressure Material for Class VIII Junior High School".

2. Methodology

This study uses a quasi-experimental type of research using the Posttest Only Nonequivalent Control Group Design. This research was conducted at MTs N 1 Meranti Islands with a population of 192 students of class VIII MTs N 1 Kepulauan Meranti. The sample was determined by conducting a normality test and a homogeneity test using the data from the previous material test scores. Based on the test results, two classes were obtained, namely class VIII A as the control class, which consisted of 32 students and class VIII B as the experimental class, which consisted of 32 students who were randomly selected. The research instrument used in this study was a test of students' cognitive learning outcomes on the subject of substance pressure. The test questions are in the form of a reasoned objective as many as 16 questions given at the time after being given treatment (posttest). Data analysis was carried out using descriptive analysis and also inferential analysis using the SPSS version 23 application.

Descriptive analysis in this study is used to see the description of students' cognitive learning outcomes seen through student absorption. The absorption power is calculated from the comparison between the scores obtained by students and the maximum score determined by the equation:

$$\text{absorption} = \frac{\text{score obtained}}{\text{maximum score}} \times 100$$

The criteria for the category of student absorption can be seen in Table 1.

Table 1. Student Absorption

Interval %	Category
$85 \leq x < 100$	Very good
$70 \leq x < 85$	Well
$50 \leq x < 70$	Pretty good
$0 \leq x < 50$	Not good

(Ministry of National Education, 2007)

Inferential analysis in this study was used to see significant differences in students' cognitive learning outcomes when learning using the TGT type cooperative model assisted by the Kahoot application and learning using conventional models. In this analysis using 3 tests with the help of SPSS version 23, namely the normality test using the Kolmogorov Smirnov technique, the homogeneity test using the Levene technique and hypothesis testing using the independent sample t-test.

3. Results and Discussion

The data analyzed in this study is the data on cognitive learning outcomes of experimental class and control class students on the material pressure of substances. Data on students' cognitive learning outcomes were obtained from the posttest results which were carried out after applying the TGT type cooperative learning model, namely class VIII B and the conventional model in class VIII A at MTs N 1 Meranti Islands.

Absorption

From the results of research that has been obtained by students' absorption of the substance pressure material after applying the TGT type cooperative learning model in the experimental class and conventional models, it can be seen in Table 2 below.

Table 2. Absorption Average Posttest of students

No	Research Class	Absorption Percentage	Category
1.	Experiment Class	70%	Good
2.	Control Class	55,4%	Pretty good

Based on Table 2, it can be seen that there is a difference in absorption between the experimental class and the control class. In the experimental class that applies the TGT type of cooperative learning model assisted by the Kahoot application where the average absorption capacity is 70% in the good category, while the

average absorption capacity for the control class that applies the conventional model is 55.4% in the fairly good category.

Learning Effectiveness

Based on the absorption through the application of the TGT type cooperative model on the substance pressure material in the experimental class and the conventional model in the control class, it can be seen that there are differences in the categories of student learning effectiveness. This can be seen in Table 3 below.

Table 3. Learning Effectiveness

No	Research Class	Category
1.	Experiment Class	Effective
2.	Control Class	Effective enough

The effectiveness of learning through the application of the TGT type cooperative model on the substance pressure material in the experimental class and the conventional model in the control class are in different categories where the experimental class is in the effective category with an average absorption rate of 70% compared to the control class which is in the quite effective category with the average absorption capacity is 55.4%.

Discussion

Based on the percentage of students' absorption in the experimental class and control class, it can be seen that the cognitive learning outcomes of the experimental class students using the TGT type cooperative model are better than the control class using the conventional model. This shows that the use of cooperative learning models assisted by the Kahoot application can make students more active, independent, cooperative, and can better remember important material presented by the teacher through questions given in the form of games. According to (Hidayatullohi, 2020) learning accompanied by games in it can make students better understand the material being taught, and help create a fun learning process so that it does not create a boring atmosphere and can increase students' motivation and interest in learning. This is also in line with the results of research conducted (Marbun, 2014) that the average value for the experimental class using the TGT type cooperative model obtained an average value of 83.67 and for the control class an average value of 76. Where the cooperative model This type of TGT makes students learn to find their own way or solution to a problem, namely by interacting with their group friends and with other friends.

Based on the data on student learning outcomes, it was found that the absorption for each indicator between the experimental class and the control class varied. The absorption of students in the experimental class and control class on each indicator can be seen in Figure 1.

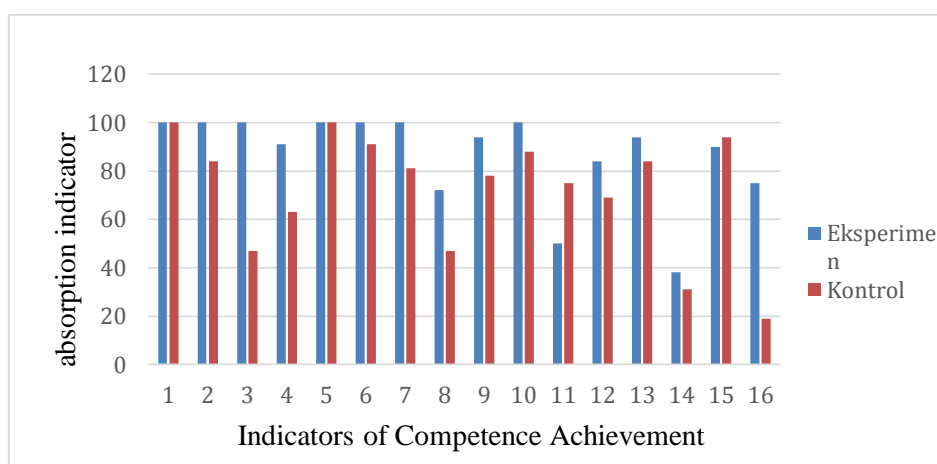


Figure 1. Graph of the Comparison of Student Absorption in Each Question Indicator

Based on Figure 1. it is found that the absorption of students in the experimental class is higher than the absorption of students in the control class. This can be seen from the number of indicators completed in the experimental class and control class. The indicator of competency achievement is said to be complete if the number of students who answered correctly the indicator is equal to or exceeds 55%. In the experimental class there are 14 indicators that are complete, namely indicators and 2 other indicators are declared incomplete, while in the control class only 12 indicators are completed and the other 4 indicators are incomplete.

In addition to descriptive data analysis, researchers also conduct inferential analysis which aims as a reference for making decisions from research activities that have been carried out. From the results of inferential analysis, it was found that the two classes were normally distributed and homogeneous with a significance of $p > 0.05$.

After conducting the normality test and homogeneous test, the Independent-Sample T-test was carried out. Output of Independent-Sample T-test. obtained a significance value (sig.2 -tailed) of 0.00000238 where based on the provisions if the p value < 0.05 then H_0 is rejected so it can be concluded that there are significant differences in students' cognitive learning outcomes between classes using the application-assisted TGT type cooperative learning model. kahoot with a class that uses a conventional learning model on the material pressure of class VIII SMP.

4. Conclusion

Based on the results of the study, it was found that the use of the TGT learning model with the help of the Kahoot application was effective in improving students' cognitive learning outcomes with good category absorption compared to

conventional learning models with a fairly good average absorption category in science learning material pressure material for class VIII MTs N 1 Islands Meranti. Based on the conclusions that have been presented, the authors suggest: The use of the TGT learning model with the help of the Kahoot application can be used as an alternative that can be applied in the learning process at school, can be used as a reference for other researchers and is recommended to the next researcher to research in different fields of science. using the TGT model with the help of the Kahoot application.

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