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Improving Students' Interest in Learning Mathematics as an Effect of Covid-19 Pandemic Through Cooperative Model Peer Tutor Technique

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Abstract

This study aims to increase students' interest in learning mathematics covid-19 pandemic effects through a cooperative model of peer tutoring techniques. The subjects of this study were students of class XI IPA I SMA Muhammadiyah 09 Aek Kanopan, totaling 30 students. The method used is quantitative research experimental research design, aims to increase students' interest in learning. With the cooperative method of peer tutor technique, students are expected to be more active in discussing in groups during the learning process while the teacher acts as a moderator or facilitator. Proven by a questionnaire analyzed and expressed in the form of a percentage calculated using the average value percentage formula. The results showed that students' interest in learning increased from 51.05% to 80.30%. It is clarified by student learning outcomes from 5 students who can answer questions to 30 students. This shows that students' interest in learning has increased. This peer tutor method is recommended by researchers to be part of the mathematics learning strategy at the high school level. The schools and the teachers can consider applying this model as part of a more effective learning approach.

Keywords: Learning Interest, Pandemic, Cooperative Model, Peer Tutor

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INTRODUCTION

Undang-undang No 20 Tahun 2003 concerning National education mandates that national education based on Undang-undang Dasar Negara Republik Indonesia Tahun 1945 functions to develop the ability and shape the character and civilization of a dignified nation in order to educate the nation's life, aims to develop the potential of students to become human beings who are faithful and devoted to God Almighty, noble character, healthy, knowledgeable, capable, independent, and become democratic and responsible citizens (Kemdikbud, 2006). Mathematics is needed to solve problems in everyday life, for example in calculations such as addition, subtraction multiplication, division or the implementation of mathematical concepts (Ekowati & Suwandayani, 2018). Human experience forms mathematics, which is then analyzed using cognitive structures to form mathematical concepts (Andriono, 2021). Because mathematics itself functions as a tool, mindset, and knowledge, students learn to develop reasoning and mindset to understand mathematical objects by studying them (Supardi, 2015). The purpose of learning mathematics at school is to prepare students to be able to use examples of arithmetic and numerical reasoning in everyday life, as well as in learning other information related to science (Siagian, 2016).

However, since the emergence of Corona virus, Department of Education and Culture has issued Undang-undang Nomor 4 Tahun 2020 on the implementation of educational strategies during the crisis of the spread of Covid disease (Corona virus). In view of this round,

the training unit sets the option to work at home or work from home so that the educational experience at school must be completed through web or distance learning. To help learning be done online and schools utilize information and communication technology, such as through the media (platform) Google Classroom, Zenius, Edmodo, Elearning, Zoom Meeting and even not infrequently the students use Whatsapp applications and others. The media is used as a means for teachers to carry out the learning process that has been designed to replace face-to-face activities at school.

This online learning is expected to reduce the potential spread of the corona virus in the hope that this decision will still be able to foster the potential and abilities of students as well as classroom learning. In utilizing the media platform, of course, it has an impact on students both in the use of media platforms or facilities and infrastructure to support the use of these platforms including power outages, poor internet networks, children are slow to accept the lessons given, children are inconsistent in learning, lack of commitment of children and parents in the online learning process, lack of interest in learning children.

Covid-19 pandemic has had a significant impact on education, including high school students' interest in learning math (Moliner et all, 2021). The transition to distance learning may have changed the way students engage in math learning. The absence of direct interaction with teachers and classmates can affect motivation and interest in learning. Online learning tends to require teacher creativity to keep students interested. Lack of variety in teaching methods can make learning math less interesting. Some students may have difficulty in understanding math materials without direct help from teachers or classmates. Limited access to guidance can reduce students' interest in learning math. On July 11, 2022 the government decided to implement 100 percent face-to-face learning or in Indonesian is *Pembelajaran Tatap Muka*, abbreviated as PTM. PTM rules in schools still leave an impact on students including a lack of interest in learning in children, this can be seen from students who feel unhappy to take part in math lessons, often feel bored, do not focus on learning and even chat with friends during class hours, lack of enthusiasm for learning, lack of motivation for a productive environment, lack of interaction between students and other students, even students still lack confidence to express their opinions, this results in students not understanding the material provided by the teacher.

According to Setyowati & Widana (2016), personality, motivation, expression, and self-concept or identification, as well as environmental and hereditary factors, all have a significant influence on student interest in learning. Profit is a useful encouragement from within students to learn something with full attention, calmness and discipline so that individuals effectively appreciate its completion (Parnawi, 2019). Meanwhile, interest in learning is a condition in students that can cause feelings of love and can arouse enthusiasm in completing an action that can be estimated through feelings of liking, interest, consideration and contribution in taking part in development (Friantini & Winata, 2019).

Signs of interest in learning itself include: (1) Satisfied sensation: Students have a feeling of pleasure or love for a subject, so students will continue to focus on the information without feeling constrained in thinking; (2) Interest: A feeling of interest in connection with a developing experience. A person tends to be interested in exercises, objects, individuals, or perhaps also successful encounters resulting from these exercises; (3) Learning consideration: Student attention is focusing or observing something and paying close attention to only one aspect of it; (4) Learning inclusion: Students actively participate in activities when they are engaged (Rojabiyah & Setiawan, 2019). In accordance with the effect of perceptions made by experts in the classroom, this is extended through the effect of perceptions made through surveys on students' benefits in learning science. The test results of a certain amount of subject matter characterize the degree of completeness of learning outcomes in focusing on the given material. Out of 30 students, only 5 students were able to answer the given questions accurately. Therefore, this exploration aims to build children's excellence in learning on additional learning materials so that students can capture the material provided by educators.

The cooperative model is one of the models that can be used to increase students' interest in learning because in this model students act as subjects in learning, in other words, it is expected that students are more active in discussing in groups during learning. learning process with the teacher acting as a moderator or facilitator, is one of the models that can be used to increase students' interest in learning. Group conversations about fun arithmetic learning models can help students develop a positive view of mathematics (Capar & Tarim, 2015). This examination centers on the useful utilization of models, particularly the Companion Trainer Procedure, as a reaction to the changing learning conditions during the pandemic. This curiosity can be traced in cooperative and intelligent methodologies in the experience of educating and educating.

Beneficial learning arises from the idea that students will more easily discover and understand difficult ideas if they talk about them with their peers. Groups of students often collaborate to solve difficult problems. The reason for meetings is to provide open opportunities for all students to engage effectively with the educational experience. The utilization of small groups to maximize learning potential is called cooperative learning (Harefa et all., 2022). A cooperative learning model combined with peer tutoring tactics to increase the effectiveness of interest in learning mathematics (Alegre et all., 2019). Through this method, students can increase their interest in learning mathematics. In this learning model, students are expected to be able to understand the material in their group, in the implementation of cooperative peer tutors, students also first learn to present their material so that students are more confident to guide other groups.

Peer tutoring itself has several steps, namely determining, tutoring, exercising, presenting, and evaluating (Berghmans et all., 2013). The meaning of determining is the stage of determining the tutor at this stage each student must act as a tutor dividing the parts of the material to be explained. Tutoring is a stage of learning activities involving tutors and students. Exercising is the stage of students working on assignments given to other groups and in working on questions students can be helped by their groups. Presenting is the stage where students present the tasks that have been done, and evaluating itself is the assessment stage carried out by the teacher. Based on the description above, two problems can be formulated, those are: 1) How is students' interest in learning using the cooperative method of peer tutoring techniques? 2) How does interest in learning increase using the cooperative method of peer tutor technique?

METHOD

The method used in this research is quantitative experimental research design, experimental research is conducting experiments. Experimental research aims to increase students' interest in learning. With the cooperative method of peer tutor technique in this method students play a role as subjects in learning, in other words, it is expected that students are more active in discussing in groups during the learning process while the teacher acts as a moderator or facilitator.

This research was conducted at SMA Muhammadiyah 09 Aek Kanopan. The population in this study were all students of SMA Muhammadiyah 09 Aek Kanopan. Meanwhile, the sample in the study in this study were students of class XI IPA 1 SMA Muhammadiyah 09 Aek Kanopan which amounted to 30 students. Sampling was done with random sampling technique. Random sampling is a sampling method where each member of the population to be taken has the same opportunity to be sampled. In arbitrary testing, each component in the population has an equal chance of being selected as a sample feature, no matter what their quality or position in the population.

In this study, the independent variable is Covid-19 pandemic. This variable refers to the condition of Covid-19 pandemic which may have an impact on the state of learning, including students' interest in learning mathematics at this time. Meanwhile, the dependent variable is students' interest in learning mathematics. This variable is the main focus of the research and

is the result that is expected to increase through the application of the peer tutor technique cooperative model. Math learning interest is an indicator of the effectiveness of the learning model used.

The three steps of this research process are; preparation, execution and conclusion. (1) Preparation: Preparation begins with making a research proposal, followed by making research instruments including lesson plans and tests in the form of post-tests. Validity and reliability tests were carried out before the test instruments were distributed to the experimental class. (2) Implementation: At this stage, scientists will conduct an inquiry exercise according to the plan that has been prepared. This includes the delivery of learning materials, the application of peer coaching techniques during learning, and the implementation of post-tests to measure student learning outcomes after being given activities. The sample class was given a test. Assessment of students' interest in learning mathematics was conducted on March 21, 2023 based on the results of the study. The assessment was conducted through a poll with 30 questions filled in by all students. The perception sheet was dissected and communicated in a rate structure determined using a certain formula (Hikmah, 2016).

$$\text{NR} = \frac{Total\ score}{maximum\ score} \times 100\%$$

With NR criteria :

$$\begin{aligned} 90\ \% &\leq NR\ very\ good \\ 70\ \% &\leq NR < 90\%\ good \\ 50\ \% &\leq NR < 70\%\ fair \\ 30\ \% &\leq NR < 50\%\ less \\ 10\ \% &\leq NR < 30\%\ very\ poor \end{aligned}$$

(3) Conclusion: At this stage, the researcher will interpret the results of the study to find answers to the research questions. These results will help assess the effectiveness of the intervention or action taken in the study. Based on the results of the interpretation, the researcher will draw conclusions and provide recommendations for further research development or practical implications in the field of education.

RESULTS AND DISCUSSION

Based on research conducted in class XI IPA 1 SMA Muhammadiyah 09 Aek Kanopan obtained quantitative data that measures student interest in learning mathematics. Of the 30 total questions filled out by 30 students, interest in learning mathematics only reached a result of 51.05% resulting in low interest in learning children before using the peer tutor model, This can be seen from the absence of dynamic cooperation of students in providing examples, most students do not focus on listening because of disinterest when contemplating, they note what is on the blackboard without finding out the illustration.

Figure 1. Students' learning activities

The peer tutoring method was used by the researcher to plan and implement activities that increased students' interest and satisfaction with the ongoing learning activities. The activities carried out are in accordance with the current peer tutoring model and are completed systematically with the material taught is derivative (differential) material. From the results of research using this method, students' interest in learning increased to 80.30%.

Figure 1 shows students learning through the cooperative model of peer tutor technique, in this technique students are divided into 4 groups. Each group consists of 7-8 students. From this model students feel more happy and excited in learning, each student focuses on a friend who provides understanding before class. Students will also find it easier to find and discover difficult ideas if they talk about them with their friends. Groups of students often collaborate to solve difficult problems. The purpose of group organization is to provide a valuable open door for all students to engage effectively with the evolving experience of learning.

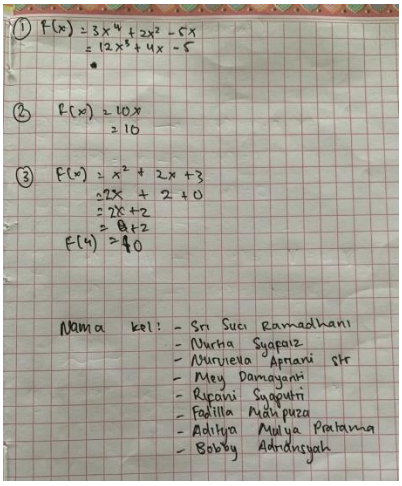

Figure 2. Students' learning results

From the learning of the cooperative model of the peer tutor technique, the results showed that each group was able to solve the problems correctly. Of the 30 students who were given questions, almost all students were able to answer and understand the questions given. This shows that the excellence of children in the expansion of learning in subordinate materials, this increase is due to a fun learning model where students are dynamic in educational experiences. Student learning interest before using the peer tutoring method was only 51.05 %, indicating low learning interest before using the model. This can be seen from the absence of students' dynamic cooperation in providing examples, most students do not focus on tuning due to disinterest when contemplating, they note what is on the blackboard without understanding the illustrations (Siberman, 2018).

The percentage of students who were interested in learning increased to 80.30% after the implementation of the cooperative learning model through the use of peer tutoring. This shows that peer tutoring makes learning more interesting because it expects students to directly connect with educational experiences. So students are more confident and increase their advantage in learning. The coaching mentoring strategy itself can provide psychosocial support to students who may feel challenged or need confidence in managing sample materials (Mazana et all., 2019). This can increase students' courage and inspiration and motivation to learn. Through peer tutoring, students who act as tutors can test and reinforce their own understanding through the delivery of material to classmates. Meanwhile, students who receive help can get additional explanations. Peer tutoring helps in the development of students' social skills, including communication, empathy and cooperation (Bugaj et all., 2019). Students who act as tutors need to understand the needs and learning styles of their classmates.

The peer tutor method can help reduce the burden on teachers by engaging more skilled students to help others. This can allow teachers to focus on group or individual learning that requires additional attention. The peer tutor method is recommended by researchers to be part

of the mathematics learning strategy at the senior high school level. Schools and teachers can consider implementing this model as part of a more effective learning approach. The peer tutor model also encourages collaboration between teachers and students. This implies that it can create a better relationship between teachers and students, where they work together to improve understanding and interest in learning mathematics.

So from the explanation above, it can be assumed that the use of a useful mentoring procedure model can increase interest in learning. Only five students were able to answer the first question, so that the total number of students who were able to answer the math lesson questions obtained from the material became 30 students of class XI IPA I SMA Muhammadiyah 09 Aek Kanopan. Several factors can lead to increased student interest in learning when using the peer tutor technique with a cooperative model: first, students feel happy to learn, bright students can help different students learn at the same grade level. Secondly, science is a difficult subject to understand so in certain cases students can take examples in the language of their friends. Third, the learning model that benefits from the buddy mentoring strategy is student-centered so that students can benefit from other students who are similar in age and development. Fourth, students can directly ask questions to their friends, not to the teacher, so that students are more dynamic in learning. This friend mentoring model also shows students' self-control with positive inspiration from within and outside the student to achieve the right conditions so that students can obtain the subject matter well, so that the tasks given by the teacher must be able to be done in groups and should not be seen as a burden.

CONCLUSIONS

Based on the above research, it can be assumed that the useful peer coaching model can increase students' income in learning math illustrations for the class. This is indicated by an increase using the average price equation which is typical of the underlying numbers. with 30 questions filled out by 30 students whose mathematics learning achievement has just reached a side effect of 51.05%, improved to 80.30%. Students' active learning in peer tutoring technique with cooperative model showed an increase in learning interest. This shows that this method can build students' excellence in learning. This is evidenced by the results of the learning provided, at the beginning of the meeting only 5 students were able to answer questions correctly so that it increased to 30 students.

RECOMMENDATION

The researcher recommends this peer tutor method to be part of the mathematics learning strategy at the high school level. Schools and teachers can consider implementing this model as part of a more effective learning approach. The peer tutor model also encourages collaboration between teachers and students. This implies that it can create a better relationship between teachers and students, where they work together to improve understanding and interest in learning mathematics.

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