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Application of the STAD Type Cooperative Learning Model to Improve Mathematics Learning Outcomes in Students of the Aisyiah Pandan Guidance Studio Kuala Lumpur Malaysia

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A B S T R A C T

This study aims to determine the effectiveness of implementing the Cooperative Learning model of the Student Teams Achievement Division (STAD) type in improving students' mathematics learning outcomes at Sanggar Bimbingan 'Aisyiyah Pandan, Kuala Lumpur, Malaysia. The method used in this research is classroom action research (CAR) conducted in two cycles. Each cycle consists of planning, implementation, observation, and reflection. The subjects of this study were 20 eighth-grade students participating in a tutoring program. The instruments used included observation sheets, learning outcome tests, and documentation. The results showed an improvement in students' learning outcomes from cycle I to cycle II. The average student scores increased significantly, and students' learning activities also showed positive changes. Thus, the STAD learning model is effectively applied to improve mathematics learning outcomes in tutoring settings, especially for students with diverse educational backgrounds.

Keywords: *Cooperative Learning, STAD, Learning Outcomes, Mathematics,*
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INTRODUCTION

Mathematics is a very important science and is studied from elementary school to high school (SMA). While education is an important thing that determines the development of a nation, to produce quality human resources, capital is needed from the results of education itself. Mathematics lessons also have an abstract nature, the correct understanding of concepts is very important because to understand new mathematical concepts requires a prerequisite for understanding the concept.

Mathematics learning in schools has been dominated by conventional learning where students are positioned as learning objects, students are considered to know or have not understood anything, while teachers position themselves as knowledgeable. So that teachers seem patronizing and have the highest authority in the learning process. So far, the Mathematics learning given in schools has been completed and the involvement of students in the teaching and learning process is still relatively low in trying to find the concept of the material being taught.

Teachers as education professionals have an important role in the teaching and learning process. Teachers must be able to explain their knowledge to their students through learning management by applying approaches and teaching models that are in accordance with the subject matter and the student's cognitive level. In addition, teachers must also pay attention to the fact that students are students who must be actively involved in the teaching and learning process so that the material taught is more meaningful for students and the desired learning goals can be achieved (Dimyatidan Mudjiono, 2022).

The choice of learning approach or strategy to be used by teachers in the teaching and learning process can affect students' interest and motivation to learn. In addition, it can also

affect students' understanding of the material or basic concepts which ultimately affect student activities and learning outcomes.

The reality in the field is that students only memorize concepts and are less able to use the concepts if they encounter problems in real life related to their concepts (Trianto, 2024). Furthermore, even students are less able to determine problems and formulate them. Low learning or teaching activities, especially if it is associated with students' understanding of the material being taught. This understanding is the student's understanding of the qualitative basis where the facts are interrelated with his ability to use the knowledge in a new situation. Most students are less able to connect what they learn and how that knowledge will be used/applied to new situations.

According to Arends (Trianto, 2024) in teaching, teachers always demand students to learn and rarely give lessons on how students learn, teachers also demand students to solve problems, but rarely teach how students should solve problems. To provide an understanding of the concepts of the material being taught so that it can be used and remembered is still a fundamental problem. How teachers can communicate well with their students, how teachers can open up diverse thinking insights from all students, so that they can learn different concepts and how to bring them into real life.

Another fundamental problem is the lack of students' understanding of the concepts being taught, so the material is easily forgotten and difficult to apply in real life. Shallow comprehension often occurs due to learning methods that are one-way and focus on memorization. To address this, teachers must be able to create a learning environment that allows students to discover and build their own understanding through meaningful activities. Cooperative learning approaches such as STAD provide space for students to discuss, explain to each other, and be actively involved in the learning process. This engagement helps strengthen students' understanding as they experience the learning process in a hands-on and interactive way.

In addition, teachers are also faced with challenges in building effective communication with students, especially in presenting a diversity of ways of thinking in the classroom. Learning is not only about delivering material, but also about how teachers open up space for students to think critically and creatively. Teachers need to give all students the opportunity to express their opinions and make differences of opinion a wealth in learning. Through a collaborative learning model, such as STAD, teachers can encourage students to listen to each other, share experiences, and learn from each other. Thus, students not only understand the material, but are also able to relate it to their real-life context.

METHOD

The nature of this research is a qualitative descriptive classroom action research (PTK), because it aims to describe the process and results of the application of the STAD-type Cooperative Learning model in improving students' mathematics learning outcomes and activities. This research was carried out repeatedly in several cycles to observe the changes that occurred in students as a result of the actions given. With this approach, researchers can directly evaluate the effectiveness of the applied learning model and adjust learning actions based on the results of reflection in each cycle.

FINDINGS AND DISCUSSION

This research was carried out in two cycles, each of which included the stages of planning, implementation, observation, and reflection. Before the implementation of the STAD model, the average student learning outcomes were relatively low with an average score of 58. Only about 30% of students achieve the Minimum Completeness Criteria (KKM) score. This condition shows the need for a learning strategy that is able to increase student participation and understanding. The STAD-type cooperative learning model was chosen because it was considered appropriate to encourage collaboration and active student engagement.

In the first cycle, teachers begin to implement learning by dividing students into heterogeneous groups. Each group is made up of students with diverse academic abilities to complement each other. The teacher explains the material first, then students discuss in groups to complete the practice questions. After that, students work on quizzes individually to gauge their understanding of each. The learning outcomes in the first cycle showed an improvement, with an average score of 68 and learning completeness of 60%.

Although there was an increase in learning outcomes, some problems arose during cycle I. Some students are still not actively discussing and only rely on other group members. The teacher also noted that discussion time was often not used optimally. Evaluation at the end of the cycle shows the need to adjust the implementation strategy. Therefore, improvements were made in the second cycle by clarifying the role of students and strengthening motivation.

The implementation of cycle II shows positive changes in student learning activities. Students seem more active and confident in expressing opinions and providing assistance to their friends. The atmosphere of the discussion became more dynamic and all students seemed to be involved. Teachers are also more active in guiding the group and providing direct feedback during the activity. These changes have an impact on improving the understanding of mathematical concepts.

At the end of cycle II, the results of the evaluation showed a significant increase compared to the previous cycle. The average student score increased to 78, and the learning completion rate reached 85%. Most students managed to understand the material taught and were able to solve the problems well. They also show an attitude of cooperation and a sense of responsibility in the group. This shows the effectiveness of the application of the STAD model in mathematics learning.

Observations of students' learning behavior also showed positive changes. Students are more enthusiastic in participating in learning and actively ask questions when experiencing difficulties. They not only memorize formulas, but also understand the process of solving problems logically. Interaction between students in groups goes well and supports a positive learning atmosphere. Teachers also find it easier to manage the classroom because students become more independent.

Teachers' reflections show that the STAD model is able to create a fun and meaningful learning atmosphere. Through group discussions, students learn to respect the opinions of others and express ideas openly. Learning becomes more focused on understanding concepts, not just achieving grades. Additionally, the competitive atmosphere in individual quizzes provides additional motivation for students. Teachers plan to continue to apply this approach in other relevant materials.

Overall, the application of the STAD-type cooperative learning model has proven to be effective in improving students' mathematics learning outcomes at the Aisyiyah Pandan Guidance Studio, Kuala Lumpur. The results of this study show that strategies involving group cooperation and individual responsibility can improve student understanding and engagement. The increase in students' grades and positive attitudes is proof of the success of this method. These findings are expected to be a reference for teachers in choosing the right learning strategy. With the right approach, student learning outcomes can continue to be improved on an ongoing basis.

CONCLUSIONS

Based on the results of the research that has been conducted, it can be concluded that the application of the STAD-type Cooperative Learning learning model is effective in improving students' mathematics learning outcomes. The increase can be seen from the average score of students which increased from 58 in the pre-cycle to 78 in the second cycle, as well as the percentage of learning completeness which reached 85%. In addition, students become more active, confident, and engaged in the learning process. Group discussions encourage students to help each other, share ideas, and understand the material more deeply.

The STAD model also helps teachers create a collaborative and fun learning atmosphere. From these results, the STAD learning model is suitable to be used as an alternative strategy in improving the quality of learning, especially in mathematics subjects. Learning is no longer one-way, but involves interaction between students that builds mutual understanding. Teachers are advised to continue to evaluate and adjust the implementation of this model to make it more optimal. The application of STAD also has the potential to be developed in other materials or subjects. With the right approach, learning outcomes and students' attitudes towards learning can continue to be improved.

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