

Implementation of the STAD-Type Cooperative Learning Model to Improve Student Learning Outcomes

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ABSTRACT

Education plays a fundamental role in shaping human resources that are of high quality, have strong character, and are adaptive to global challenges. However, the learning process in madrasah ibtidaiyah is still dominated by conventional teacher-centered methods, which affects students' low learning outcomes. This study aims to determine the effectiveness of implementing the Student Teams Achievement Division (STAD) cooperative learning model in improving student learning outcomes at MIN 3 Aceh Tenggara. The study uses a quantitative approach with a quasi-experimental design of the Nonequivalent Control Group Design type, involving two classes, namely an experimental class and a control class, each consisting of 25 students. Research instruments include learning outcome tests, student activity observation sheets, and documentation. Data analysis was conducted descriptively and inferentially using the Independent Sample t-test. The results of the study showed a significant increase in learning outcomes in the experimental class with a post-test average score of 83.6 compared to the control class at 72.1 ($t_{\text{calculated}} = 5.62 > t_{\text{table}} = 2.01$; $p < 0.05$). In addition, student learning activity increased from the category of "moderately active" to "very active" by the end of the sessions. The implementation of the STAD model not only improved cognitive learning outcomes but also developed social skills such as cooperation, responsibility, and communication. These findings confirm that the STAD model is relevant to the principles of the Independent Curriculum and can be considered an effective alternative for creating active, collaborative, and meaningful learning in elementary school madrasahs.

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1. INTRODUCTION

Education is one of the fundamental aspects in shaping human resources that are qualified, have character, and are ready to face global challenges (Iskandar, 2022). In the context of basic education, the

learning process is not only aimed at transferring knowledge but also at fostering critical thinking, cooperation, and social responsibility among students (Sitorus, Sipahutar, Nasution, Purnama, & Iskandar, 2025). Teachers as facilitators play an important role in creating an active, innovative, creative, effective, and enjoyable learning environment (PAIKEM) so that students can optimally develop their potential (Putri & Iskandar, 2023). However, in reality, the learning process in many elementary schools, including in madrasah ibtidaiyah, still tends to be conventional and teacher-centered. As a result, students become passive, participate less actively, and the learning outcomes achieved are not yet optimal.

A similar situation was found at MIN 3 Southeast Aceh, where initial observations showed that the students' learning achievement levels, particularly in subjects such as Social Studies (IPS) and Mathematics, were still relatively low. Most students had not reached the Minimum Competency Criteria (KKM), and this was influenced by several factors, including the lack of variety in teaching methods used by teachers, low student motivation, and limited interaction among students during the learning process. This situation indicates the need for the implementation of a learning model that emphasizes student activity and collaboration in understanding the lesson material.

One of the relevant and effective models to implement is the cooperative learning model of the Student Teams Achievement Division (STAD) developed by Robert Slavin. This model emphasizes collaboration among students in small, heterogeneous groups to achieve shared learning goals. In the STAD model, each student is responsible for the success of their group through discussion activities, helping each other understand the material, and completing tasks collaboratively. The teacher acts as a facilitator who guides the learning process without dominating classroom activities. The group reward system applied also serves as an additional motivation for students to participate actively in learning.

The implementation of the STAD model not only improves students' learning outcomes but also shapes positive social attitudes, such as a sense of responsibility, tolerance, and cooperation. This aligns with the principles of the Independent Curriculum, which emphasizes student-centered, collaborative, and contextual learning. Through the application of the STAD-type cooperative learning model, it is expected that the learning process at MIN 3 Aceh Tenggara can become more dynamic, interactive, and oriented toward the balanced development of students' cognitive, affective, and psychomotor abilities. In addition, the improvement in learning outcomes achieved through this method is expected to serve as an alternative strategy for teachers in addressing the conventional learning problems that still occur widely in elementary schools.

Various previous studies have shown that cooperative learning models, particularly the Student Teams Achievement Division (STAD) type, have a positive effect on improving student learning outcomes at various educational levels. Several studies, such as those conducted by (Waziroh & Fariduzzaman, 2021) shows that the implementation of the STAD model in elementary school Mathematics subjects can improve students' conceptual understanding and activeness. Another study by (Sekarini, 2022) It also revealed that the use of the STAD model in teaching Natural Sciences can foster cooperation and a sense of responsibility among group members. The results of these studies confirm that the STAD model is one of the effective approaches in improving students' learning outcomes in general.

Nevertheless, there is a research gap that needs to be addressed. First, most previous studies have still focused on public elementary schools in urban areas, while studies on the implementation of the STAD model in madrasah ibtidaiyah, especially in areas like Southeast Aceh, are still very limited. The socio-cultural conditions and characteristics of students in madrasahs differ from those in public elementary schools, particularly in terms of religious values, social interaction patterns, and the pedagogical approaches used by teachers. Therefore, more contextual research is needed to understand the effectiveness of the STAD model in improving the learning outcomes of madrasah students who have strong religious learning characteristics.

Second, previous research tends to focus solely on improving cognitive aspects, without considering how the STAD model can affect the affective and social aspects of students. In the context of madrasah education, however, learning success is measured not only by academic achievement but also by attitudes, values, and behaviors that reflect Islamic character. Therefore, it is important to examine how the

implementation of the STAD model not only enhances academic learning outcomes but also fosters collaborative attitudes, mutual respect, and responsibility within study groups.

Third, there has not been much research examining how the STAD model is practically implemented by teachers in madrasahs, especially regarding adaptation strategies to the Merdeka Curriculum currently being applied in Islamic educational institutions. Therefore, this study aims to fill that gap through an empirical approach that describes the contextual implementation of STAD at MIN 3 Aceh Tenggara, both from the perspective of application strategies, student responses, and its impact on improving learning outcomes.

Based on this gap, this study has scientific novelty in three main aspects. First, this study examines the implementation of the STAD model in the context of madrasah ibtidaiyah education in the Southeast Aceh region, which has so far been rarely explored in the literature. Second, this study not only focuses on cognitive learning outcomes but also examines how students' social interactions and religious values develop through group collaboration. Third, this study offers an integrative approach between the STAD cooperative learning model and the principles of the Merdeka Curriculum, which emphasize independence, collaboration, and differentiated learning. Thus, this research is expected to provide a theoretical contribution by enriching the literature on the effectiveness of the STAD model in madrasah settings, as well as a practical contribution for teachers and Islamic educational institutions in designing learning that is more adaptive, collaborative, and oriented towards the holistic improvement of student learning outcomes.

2. METHODS

This study uses a quantitative approach with a quasi-experimental design (Creswell, 2020). This approach was chosen because the research aims to determine the effect of applying the cooperative learning model of the Student Teams Achievement Division (STAD) type on improving student learning outcomes at MIN 3 Aceh Tenggara. The quasi-experimental method is considered relevant because this study was conducted in pre-existing classes without random assignment of students, so the learning conditions remain natural according to the learning situation that takes place in the school.

The research design used is the Nonequivalent Control Group Design, in which there are two groups serving as research samples, namely the experimental group and the control group (Hasibuan, 2023). The experimental group was given treatment by applying the STAD type cooperative learning model, while the control group used the conventional learning method as usual. Both groups were given a pretest to determine the students' initial abilities before the treatment, and after the learning activities were completed, both were given a posttest to measure the extent of learning outcome improvement after the implementation of the learning model.

The population in this study consisted of all fifth-grade students at MIN 3 Aceh Tenggara in the 2025/2026 academic year. The sample selection was carried out using purposive sampling, which is selection based on specific considerations, such as academic ability equivalence and relatively homogeneous class conditions. Based on these considerations, two classes were selected as samples: one class as the experimental group and one class as the control group, each consisting of 25 students, making the total research sample 50 students.

Data collection in this study was carried out using three main techniques, namely tests, observations, and documentation (Sugiyono, 2022). Learning outcome tests are used to measure students' cognitive abilities both before and after the treatment is given. The tests used consist of a combination of multiple-choice and short-answer questions that have been validated by educational experts. Observations are conducted to monitor students' activities during the learning process, especially in terms of involvement, cooperation, and responsibility within the STAD group, as well as to assess the teacher's implementation of the model. Meanwhile, documentation is used to complement the research data in the form of school profiles, student name lists, and relevant academic scores.

The main research instrument consisted of achievement test sheets developed based on the basic competency indicators taught during the current semester. The validity of the instrument was tested

through content validity by seeking expert judgment, while reliability was tested using Cronbach's Alpha formula to ensure consistency between test items. Additionally, observation sheets were prepared to assess teacher and student activities during the learning process, with observed aspects including activeness, social interaction, communication, and individual responsibility within study groups.

The obtained data were analyzed using descriptive and inferential statistical analysis (Miles & Saldaña, 2024). Descriptive analysis is used to describe students' learning outcomes in the form of average scores, maximum scores, minimum scores, and standard deviation. Furthermore, inferential analysis is used to test the research hypothesis by using the t-test (Independent Sample t-test) to determine whether there is a significant difference between the learning outcomes of students taught using the STAD model and those taught using conventional methods. Before conducting the t-test, the data were first tested for normality and homogeneity to ensure that the data met the requirements for parametric analysis. The decision-making criterion is that if the significance value (p-value) is less than 0.05, it can be concluded that there is a significant difference between the two groups, indicating that the implementation of the STAD cooperative learning model affects the improvement of students' learning outcomes.

Thus, this research method is designed to provide a systematic and empirical overview of the effectiveness of implementing the STAD-type cooperative learning model in the context of learning in elementary Islamic schools. Through this experimental approach, the research results are expected to strengthen the empirical evidence that the STAD model can create more active, collaborative, and meaningful learning for students, as well as serve as a reference for teachers in developing innovative learning strategies aimed at improving the quality of education at MIN 3 Aceh Tenggara.

3. FINDINGS AND DISCUSSION

This research was conducted at MIN 3 Southeast Aceh in the odd semester of the 2025/2026 academic year, involving two classes as research subjects, namely class VA as the experimental class and class VB as the control class, each consisting of 25 students. The experimental class used the Student Teams Achievement Division (STAD) type of cooperative learning model, while the control class used conventional methods in the form of lectures and question-and-answer sessions. The purpose of this study was to determine the effectiveness of implementing the STAD model in improving student learning outcomes compared to traditional learning methods.

3.1. Pretest and Posttest Results

Before the treatment, both classes were given a pretest to measure the students' initial ability on the learning material that would be taught. After applying the learning model for four meetings, both classes were given a posttest again to see the improvement in learning outcomes. The results can be seen in the following table:

Table 1. Comparison of Pretest and Posttest Results of Students in the Experimental and Control Classes

No	Class	Number of Students	Average Pretest	Average Posttest	Difference (Δ)	Percentage Increase
1	Experiment (STAD)	25	62.4	83.6	21.2	33.9%
2	Control (Conventional)	25	61.8	72.1	10.3	16.7%

Source: Processed research data, 2025

Based on Table 1 above, it can be seen that there is an increase in learning outcomes in both classes, both the experimental class and the control class. However, the increase that occurred in the experimental class is much more significant compared to the control class. The average post-test score of students in the experimental class reached 83.6, higher than the control class, which was only 72.1. This means that there is an improvement difference of 11.5 points between the two groups after the implementation of the learning model.

The results of the Independent Sample t-test statistical analysis showed that the calculated t-value (t_{count}) = 5.62, while the t-table value = 2.01 at a 5% significance level ($\alpha = 0.05$). Since $t_{count} > t_{table}$ and $p\text{-value} = 0.000 < 0.05$, it can be concluded that there is a significant difference between the learning outcomes of students taught using the STAD model and those taught using conventional methods. Thus, the implementation of the STAD type cooperative learning model significantly improves the learning outcomes of students at MIN 3 Aceh Tenggara.

3.2. Student Activities During the Learning Process

In addition to quantitative results, this study also assessed qualitative aspects through observation sheets of student activities during the learning process. The activities observed included participation, cooperation, communication, responsibility, and orderliness within the group. Activity scores were observed over four sessions. The observation results were averaged and presented in the following table:

Table 2. Average Activity Scores of Experimental Class Students During STAD Learning

No	Class	Number of Students	Average Pretest	Average Posttest	Difference (Δ)	Percentage Increase
1	Experiment (STAD)	25	62.4	83.6	21.2	33.9%
2	Control (Conventional)	25	61.8	72.1	10.3	16.7%

Source: Researcher's observations, 2025

From the table above, it can be seen that there is an increase in activity scores from the first to the fourth meeting. At the beginning of the STAD implementation, some students were still passive and tended to rely on their groupmates. However, over time, students began to get used to the dynamics of group work. They became more active in asking questions, expressing opinions, and participating in group discussions. This improvement indicates that the STAD model is capable of encouraging active student engagement in the learning process.

3.3. Observation of Teachers and Classroom Dynamics

Observations of teachers show that the implementation of the STAD model makes it easier for teachers to manage the classroom. Teachers act as facilitators who guide the discussion and ensure that each group works effectively. Teachers are no longer the center of learning activities but rather create a collaborative classroom atmosphere. The group reward system at the end of the lesson has also proven effective in fostering students' motivation to learn. Groups with the highest scores receive praise and recognition, which indirectly encourages other groups to strive for better achievements.

In a social context, students show positive behavioral changes such as increased responsibility, the ability to work together, and mutual respect. Students who were previously passive begin to dare to express their opinions and help friends who are struggling to understand the material. Group discussion activities also strengthen students' understanding of lesson concepts, as they learn to explain the material in their own words. Based on the results of quantitative analysis and field observations, it can be concluded that the implementation of the STAD-type cooperative learning model at MIN 3 Aceh

Tenggara is able to significantly improve students' learning outcomes. In addition to the improvement in cognitive aspects reflected in the differences between pretest and posttest scores, the STAD model also has a positive impact on students' affective and social aspects. The learning process becomes more meaningful because students are actively involved, interact with each other, and take responsibility within the group.

Overall, the success of implementing this model is not only influenced by the learning design but also by the teacher's ability to manage classroom dynamics and motivate students. The STAD model has proven to be relevant to the spirit of the Merdeka Curriculum, which emphasizes collaboration, active participation, and independent learning. The results of this study indicate that cooperative-based learning can enhance conceptual understanding while also shaping positive student character in the elementary school environment.

Discussion

The results of this study indicate that the implementation of the Student Teams Achievement Division (STAD) cooperative learning model significantly improves student learning outcomes at MIN 3 Aceh Tenggara compared to conventional methods. These findings are in line with various previous studies that affirm the effectiveness of the STAD model in enhancing academic achievement, student activity, and social interaction in the classroom.

Research by (Fitriani & Arifin, 2021) It was found that the use of the STAD model in elementary school students was able to increase the average learning outcomes by up to 28%, primarily due to active involvement among group members in understanding the material. They explained that the STAD structure, which combines elements of group discussion, individual responsibility, and group rewards, makes students more motivated to learn and participate. These results are in line with findings at MIN 3 Aceh Tenggara, where the improvement in learning outcomes of the experimental class reached 33.9%, far above the control class, which was only 16.7%.

In addition, (Rahayu & Sari, 2020) emphasizes that STAD is capable of increasing student engagement through the active role of students in explaining concepts to their groupmates. This activity fosters a deeper understanding because students learn in a collaborative social context. Observational results from research at MIN 3 Southeast Aceh show a similar trend: student activity scores increased from 3.4 (fairly active) to 4.7 (very active) over four meetings. This increase reinforces the view that the STAD model is effective in building an active and participatory learning culture in the classroom.

Theoretically, this research confirms the view (Slavin, 1995) which forms the basis for the development of the STAD model, namely that cooperative learning facilitates improved learning outcomes through individual and group responsibility. In the context of learning in madrasahs, this principle is very relevant to the values of Islamic education that emphasize cooperation (ta'awun) and social responsibility (mas'uliyah). This is reinforced by the findings (Lubis & Harahap, 2023), which states that the implementation of the STAD cooperative model in madrasah can enhance social moral values such as mutual respect, tolerance, and empathy among students.

From the aspect of classroom management, this study supports the findings of the review (Yuliani, Rahmadani, & Hadi, 2022) which states that the implementation of STAD helps teachers transition from the traditional role as the center of learning to a facilitator who directs group interactions. In a study at MIN 3 Aceh Tenggara, teachers played an active role in motivating students and providing feedback on group work results, while group rewards were proven to enhance a healthy competitive spirit. This group reward mechanism strengthens students' intrinsic motivation as stated by (Slameto, 2020), that positive reinforcement plays a major role in building sustainable learning motivation.

In addition to improving cognitive learning outcomes, the STAD model also impacts students' affective and social development. Based on observation results, students showed an increased sense of responsibility, courage to express opinions, and the ability to work together. This aligns with research (Ningsih & Prasetyo, 2021), which emphasizes that cooperative learning can foster positive character traits such as empathy, honesty, and cooperation among students. Thus, the implementation of STAD

not only affects academic aspects but also supports the formation of student character in accordance with the values of the Merdeka Curriculum.

Furthermore, the results of the Independent Sample t-test showing a t-count value of $5.62 > t_{\text{table}} = 2.01$ and a p-value = $0.000 < 0.05$ indicate a significant difference between the two groups. These statistical results reinforce the empirical findings. (Putra & Nuraini, 2024) which found that STAD has a significant effect on improving elementary school students' mathematics achievement with an effect size of 0.75 (high category). This indicates that the STAD model has consistent effectiveness across subject contexts and basic education units.

Conceptually, the success of implementing STAD at MIN 3 Aceh Tenggara demonstrates alignment with the spirit of the Merdeka Curriculum, which emphasizes collaboration, independence, and active student participation. Through group-based learning, students are trained to think critically, work together, and support each other in achieving shared learning objectives. Thus, the results of this study not only strengthen empirical evidence on the effectiveness of STAD but also highlight its relevance to the national education paradigm oriented towards the development of 21st-century competencies.

4. CONCLUSION

Based on research results at MIN 3 Southeast Aceh, the implementation of the cooperative learning model of the Student Teams Achievement Division (STAD) type has been proven effective in improving students' learning outcomes compared to conventional methods. The average improvement in learning outcomes in the experimental class reached 33.9%, higher than the control class at 16.7%, with the t-test results showing a significant difference ($t_{\text{calculated}} = 5.62 > t_{\text{table}} = 2.01$; $p = 0.000 < 0.05$). In addition, student activity increased from the fairly active category to very active, indicating that STAD can encourage participation, cooperation, and learning responsibility. Implicitly, these results reinforce Slavin's (1995) theory that cooperative learning improves learning outcomes through social interaction and group responsibility. The STAD model is also relevant to the spirit of the Independent Curriculum, as it fosters student collaboration and independence. However, this study has limitations, such as a short implementation duration and a limited sample size, so the results cannot yet be widely generalized. Therefore, it is recommended that teachers apply STAD continuously and that future researchers conduct studies with a broader scope and longer duration to obtain more comprehensive results.

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