Learning Management Strategy Based STAD-Model as an Innovation for Quality Development in Islamic Elementary Schools

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Abstract *: This study aims to improve students' learning interest in Mathematics through the implementation of the Student Teams Achievement Division (STAD) learning model in Grade III of SDN 101/II Muara Bungo. The research employed a Classroom Action Research (CAR) design using the Kemmis and McTaggart spiral model, which was conducted in two cycles, each consisting of planning, acting, observing, and reflecting stages. The participants were 35 elementary students. Data were collected through observation, interviews, and documentation, and were analyzed qualitatively and quantitatively using descriptive techniques. The findings revealed a significant improvement in students' learning interest across three indicators—attention, active participation, and positive attitude toward learning activities. The average percentage of learning interest increased from 40.37% in the pre-cycle, to 53.80% in Cycle I, and reached 73.84% in Cycle II. These results indicate that the STAD model successfully created an engaging, collaborative, and student-centered learning environment. The use of "mystery card" learning media during the STAD process also enhanced students' motivation and engagement. Therefore, the STAD model proved effective in increasing students' interest in learning Mathematics at the elementary school level.*

Keywords : *Cooperative learning, Learning interest, Classroom action research.*

INTRODUCTION

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential, including thinking skills, attitudes, and responsible independence in everyday life (Ministry of Education and Culture of the Republic of Indonesia, 2003). One of the important pillars at the elementary school level is mathematics learning, because it is the foundation for numeracy literacy and scientific reasoning in subsequent grades (OECD, 2024). Etymologically, mathematics is rooted in the Greek *mathematike* derived from *mathema* (knowledge/science) and *mathein* (learning/thinking) which emphasizes that mathematics is a science obtained through a systematic reasoning process (Zuhara, 2023). However, classroom reality shows challenges in mathematics learning in grade III of SDN 101/II Muara Bungo: students' interest in learning the material, especially multiplication, is still low. The pre-cycle indicators recorded student attention at 37.6%, active participation at 33.81%, and feelings of happiness at 49.44%, with an average of 40.37%, which resulted in low engagement and daily learning outcomes.

Initial observations show that learning tends to be teacher-centered through lectures and practice exercises, with limited student involvement. This condition is correlated with low focus,

distraction, and reluctance to ask questions when facing conceptual difficulties, resulting in a monotonous learning experience (Kemdikbudristek, 2022; OECD, 2024). Learning literature emphasizes that student-centered strategies that encourage interaction, collaboration, and individual-group accountability have a positive impact on learning interest and participation (Arends, 2012; Hattie, 2023). Based on these considerations, alternative learning models are needed that can increase learning interest through structured collaborative activities. *Student Teams Achievement Division* (STAD), as one cooperative learning model, offers clear procedures: teacher presentation of material, heterogeneous teamwork to ensure each member's mastery of the material, individual evaluation, and reward-based team progress. This design combines individual responsibility and positive interdependence between students which are theoretically and empirically related to increased engagement and positive attitudes towards learning (Slavin, 2014; Kemdikbudristek, 2022; OECD, 2024).

Thus, this classroom action research is aimed at increasing the interest in learning mathematics among third-grade students on multiplication through the application of the STAD model. The focus of improvement lies in shifting the approach from predominantly lecture-based to active, enjoyable, and accountable cooperative learning, so that it is expected that indicators of student attention, participation, and positive affect will increase significantly in the designed action cycles.

RESEARCH METHODS

The type of research used is Classroom Action Research (CAR), which is research conducted by teachers, lecturers, students, or researchers in the classroom where they teach with the aim of improving the learning process through a cycle of action and reflection (Kemmis & McTaggart, 1988; Arikunto, 2010). CAR aims to improve the quality of learning both in learning outcomes, interest, motivation, and student learning activities so that there is continuous improvement in the teaching and learning process (Sugiarto, 2022).

This study uses the Kemmis and McTaggart spiral model which consists of four main stages in each cycle, namely planning , acting , observing , and reflecting , *which can then be continued with re-planning (revised plan) if the success indicators have not been achieved (Mukhtar, 2013). This study was conducted in two cycles with the aim of increasing student interest in learning through the application of the Student Teams Achievement Division (STAD)* learning model . The steps are as follows: (1) Planning . At this stage, several activities were carried out, including: 1) Analyzing Learning Outcomes (CP) and Learning Objectives (TP) based on the curriculum to determine relevant material; 2) Developing teaching modules by paying attention to achievement indicators and consulting with class teachers; 3) Compiling Student Worksheets (LKPD); 4) Compiling quiz questions that are appropriate to the multiplication material; and 4) Dividing students into seven heterogeneous groups, each consisting of five people. The Kemmis and McTaggart model was chosen for two main reasons: (1) The action and observation processes are carried out simultaneously, so that the data obtained are direct and authentic to class conditions; and (2) There are stages of reflection and re-planning, which allow researchers to adjust strategies in the next cycle to improve learning outcomes (Creswell, 2012). (2) Implementation of Action : Implementation of activities follows the six main phases of the STAD model (Slavin, 2014; Rahmadani & Huda, 2023), which are adapted as follows: 1) Initial Activities, 2) Core Activities consisting of: a) The teacher presents information by explaining the concept of multiplication as repeated addition; b) Students listen to the explanation, then observe the examples given; c) The teacher prepares question cards and LKPD; d) The teacher organizes students in study groups; e) Students work on LKPD collaboratively according to directions; f) The teacher guides the group, provides clarification, and helps students who experience difficulties; g) After the discussion, each group presents the results of their work; h) The teacher conducts individual and group evaluations through quizzes; and i) The teacher announces the quiz results for each group.

(3) Reflection : Reflection is carried out by researchers and collaborating teachers based on the results of observations, field notes, and qualitative and quantitative data obtained during the action. Reflection aims to identify obstacles, assess the effectiveness of the implementation of the STAD model, and determine improvement steps in the next cycle (Creswell, 2012; Handayani,

2019)., (4) Re-planning : If the results of the reflection show that the success indicators have not been achieved, re-planning is carried out by adjusting the learning strategy, improving instruments, and enriching media and student activities in the next cycle (Mukhtar, 2013; Sujarweni, 2022).

Data were collected using: 1) Observation, which is systematic observation of student activities during the learning process (Creswell, 2012), 2) Interviews, conducted with class teachers to obtain supporting information regarding changes in student interest and response to STAD learning, 3) Documentation, including the collection of written data, photos of activities, and archives of student grades and attendance (Putri & Hasan, 2025). Meanwhile, Data Analysis was carried out with two approaches: a) Descriptive qualitative analysis to describe changes in student behavior and learning activities in each cycle; and b) Simple quantitative analysis by calculating the percentage increase in learning interest between cycles (Sugiyono, 2023). Data from observations, interviews, and documentation were compared between cycles to assess the effectiveness of implementing the STAD model on increasing student learning interest (Sari & Ningsih, 2022).

RESULTS AND DISCUSSION

1. Research result

The action procedure follows the Kemmis & McTaggart spiral model: *planning, action–observation, reflection,* and *re-planning* (Kemmis & McTaggart, 1988; Mukhtar, 2013). In the planning stage, the researcher: (1) analyzed the CP and TP of the multiplication material; (2) compiled a teaching module; (3) prepared tools/materials and LKPD; (4) formulated learning objectives and techniques; (5) compiled a learning interest observation sheet; and (6) compiled interview guidelines. In the action–observation stage, learning was carried out for 2 × 35 minutes according to the teaching module. The material focused on the concept of multiplication as repeated addition. The STAD syntax was applied: 1) conveying objectives and motivation; 2) presenting information/material; 3) organizing heterogeneous groups; 4) guiding group work; 5) evaluation (individual/group quizzes); and 6) team progress-based awards (Slavin, 2014; Rahmadani & Huda, 2023). Observations were conducted using a structured sheet that captured indicators of student attention, active participation, and positive affect. The reflection phase revealed that some students were not yet accustomed to working in groups and were still passive in expressing their opinions. Learning activities still require variation and reinforcement of instruction. These findings served as the basis for re-planning for the next meeting.

The second meeting used advanced multiplication material with teamwork reinforcement and individual quizzes. Group organization was maintained, while *scaffolding* and feedback were reinforced to increase individual accountability (Slavin, 2014). Observations showed increased discussion participation and clarity of group member roles, although coordination remained uneven in some groups. Reflections concluded that STAD implementation had begun to increase student enthusiasm and engagement, but the courage to express opinions and consistency of focus needed to be strengthened. Recommendations: (1) enrich collaborative activities; (2) provide motivational and procedural reinforcement early on; (3) emphasize individual accountability during quizzes; and (4) add "mystery question cards" to stimulate interest.

Meanwhile, in cycle II, based on reflection on cycle I, the planning of cycle II includes (1) adjustment of teaching modules; (2) preparation of mystery question cards; (3) a more structured reward scheme; (4) strengthening instructions and group work rules; (5) refining observation instruments; and (6) designing rapid feedback after the quiz (Arends, 2012; Hattie, 2023). The multiplication material was taught using the same STAD syntax, with variations in the mystery card media in the practice and quiz phases. Observations showed: a) More even group coordination; b) Increased courage in asking/answering questions; c) Better student focus and persistence when solving questions; d) A more positive emotional climate in the class.

Based on the cycle II reflection, most learning interest indicators reached or exceeded the 75% success threshold. Minor challenges remained in equalizing participation across some groups; however, the upward trend was consistent across all indicators. Below is a quantitative summary of the increase in student learning interest.

Table 1. Summary of Increase in Student Learning Interest

No.	Learning Interest Indicator	Pre-Cycle	Cycle I		Cycle II	
			P.1	P.2	P.3	P.4
1	Attention in teaching and learning	37.86	48.05	55.73	67.68	81.57
2	Active Participation	33.81	45.96	54.02	64.02	72.84
3	Positive Affect (Happy)	49.44	51.80	67.28	72.92	84.02
	Average per Meeting	**38.75**	**48.03**	**59.00**	**68.83**	**81.00**
	Average per Cycle	**40.37**	**53.80**		**73.84**	

*P1 = Meeting 1; P2 = Meeting 2.
Source: Personal Document

The average increase diagram per stage (Pre-Cycle → Cycle I → Cycle II) is shown in the following figure:

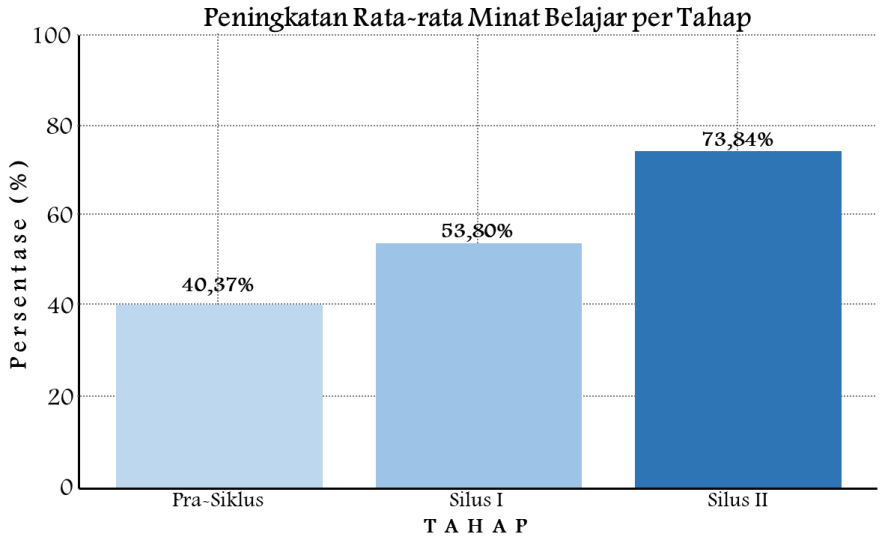

Figure 1. Diagram of the average increase in students' learning interest at each stage

Based on Figure 1, a significant increase is seen at each stage of the action. The average student learning interest, which initially only reached 40.37% in the pre-cycle, increased to 53.80% in cycle I and reached 73.84% in cycle II. This increase indicates that the implementation of *the Student Teams Achievement Division* (STAD) model consistently has a positive effect on increasing student attention, participation, and feelings of enjoyment in teaching and learning activities. This pattern of increase also indicates that the collaborative-based learning process is able to create a more active, cooperative, and experience-oriented learning environment for students (Slavin, 2014; Sari & Ningsih, 2022; Hattie, 2023).

2. Discussion

The increase in the average percentage of learning interest from 40.37% (pre-cycle) to 53.80% (cycle I) and 73.84% (cycle II) indicates that the implementation of the Student Teams Achievement Division (STAD) model has a positive and significant influence on increasing student learning interest in mathematics learning. This trend illustrates the success of the classroom action process that takes place reflectively and adaptively according to the Kemmis & McTaggart (1988) model cycle . The average increase of 33.47 percentage points indicates a substantive increase in student engagement. Each indicator attention, active participation, and positive affect (pleasure) experienced a consistent increase in each cycle. The positive affect indicator even reached 84.02%

at the end of the action, indicating the formation of a pleasant and participatory learning climate. This is in line with the findings of Rahmadani & Huda (2023) and Sari & Ningsih (2022) who stated that STAD is effective in fostering intrinsic motivation through synergy between group members.

Qualitatively , observations show a transformation in learning behavior: 1) Students who were initially passive become active in discussions and dare to express their opinions, 2) Interaction between group members increases, demonstrating *positive interdependence* as emphasized in Slavin's theory (2014), 3) Learning activities accompanied by motivational reinforcement and the provision of rewards encourage the emergence of healthy competition which has an impact on increasing focus and responsibility for learning. This change is also consistent with Vygotsky's view of *the zone of proximal development (ZPD)* - that students learn better when interacting with peers in a supportive social context (Arends, 2012; Hattie, 2023). The STAD model is based on the principles of positive interdependence, individual accountability, and promotive interaction (Slavin, 2014). These three principles have been shown to increase interest and motivation in learning, because each member feels responsible for the success of the group. The results of this study strengthen recent studies such as: (a) Yuliani & Arifin (2021) who found that the implementation of STAD in elementary schools increased student participation by up to 70%, (b) Putri & Hasan (2025) who emphasized the importance of card-based games in maintaining students' attention during mathematics learning, (c) Zulfa & Widodo (2024) who emphasized that team collaboration and communication increase students' cognitive and affective engagement in science-mathematics learning.

Thus, the results of this study not only confirm previous findings but also enrich perspectives by demonstrating the role of simple media (mystery question cards) as a gamification stimulus that strengthens focus and curiosity. Practically, this study provides a STAD implementation model that is easily adapted by elementary school teachers. Teachers can: (1) Use collaborative-based LKPD, (2) Insert educational game elements (game cards or mystery quizzes), and (3) Provide positive reinforcement and team rewards periodically. Theoretically, these results expand the application of the *cooperative learning concept* to elementary learning contexts by emphasizing the affective aspect (interest in learning) as an indicator of learning success, not just cognitive. This is in line with Hattie's (2023) view that emotional engagement is an important determinant of learning effectiveness.

This study has several limitations, including: a) The relatively short cycle duration does not measure the long-term resilience of learning interest; b) Measurement of learning interest still uses manual observation and is not based on standardized psychometric instruments; c) Generalization of results is still limited to the local context (grade III of SDN 101/II Muara Bungo). Therefore, for further research, it is recommended that it be conducted at different levels and subjects; combined with interactive digital media to strengthen the gamification aspect; and using inferential statistical analysis to assess the significance of inter-cycle improvements.

CONCLUSION AND SUGGESTIONS

The results of this classroom action research indicate that the implementation of the Student Teams Achievement Division (STAD) learning model can increase students' interest in learning mathematics in grade III of SDN 101/II Muara Bungo. This increase is evident from the increase in the average percentage of learning interest from 40.37% in the pre-cycle, to 53.80% in cycle I, and increased again to 73.84% in cycle II. All indicators of learning interest, namely attention, active participation, and feelings of enjoyment towards teaching and learning activities experienced positive development and reached the success target of 75%.

The most influential factors in increasing learning interest are intensive group interaction, individual responsibility in teamwork, and motivation through reward. The STAD model has been proven effective in creating a collaborative, enjoyable, and meaningful learning atmosphere, thereby fostering students' interest and enthusiasm for mathematics learning. This study provides important implications for elementary school teachers to implement a team-based cooperative approach in learning, because this strategy not only improves cognitive learning outcomes but also strengthens students' affective dimensions in the form of interest, motivation, and positive attitudes towards the subject.

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