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THE EFFECTIVENESS OF THE STAD TYPE COOPERATIVE LEARNING MODEL ON STUDENT LEARNING OUTCOMES: SYSTEMATIC LITERATURE REVIEW (SLR) WITH THE PRISMA PROTOCOL

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ABSTRACT

This systematic literature review (SLR) examines the effectiveness of the Student Teams Achievement Divisions (STAD) cooperative learning model in enhancing student learning outcomes, motivation, and social skills across various educational levels and subjects. Guided by the PRISMA protocol, the study analyzed 35 peer-reviewed articles published between 2019 and 2024. Findings reveal that STAD significantly improves academic performance, collaboration, and engagement, particularly for lower-achieving students, by fostering interactive, student-centered learning environments. The integration of supplementary media (e.g., videos, games) further amplifies these benefits. Compared to conventional methods, STAD demonstrates superior outcomes in promoting critical thinking and active participation. The study highlights STAD's alignment with 21st-century educational demands, emphasizing its adaptability to diverse subjects, including mathematics, science, and social studies. However, gaps remain in understanding its long-term efficacy, cross-cultural applicability, and integration with emerging technologies like AI and VR. The research underscores the need for future studies to explore these dimensions, ensuring STAD's relevance in modern, technology-driven classrooms. Implications suggest that educators and policymakers should consider STAD as a viable strategy to enhance collaborative learning, inclusivity, and skill development, ultimately contributing to higher-quality education systems.

KEYWORDS *Cooperative Learning, STAD Model Effectiveness, Student Learning Outcomes*

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INTRODUCTION

Education is the main pillar in shaping the character, personality, and morals of students, as well as providing the foundations of science needed to achieve better quality education. Formal education in schools aims to provide this foundation, which is not only limited to the transfer of knowledge, but also leads to the development of students' ability to think critically and independently. According to Dimyati and Mudjiono (2006), formal education is applied to build the basics of science, personality, morals, and character formation. In this process, there is a paradigm shift from a teacher-centered learning approach to an approach that emphasizes the role of students as active subjects in learning. Teachers are expected to play the role of facilitators who create an interactive and collaborative learning atmosphere, so that they are able to arouse students' enthusiasm for learning and achieve optimal learning outcomes.

Success in the teaching and learning process is inseparable from the use of the right learning methods or strategies. The use of relevant strategies can make the learning process easier for students, as well as increase their physical, emotional, and intellectual engagement. The use of strategies in learning is very important because it can achieve optimal results (Johariah, 2018). One of the learning models that is widely used in this context is the Student Team Achievement Division (STAD), a cooperative learning model developed by Slavin and his friends. This STAD model is considered effective because it is able to increase cooperation between students, motivate them in learning, and facilitate better understanding of concepts. Through the use of this model, the interaction between students becomes more intensive, so it can help students achieve higher learning outcomes (Ariani & Agustini, 2018).

Research on the effectiveness of the STAD model has been carried out extensively, both through the Classroom Action Research (PTK) method, pseudo-experiments, and literature reviews. Several studies reveal that the application of the STAD model is able to improve students' critical thinking skills, creativity, and learning outcomes at various levels of education (Sanjaya, 2006; Saleh & Filawati, 2019). However, these studies tend to be conducted individually, without any effort to systematically group and analyze. Therefore, a more in-depth study is needed to identify trends in STAD research, especially in the context of student learning outcomes, in order to gain a more comprehensive understanding of its effectiveness.

The purpose of this study is to conduct a systematic review of the results of research that has been carried out related to the STAD learning model, especially in the context of improving student learning outcomes. This study will identify, analyze, and evaluate the results of primary research that have been published, as well as provide an overview of how this model contributes to improving students' abilities in various aspects of learning. Through the Systematic Literature Review (SLR) approach, this study is expected to be able to provide a more holistic view of the implementation of the STAD model in learning (Ardhini DKK., 2021).

The findings of this study are expected to make a significant contribution to the development of cooperative learning methods, especially the STAD model, as well as a reference for educators in choosing the most appropriate learning strategies to improve student engagement and learning outcomes. In addition, this study also aims to identify the challenges and opportunities faced in the implementation of this model, so that it can provide recommendations for further research (Noor, 2018).

RESEARCH METHODS

This article aims to answer three independent research questions through the Systematic Literature Review (SLR). SLRs are more relevant compared to traditional narrative literature reviews. The purpose of SLR is to compile existing research based on evidence, regardless of the location of disciplines, limitations, and language relevant to the subject being studied (Thorpe dkk., 2005). The SLR method was explicitly considered in this study to carefully summarize the results in response to the research question (Tranfield dkk., 2003). In addition, SLR-based methods address the current state of the art on a particular research topic and also suggest further research in the future (Mason, 1993).

Therefore, to determine the effectiveness of the STAD-type cooperative learning model on student learning outcomes, a systematic review was carried out using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method adapted from Moher et al., (2009). For evidence-based reporting standards, PRISMA is an effective tool for critical judgment. In this context, a systematic review includes a comprehensive and coherent search followed by a sensible and predetermined approach to selecting and analyzing relevant contributions, which must then be critically synthesized (Petticrew & Roberts, 2006).

For this study, a comprehensive literature search was conducted to identify articles specifically published from 2020 to the end of 2023. These SLRs are carefully designed and can be replicated; Thus, it can be updated in the future with the findings of the State of the Art on the effectiveness of the STAD-type cooperative learning model on student learning outcomes. Protocols were developed in advance to report analysis methods and inclusion criteria. The methodology adopted is supported by text analysis, which is a systematic technique often used in the social sciences, in which specific texts (codes) are summarized in different categories (Elo & Kyngäs, 2008).

A review of the existing literature on topics related to the effectiveness of the STAD-type cooperative learning model on student learning outcomes, which resulted in 35 articles, with a period between 2019 and 2024. To find articles, we use Google Scholar and Scopus through Publish and Perish. There are two article keywords about the STAD learning model ("STAD model" and "elementary school") AND ("STAD model").

RESULTS AND DISCUSSION

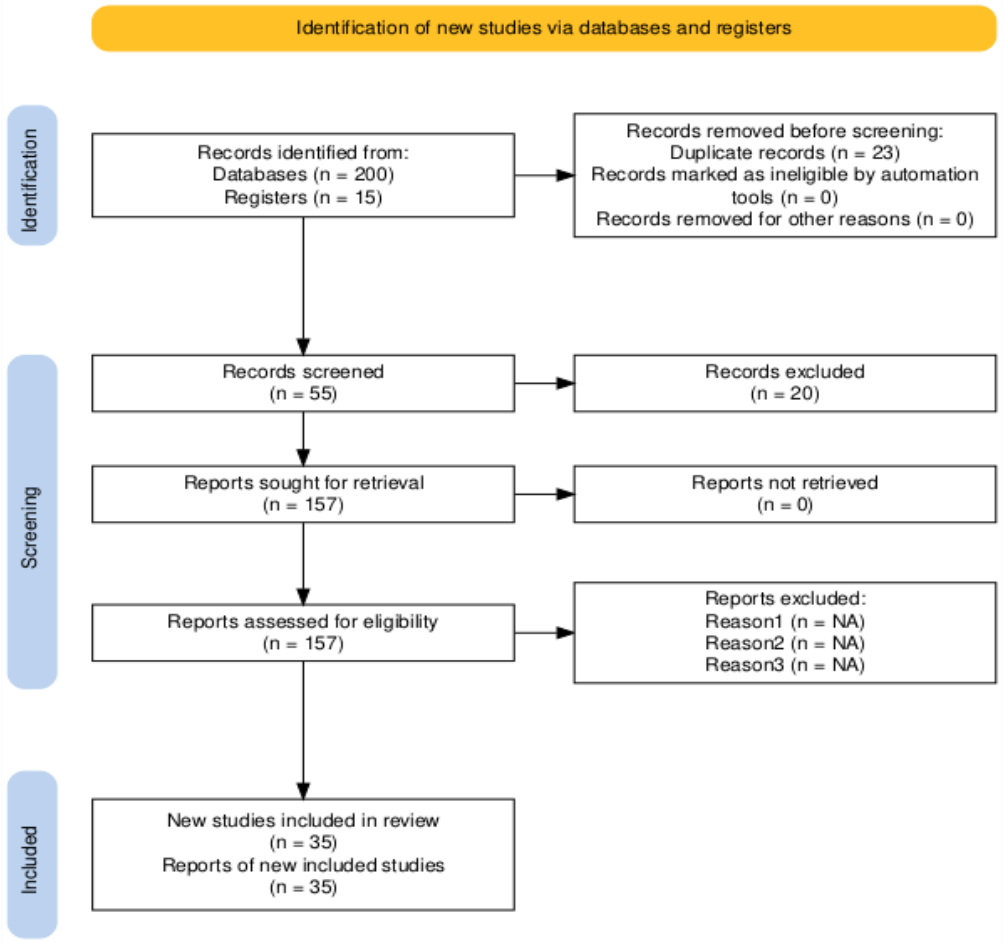

Figure 1. SLR with PRISMA Protocol

The PRISMA diagram presented reflects the systematic process in selecting literature for a study based on the STAD (Student Teams Achievement Divisions) method. A total of 200 articles were identified from Google Scholar and an additional 15 articles were found through Scopus searches through Publish or Perish. Before the screening stage, 23 articles were deleted due to duplication. After the deduplication, 55 recordings were continued for the manual screening process, and at this stage, 20 recordings were removed because they were irrelevant or did not meet the criteria for student learning outcomes. A total of 157 reports were sought for further information, and all of them were successfully obtained. Then, all 157 reports obtained were assessed for feasibility based on the criteria set, namely the effectiveness of the STAD-type cooperative learning model on student learning outcomes, which in the end, a total of 35 new studies that met the inclusion criteria were finally included in the review, resulting in 35 reports that were summarized in the final review.

Table 1. Research Results

Researchers	Assessed Aspects	Key Research Results
Akhmad Afnan Fajarudin, Intan Zuhria (2023)	Implementation of the STAD Type Cooperative Learning Model in Increasing Student Learning Motivation	Learning motivation increases significantly in each cycle; Students are more active and enthusiastic in thematic learning.
Rifki Fauzan, Asrani (2024)	Improving Activities, Motivation, and Learning Outcomes Using PBL, STAD, and NHT Models	Student activities and learning outcomes increased with the categories of "very active" and "very high".
Aningsih, Rini Endah Sugiharti, Aulia Uhrifah (2023)	Application of the STAD Type Cooperative Model to Improve Student Learning Outcomes in Elementary School	An increase in the average score from 77.4 to 86.4; The success reached 83% in the second cycle.
R Adillah, WH Lubis, A Yus Rani Adillah, Wirda Hayatina Lubis, Anita Yus (2023)	The Effect of the STAD Model on the Thematic Learning Outcomes of Heat Themes and Their Displacement	The results of the pretest and post-test showed significant differences, Thitung > Ttable.
Josua Christian Manalu, Sorta Simanjuntak (2023)	The Effect of the STAD Cooperative Model on Cooperation Ability in Grade V Elementary School	Cooperation capabilities increased significantly, from the category of "poor" to "good" after the implementation of STAD.
Asmedy (2021)	The Effect of the STAD Cooperative Model on Student Learning Outcomes	There is a significant influence of the STAD model on learning outcomes; Count > Table.
Herman W.P Sianturi, Muktar B.	The Effect of the STAD Model on Social Studies Learning Outcomes	The average score increased from

Panjaitan, Lisbet Novianti Sihombing (2021)		52.00 to 78.60; t-test analysis shows Thitung > Ttable.
Syafitri, Hemnel Fitriawati (2023)	Improving Learning Outcomes with the STAD Model at SDN 1 Sijunjung	The average learning outcome increased significantly, from 68.75 to 90.50 in the second cycle.
Rizki Sofyan Rizal, Naniek Sulistya Wardani, Trifosa Intan Permana (2021)	Improving Thematic Learning Outcomes with PowerPoint-Assisted STAD	The number of students who completed the study increased from 44.1% to 100% after the second cycle.
Fauzia Inggriani (2024)	Improving Social Studies Learning with STAD at SDN 18 Payakumbuh	The average score of students increased from 68.80 to 80.71; The completion rate increased from 38.09% to 76.19%.
Lonisa, Sayidiman, Andi Dewi Riang Tati (2024)	Application of the STAD Type Cooperative Learning Model to Improve Social Studies Learning Outcomes	Learning completeness increased from 58.34% in the first cycle to 91.67% in the second cycle.
Maria Apriani, Carolina Lita Permatasari (2023)	STAD Type Cooperative Learning Model to Improve Student Learning Outcomes and Activities	The average learning outcome increased from 63.4 to 86.78 in the second cycle.
Nira Nurvita Oktavira, Babang Robandi, Asep Saefudin (2020)	Application of the STAD Type Cooperative Learning Model to Improve Cooperation Ability	Cooperation ability increased from 72.82% to 95%; learning outcomes increased from 60.86% to 86.95%.
Nurul Khoiriah, Riski Prisila, Zahra Elfuadah, Priska Yolanda (2023)	Application of the STAD Type Cooperative Learning Model in Mathematics Lessons	In the first cycle, learning outcomes increased by 11.6%, with 19 students out of 25 students meeting the

		Minimum Completeness Criteria (KKM). The second cycle showed significant improvement, with almost all students achieving completeness.
Sri Rahayu (2024)	The Effect of the STAD Type Cooperative Learning Model on Learning Outcomes	The STAD model is effective in improving the learning outcomes of students with diverse backgrounds.
Nadra Hafizah, Firman, Desyandri (2023)	Differences in Mathematics Learning Outcomes Using Jigsaw and STAD Type Cooperative Models	The Jigsaw model is superior to STAD in improving mathematics learning outcomes. However, the STAD model remains effective in improving overall student learning outcomes, especially in fact-based learning and basic concepts
Desi Nur Rachmawati, Sandi Budi Iriawan, Haviz Kurniawan (2024)	The Application of STAD Cooperative Learning Model to Improve Math Learning Outcomes	Completeness increased from 63.39% to 87.4%; Interactive methods are more effective.
Firdha Isnaini (2020)	The Concept of the STAD Cooperative Learning Model according to Robert E. Slavin	The cooperation-based STAD model is effectively applied to improve student learning outcomes.
Dian Mayasari (2024)	Efforts to Improve Motivation and Learning Outcomes of Flat Building Traits through the STAD Model	Motivation increased to 81.81%; learning completeness

		increased to 90.90%.
M. Ihsan Ramadhani (2023)	Application of STAD and NHT Learning Models for Mathematics Learning Outcomes	Learning completeness increased to 100% with student activity reaching 90%.
Junior Rashid, Eka Damayanti (2023)	The Effectiveness of STAD-Type Cooperative Learning Model Based on Online Media in Comprehending Physics Concepts	The online media-based STAD model is more effective than conventional methods in improving the understanding of physics concepts.
Iwan Yulianto, Warsono, Nasution (2020)	The Effect of Learning Model STAD Assisted by Media Quizizz	STAD with Quizizz significantly improves motivation and learning outcomes compared to direct learning methods.
By Ketut5wantini (2022)	STAD Model Improves Mathematics Learning Outcomes of Grade VI Students	Learning completeness increased from 67% (cycle I) to 93% (cycle II).
The Suartini Kadek (2019)	Application of the STAD Model for Science Learning Outcomes	Learning outcomes increased from an average of 57 (pre-cycle) to 84 (cycle II).
Munawar HM (2019)	The Application of STAD Cooperative Learning Model	Learning completeness increased from 34.8% (pre-cycle) to 91.3% (cycle II).
Muhamad Sanusi Damau (2023)	Meta-Analysis of the Influence of the STAD Model on PAI Learning Outcomes	The average learning outcome increased significantly from 72,331 to 83,635.

Gusti Komang Sudarta (2022)	STAD Learning Model for Mathematics Learning Outcomes	Learning completeness increased from 63% (cycle I) to 95% (cycle II).
Mirza Hermayanti, Wawan Shokib Rondli (2023)	Pancasila Learning Outcomes Using the STAD Model	There was a significant difference between the control and experimental classes and the improvement of learning outcomes in the experimental class.
Atradinal, Juvandra Octa (2024)	How do the STAD Cooperative Learning Model Affect Football Learning Outcomes?	The STAD model is effective in improving student learning outcomes with low confidence compared to conventional methods.
Leny Julia Lingga (2022)	Application of STAD for Social Studies Learning Outcomes	Learning completeness increased from 60% (cycle I) to 92% (cycle II).
Marlina, Ismawati (2020)	Improving Mathematics Learning Outcomes with the STAD Learning Model	Classical completeness increased from 71% (cycle I) to 100% (cycle II).
Jenni Sriana, Sujarvo (2022)	Analysis of STAD Type Cooperative Learning Model	STAD is effective in improving student learning outcomes and is worthy of being applied in learning.
Riona Mei Wanita Sari, Nasution, Waspodo (2020)	The Influence of the STAD Learning Model Assisted by Media Video Show	STAD with video shows is more effective in improving social skills and learning outcomes than

		conventional methods.
Walila Dwita Manjani, Kms Muhammad Amin Fauzi, Suroyo (2022)	The Effect of the STAD Model and Early Ability on Mathematics Learning Outcomes	STAD is more effective than conventional methods, especially in students with mathematical abilities
Zevi Ismiatul Ulfa, Eric Aditia Ismaya, Much Arsyad Fardani (2020)	Improving Learning Outcomes by Implementing the STAD Model Assisted by Media Utaku	The average score increased from 76 (cycle I) to 83 (cycle II) for social studies, with completeness increasing to 83%.

The application of the Student Teams Achievement Division (STAD) type cooperative learning model has consistently proven to be effective in improving student learning outcomes, motivation, cooperation skills, and understanding in various subjects, such as mathematics, social studies, science, and Indonesian, at various levels of basic education. This research was conducted on grade V students of MI Miftahul Ulum with the title "Implementation of the STAD Type Cooperative Learning Model in Increasing Student Learning Motivation". The results show that the application of this model significantly increases students' enthusiasm and interest in thematic learning. With the classroom action approach involving two cycles, it can be seen that students become more active in discussions and have the courage to express their opinions.

The test results of both individuals and groups showed an improvement in each cycle. This study highlights the importance of interaction between group members in encouraging learning motivation and student participation (Fajarudin & Zuhria, 2023). Furthermore, the research entitled "Improving Activities, Motivation, and Learning Outcomes Using PBL, STAD, and NHT Models" combines three learning models, namely Problem-Based Learning (PBL), STAD, and Numbered Heads Together (NHT). The results showed that students' motivation increased to a "very high" level, and the learning outcomes reached the category of "complete." This study shows the effectiveness of integrating several learning models to create a collaborative learning atmosphere (Fauzan, 2024). Furthermore, the research entitled "Application of the STAD (Student Team Achievement Division) Type Cooperative Model to Improve Student Learning Outcomes in Elementary Schools". These findings emphasized that the results showed a significant improvement in student learning outcomes, from an average of 77.4 (cycle I) to 86.4 (cycle II).

The percentage of learning completion increased from 65% to 83%. These findings emphasize that the application of STAD can encourage students to be active in group discussions, improve their understanding of Mathematics concepts, and create a competitive but still supportive learning atmosphere (Aningsih dkk., 2023). Then, the research entitled "The Influence of the STAD Model on the Thematic Learning Outcomes of Heat Themes and Their Displacement". The results showed a significant improvement, with the average score of the post-test much higher than the pre-test. The calculation coefficient is 12,450 > ttable (2,534), indicating that the application of STAD is very

effective. This emphasizes the importance of interactive learning methods in helping students understand abstract concepts in more depth (Adillah dkk., 2023). Furthermore, a study at SD Negeri 060851 Medan entitled "The Effect of the Student Team Achievment Division (STAD) Cooperative Learning Model on Improving Cooperative Skills in Class V of SD Negeri 06085" showed that students' cooperative abilities increased by 35% after the implementation of the STAD model. From the category of "poor" to "good," the study highlights the positive impact of a group-based approach on students' social skills.

Observations and questionnaires show that students are more likely to convey ideas and work together once they understand the principles of teamwork in the STAD model (Manalu & Simanjuntak, 2023). Then, a study conducted to measure the influence of the STAD model on student learning outcomes in Dompu was entitled "The Effect of the STAD Cooperative Model on Student Learning Outcomes". The results showed that the average score of students increased significantly after the intervention. T-test shows t_{count} 17,339 > ttable (1,670), indicating the effectiveness of this model. This study strengthens the evidence that STAD not only improves learning outcomes, but also improves the classroom atmosphere to be more interactive (Asmedy, 2021). Furthermore, the study entitled "The Influence of the Student Teams Achievement Division (STAD) Learning Model on Social Studies Learning Outcomes of Elementary School Students". With the pretest-posttest design, the average score of students increased from 52 to 78.6 after the application of this model. These results show that the t-test shows significant results (tcal 11.093 > ttable 2.093). This study confirms that the group-based approach is effective in improving students' understanding of complex historical topics (Sianturi dkk., 2024).

Then, the research entitled "Improving Learning Outcomes with the STAD Model at SDN 1 Sijunjung". The results showed an increase in the average score of students from 68.75 to 90.5 in the cognitive aspect, as well as an increase from 70.75 to 84.5 in the psychomotor aspect. This study shows the positive impact of the STAD model on learning that previously seemed passive to become more interactive (Fitriawati, 2023). Furthermore, the research entitled "Improving Thematic Learning Outcomes with PowerPoint Assisted STAD". The results showed that from only 44.1% of students who completed before the intervention, this figure increased to 100% after the second cycle. The use of technology helps create a more interactive and engaging learning experience, especially in remote learning conditions (Rizal dkk., 2021). Then, the research entitled "Improving Social Studies Learning with STAD at SDN 18 Payakumbuh". This study found that the STAD model increased students' social studies learning outcomes from an average score of 68.8 (cycle I) to 80.71 (cycle II). The percentage of learning completion increased from 38.09% to 76.19%. In addition to learning outcomes, students' activeness in group discussions also increased, creating a more dynamic classroom atmosphere (English, 2024).

The research is entitled "Application of the STAD Type Cooperative Learning Model to Improve Social Studies Learning Outcomes of Elementary School Students in Luwu Regency". The results of the study showed that in the first cycle, student teaching and learning activities only reached the sufficient category, with the completeness of learning outcomes of 58.34%, still below the target of 80%. However, in the second cycle, the activity increased to the good category, with the completeness of learning outcomes reaching 91.67%. This study confirms the effectiveness of STAD in creating an interactive learning atmosphere and increasing student involvement in social studies learning (Tati, 2024).

Furthermore, the research entitled "STAD Type Cooperative Learning Model to Improve Student Learning Outcomes and Activities". The results showed that the average score of students increased from 63.4 in the pre-cycle to 83.37 in the first cycle and 86.78

in the second cycle. In addition, student activity increased by 15% between the first and second cycles. These results show that the STAD model is able to increase students' activeness in learning science and provide better learning outcomes (Permatasari, 2023). Then, the research entitled "Application of the STAD Type Cooperative Learning Model to Improve Cooperative Ability and Learning Outcomes of Grade IV Elementary School Students". The results of the study showed that the first cycle showed that the indicators of student cooperation were not good, with learning completeness of 60.86%. However, in the second cycle, the cooperation indicator increased to 95%, and the learning completeness reached 86.95%. These findings emphasize that STAD not only improves learning outcomes but also students' social skills through group interaction (Oktavira dkk., 2020).

Furthermore, the research entitled "Application of the STAD and NHT Together Learning Models to Improve Mathematics Learning Outcomes in Grade IV of SDN Kelayan Selatan 3 Banjarmasin City" combines the STAD and Numbered Heads Together (NHT) models in Mathematics learning. The results showed that student activity increased to reach the very good category with a score of 90%. The completeness of student learning in the flat building concept reaches 100%.

The combination of these two models shows the potential to increase student activity and accelerate their understanding of the concepts of Mathematics taught (Ramadhani, 2023). Then, the research entitled "Application of the Student Teams Achievement Division (STAD) Type Cooperative Learning Model to Improve Student Learning Outcomes in Mathematics Lessons Class V of SD Negeri 057764 Telaga Said, Sei Lepan District, Langkat Regency". The results showed that in the first cycle, learning outcomes increased by 11.6%, with 19 students out of 25 students meeting the Minimum Completeness Criteria (KKM). The second cycle showed significant improvement, with almost all students achieving completeness. This research underlines the importance of group-based learning to improve students' understanding of Mathematics concepts (Khoiriah Duck., 2023). Furthermore, the study entitled "Differences in Mathematics Learning Outcomes of Students Using Jigsaw-Type Cooperative Models with STAD in Elementary Schools" compares the effectiveness of Jigsaw and STAD models in Mathematics learning. The results show that the Jigsaw model is slightly superior in improving Mathematics learning outcomes compared to STAD, with a value of t_{count} 4.74 > ttable 1.67155. However, the STAD model remains effective in improving overall student learning outcomes, especially in fact-based learning and basic concepts (Nadra dkk., 2023).

Then, the research entitled "Efforts to Improve the Motivation and Learning Outcomes of Flat Building Traits Through the STAD Type Cooperative Learning Model" increased the motivation and learning outcomes of grade VI students on flat building traits material. The results showed that student motivation increased to 81.81%, with learning completion reaching 90.9% in the second cycle. These results show that STAD is able to create a more engaging learning atmosphere and support the achievement of better learning outcomes (Mayasari, 2024).

Then, the research entitled "The Application of STAD Cooperative Learning Model to Improve Math Learning Outcomes" uses the STAD model to improve Mathematics learning outcomes on the topic of diagrams. The results showed that in the first cycle, the success of student learning only reached 63.39%, but increased to 87.4% in the second cycle after the introduction of more interactive learning media. These findings show the importance of adaptation and evaluation in the implementation of STAD to achieve optimal learning outcomes (Rachmawati dkk., 2024). Furthermore, the research entitled "The Concept of STAD (Student Team Achievement Division) Cooperative Learning Model According to Robert E. Slavin" emphasizes heterogeneous group work with five main steps: material presentation, group work, individual quizzes, improvement

scores, and group awards. This model is designed to improve student participation and learning outcomes through collaboration and healthy competition between groups (Isnaini & Kurniawan, 2020).

The research entitled "Learning Outcomes of Pancasila Education Using the STAD Learning Model Assisted by Spinning Wheel Media in Grade IV Students." shows that the STAD (Student Teams Achievement Division) learning model assisted by spinning wheel media to improve student learning outcomes in Pancasila Education subjects. The results showed that the average score of students in the experimental class increased significantly compared to the control class, with significance values of 0.000 and 0.025 ($p < 0.05$). This model not only makes learning more engaging but also optimizes student interaction and understanding of the material (Hermayanti dkk., 2023). Furthermore, the study entitled "How Do the STAD Cooperative Learning Model, Conventional Methods, and Student Confidence Affect Football Learning Outcomes?" evaluates the influence of the STAD model compared to conventional methods on football learning for grade VIII junior high school students. The findings show that STAD is more effective in improving learning outcomes for students with low levels of confidence. Two-track ANOVA analysis reveals positive interactions between learning models and students' confidence levels (Atradinal & Ockta, 2024).

Then, the study entitled "Meta Analysis of the Influence of the STAD Learning Model on the Learning Outcomes of Islamic Religious Education for Elementary School Students" analyzed the influence of the STAD model on the learning outcomes of Islamic Religious Education through meta-analysis from several previous studies. The results showed an increase in the average student score from 72.33 to 83.63 after the implementation of the STAD. This confirms that this cooperative approach is relevant to significantly improve learning outcomes in a variety of educational settings (Damau, 2023). Furthermore, the research entitled "STAD Learning Model with Beads and LKS Teaching Aids to Improve Mathematics Learning Outcomes in Grade VI Elementary School Students" is a classroom action research at SD Negeri Sepang Kelod showing that STAD combined with beaded teaching aids and LKS improves mathematics learning outcomes of grade VI students. The results showed that the average student score increased from 62 in the first cycle to 70 in the second cycle, with learning completeness increasing from 63% to 95% (Sudarta, 2022).

Then, the research entitled "STAD Model Improves Mathematics Learning Outcomes of Grade VI School Students". The results showed that the average score of students increased from 69 in the first cycle to 81 in the second cycle, with absorption reaching 81% and learning completeness increasing from 67% to 93% (The Kingdom of Heaven, 2022). Furthermore, the study entitled "Application of the STAD Type Cooperative Learning Model to Improve Science Learning Outcomes of Grade V Students of SD Negeri 2 Seraya Barat" showed that the application of the STAD model in science learning increased student learning outcomes from an average of 57 in the pre-cycle to 84 in the second cycle. This research also highlights the importance of group interaction in encouraging student activity (Suartini, 2019).

Then, the research entitled "The Application of the STAD Learning Model (Student Teams Achievement Division) to Improve Social Studies Learning Outcomes in Grade IV Elementary School". The results of the study showed that in the first cycle, only 60% of students reached KKM, while in the second cycle the number increased to 92%. The STAD model received a positive response from students, who felt more motivated and engaged (Lingga, 2022). Furthermore, the research entitled "The application of STAD-Cooperative Learning Model: Efforts to increase motivation and Learning Outcomes of students in Class 5 SD N 07 Ledok Salatiga in Mathematics subjecth in Folding Symmetry and Rotating

Symmetry topics" shows that STAD improves mathematics learning outcomes in the topic of folding symmetry and rotating symmetry. The results showed that the number of students who achieved a score of ≥70 increased from 34.8% in the initial condition to 91.3% in the second cycle. In addition, student motivation has also increased significantly (Munawar, 2019).

Then, the research entitled "The Effect of Learning Model STAD (Student Team Achievement Division) Assisted by Media Quizizz on Motivation and Learning Outcomes in Class XI Indonesian History Subjects at SMA Trimurti Surabaya" shows that the application of the STAD model with the help of Quizizz media increases motivation and learning outcomes of history. The results showed that the average score of students increased significantly with the results of the t-test showing a $p < 0.05$. This research underscores the importance of technology integration in cooperative learning models (Yulianto dkk., 2020). Furthermore, the research entitled "The Effectiveness of STAD-Type Cooperative Learning Model Based on Online Media in Comprehending Physics Concepts" shows that the online media-based STAD model is effective in improving the understanding of physics concepts during the COVID-19 pandemic. The results showed that the average score of students in the experimental class was higher than that of the control class, emphasizing the importance of a cooperative approach with digital media in distance learning (Rasyid dkk., 2023).

The research is entitled "Improving Mathematics Learning Outcomes Using the STAD Model". The results showed that in two learning cycles, it was found that the completeness of learning outcomes increased from 71% in the first cycle to 100% in the second cycle. This model allows students to collaborate effectively in small groups, thereby improving their understanding of the concept of fractional addition. Teacher and student activity also experienced a significant increase, with the implementation rate reaching the "excellent" category in the second cycle (Marlina & Ismawati, 2020). Furthermore, the research entitled "Analysis of the STAD Type Cooperative Learning Model" examines the role of the STAD model in improving student learning outcomes based on a review of 10 articles. The results of the study show that this model encourages active interaction between students, improves social skills, and motivates students to achieve optimal results. The results of data analysis show that STAD is effectively applied in various subjects, especially in improving learning outcomes and building active student participation (Sriana & Sujarwo, 2022).

Then, the research entitled "The Influence of Video Show-Assisted STAD on Social Skills" shows that the application of video show-assisted STAD improves social skills and social studies learning outcomes of grade IV students. The results showed that the average score of students in the experimental class was higher than that of the control class, with the results of the analysis showing a significant improvement in aspects of social skills and material understanding (All ducks., 2020). Furthermore, the research entitled "The Influence of STAD and Early Ability on Learning Outcomes" analyzes the relationship between the STAD learning model and early mathematics ability on the learning outcomes of elementary school students. The results showed that students with high initial ability who were taught using STAD had an average score of 90.00, higher than students who were taught with conventional methods (83.70). ANAVA analysis shows that there is a significant interaction between the learning model and students' initial ability to influence learning outcomes (Manjani dkk., 2022).

Then, the research entitled "Improving Learning Outcomes through the STAD and Utaku Models" shows that the application of the STAD model assisted by the "Utaku" snake and ladder game media improves student learning outcomes in the realm of knowledge and skills. The results showed that the average score of student learning

outcomes in social studies content increased from 76 (67% classical completeness) in the first cycle to 83 (83% classical completeness) in the second cycle. Similarly, in the Indonesian content, the average score increased from 76 to 81, with an increase in classical completeness from 72% to 78% (Ulfa & Ismaya, 2020).

The STAD-type cooperative learning model has been proven to be effective in improving students' learning outcomes, motivation, social skills, and active involvement in various subjects, such as mathematics, science, social studies, and sports, by combining group work and individual reinforcement to overcome low motivation constraints and monotonous learning challenges.

CONCLUSION

The Student Teams Achievement Divisions (STAD) cooperative learning model effectively enhances student learning outcomes, motivation, and social skills across various educational levels and subjects by fostering collaboration, individual accountability, and active engagement, with additional media (e.g., videos, interactive games) further strengthening its impact. Compared to traditional methods, STAD particularly benefits lower-achieving students and aligns with 21st-century demands for collaborative, skill-based learning. Future research should explore integrating STAD with emerging technologies (AI, VR, gamification) to personalize and enrich learning experiences, examining AI-driven adaptations, VR/AR-enhanced teamwork, gamified motivation, hybrid/online implementations, and long-term or cross-cultural effectiveness. Such studies could optimize STAD's relevance in modern, tech-integrated classrooms, promoting inclusivity, engagement, and future-ready competencies.

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