THE EFFECT OF THE STUDENT TEAMS ACHIEVEMENT DIVISIONS (STAD) LEARNING MODEL ON THE SCIENCE LEARNING OUTCOMES OF GRADE IV STUDENTS OF UPTD SD NEGERI 122345 PEMATANGSIANTAR IN THE 2025/2026 ACADEMIC YEAR

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Abstract
This study aims to determine the Effect of Using the Student Teams Achievement Divisions (STAD) Learning Model on the Science Learning Outcomes of Fourth Grade Students of UPTD SD Negeri 122345 Pematangsiantar. This type of research is Quantitative experimental method One Group Pretest-Posttest Design. The population of this study were all fourth grade students of UPTD SD Negeri 122345, totaling 26 students. This research was conducted in August of the 2025/2026 academic year. The test technique that will be given in this study is multiple choice questions on the material of Plant Parts. Data were analyzed using the normality test (Shapiro-Wilk) and the score increase test (N-Gain). The results showed that the average student pretest score was 58.7 with a completion rate of 23%, which then increased to 86.6 with a completion rate reaching 96.2% in the posttest. Based on the results of inferential statistical analysis using the partial test formula or t-test with a frequency (dk) of 26-1 = 25 at a significance level of 5%, 1.708 was obtained and from the results of the student test, $t\_hitung = 15.61$ was obtained. Therefore, $t\_hitung > t\_tabel = 15.61 > 1.708$, which means that H_o is rejected and H_a is accepted, which means that there is an influence of the Student Teams Achievement Divisions (STAD) Learning Model on the learning outcomes of Class IV students of UPTD SD Negeri 122345 Pematangsiantar in the 2025/2026 academic year.

Keywords: *Learning outcomes, Learning models, Influence, STAD*

INTRODUCTION

Advances in science, technology, and communications (IPTEK) are driving the rapid pace of globalization. Globalization not only accelerates the flow of information and technology, but also creates inequality and intensifies competition in various sectors.(Giddens, 1999:64). Globalization can be an opportunity or a threat, depending on how a nation is able to adapt to the changes that occur.(Stiglitz, 2022:89). Therefore, when facing the challenges of globalization, countries need to improve their human resources to meet international demands. Improving the quality of human resources is interwoven with the continuity of education, which plays a vital role in developing the nation's future generations.(Wijayanti, 2020:851).

Education is very important for humans in all aspects of their lives. Education has a big influence on humans to be able to survive by building interactions with others so that their life needs are met properly. Education is realized through a learning atmosphere and learning process so that students actively develop their spiritual and religious potential, self-control, personality, intelligence, noble morals and skills needed by themselves and society. Teaching process activities determine the level of success in achieving learning objectives. "Learning is considered a change in behavior as a result of experience and education." Santyasa (2006:34). Education is a bridge that leads someone to answers to questions that arise in his mind. Through education, a person can satisfy his curiosity as a human being who is blessed with reason and thought.

As stated in Law No. 20 of 2003, education is a conscious and planned effort to actively develop students' potential to possess spiritual and religious strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, and the nation. Education is a process to shape individuals who are not only intellectually intelligent and capable of scientific and philosophical thinking but also able to develop their spirituality.

In the Big Indonesian Dictionary (KBBI) Education is the process of changing the attitudes and behavior of a person or group of people in an effort to mature humans through teaching and training efforts, processes, methods and the creation of educators. Education is the entire process of techniques and methods of teaching and learning in order to transfer knowledge from one person to another in accordance with established standards (Siagian 2006: 273). Teaching and learning activities are not only limited to the delivery of learning materials spontaneously. The role of the teacher is very important in determining the success of the teaching and learning process for all students. In carrying out the teaching and learning process in the classroom, if the teacher does not master the class and the material, the student learning outcomes will not be effective and efficient. Teachers must be able to choose what learning model is suitable to be applied in the teaching and learning process.

However, in reality, most students find learning boring. The boredom experienced by students with conventional learning systems is one factor that exacerbates this situation. Monotonous learning systems and the use of lecture-based learning models can leave students feeling bored and disinterested in classroom learning. The selection of learning methods or models must be thoroughly understood, as this can impact student interest and motivation. Learning systems that prioritize lectures and repetition of material without actively involving students in the learning process often leave students feeling bored. This boredom not only affects students' learning interests but can also impact their attitudes toward education as a whole.

Lack of varied learning styles can lead to students becoming lazy and bored, particularly in science subjects. This perception leads to low student interest in science subjects, which ultimately impacts student learning outcomes. Science education in elementary schools plays a crucial role in introducing basic science concepts to students from an early age. However, despite the importance of science material, many challenges remain in the learning process, such as difficulty understanding abstract concepts and a lack of engaging presentation.

Based on the results of initial observations conducted by researchers in class III of UPTD SD Negeri 122345, data on the results of learning science for class III students in the Semester Exams for the 2024/2025 academic year was found.

Table 1. Data on Science Learning Outcomes of Grade III Students in the Final Semester Exams for the 2024/2025 Academic Year

No.	Mark	Criteria	Number of Students	Percentage
1	>70	Passed	8	30.7%
2	<70	Not pass	18	69.3%
	Amount		26	100%

Source: (Grade III Grade Data from UPTD SD Negeri 122345)

From table 1 above, it shows that students who got a score ≥ 70 were categorized as complete (70-100) as many as 8 students with a completion percentage of 30.7% and students who got a score ≤ 70 were categorized as incomplete as many as 18 students with a completion percentage of 69.3%.

Based on the results of interviews conducted by researchers with homeroom teachers III on June 10, 2025 at SD Negeri 122345 Pematangsiantar in the even semester of the 2025/2026 academic year regarding student learning outcomes in the subject of science for grade III students totaling 26 students, it is still relatively low as can be seen from the results of the table above, researchers found that there were obstacles that occurred in grade III, namely there were still many students who got scores below the KKTP, and students were also less active in participating in science learning. The role of teachers is very dominant in student learning outcomes, namely the abilities they will have later. These abilities include the cognitive, affective and psychomotor domains of students. Thus, the use of learning methods is very necessary in the learning process. Provision of learning methods carried out by teachers to students in the learning process as one of the requirements for achieving student learning outcomes.

This phenomenon requires changes in the learning process so that the teaching and learning process can be carried out well by actively involving students, thus fostering a spirit of learning. Therefore, teachers can use cooperative learning and choose effective learning models that can also create enjoyable learning in the classroom. In line with Slavin's theory (2005:143), the STAD learning model is a cooperative learning strategy where students with certain genders, ethnicities, and academic abilities are divided into several groups of 4-5 people. Overall, the learning model is simple. *Student Teams Achievement Divisions* STAD is a cooperative learning strategy that divides students into small groups with varying academic abilities to work together to achieve learning objectives. Cooperative learning is a learning strategy where small groups of students work together to maximize learning conditions to achieve learning objectives.

From the problems above, one of the cooperative learning models that can be used isStudent Teams Achievement Divisions (STAD) Learning Model.According to Widayati (2019:142) cooperative learning type*Student Teams Achievement Divisions*(STAD)is a type of cooperative learning model that uses small groups of 4-5 students in a heterogeneous manner. It begins with the presentation of learning objectives, presentation of material, group activities, quizzes, and group awards. The cooperative learning model arises from the concept that students will more easily discover and understand difficult concepts if they discuss them with their peers. The teacher delivers a lesson, and the students in the group ensure that all group members have mastered the lesson.

With learning model*Student Teams Achievement Divisions*(STAD)Students are trained to work together, respect each other's opinions, and are taught the meaning of diversity. Cooperative learning*Student Teams Achievement Divisions*(STAD)It creates a pleasant learning atmosphere, increases student interaction and cooperation both within their groups and with the teacher, and creates a conducive teaching and learning environment. Competition within groups can also foster student motivation, which in turn impacts student learning outcomes.

Learning model*Student Teams Achievement Divisions*(STAD)One learning model that can be applied to various subjects. This model's implementation utilizes a blend of the abilities of participants within their respective groups, each with varying academic abilities. Furthermore, this model can be applied to motivate students to express their opinions, respect the opinions of others/friends, and share their own opinions. Therefore, this type of cooperative learning...*Student Teams Achievement Divisions*(STAD)This is very good to implement because students work together to share their opinions in solving the tasks/problems they face.

This is supported by research by Ecep Suriat (2022), who stated that the use of the Student Teams Achievement Division (STAD) learning model can influence and improve student learning outcomes. The increase in student learning outcomes is evident in the increase in the percentage of completion, which was 28.57% in cycle I, increasing to 68.57% in cycle II. Furthermore, research by Siska (2022) suggests that the Student Teams Achievement Division (STAD) learning model has an impact on student learning outcomes. This is evidenced by the excellent learning outcomes of students using the Student Teams Achievement Division (STAD) model, with an average score of 80.64. There is also research by Trianto (Widayati 2019:142).concluded that the Student Teams Achievement Divisions (STAD) learning model is a form of cooperative learning conducted in small groups of 4–5 students with heterogeneous composition (different abilities, gender, or background). The main goal is to encourage cooperation between students to help each other understand the material and achieve shared achievements.

METHOD
1. Type of Research
This research is a quantitative study using an experimental research method. Experimental research can be defined as a research method used to determine the effect of certain treatments on others under controlled conditions.(Sugiyono, 2016:67).

In this research, the author used a design known as the One-Group Pretest-Posttest Design. This study involved only one class, and that class was an experimental class, which was first given a pretest and then given the treatment. The research method used in this study was an experimental method with a One Group Pretest-Posttest Design. Research Design One Group Pretest-Posttest Design is a research design that can connect the study of independent variables and dependent variables. In this design, researchers from one group pretest-posttest only use one class without a comparison class.

Research design is the plan for how research will be conducted. The research design used in this study is a one-group pretest-posttest design. In this design, the sample is given a pretest (initial test) before treatment is administered, and a posttest (final test) at the end of the study. This design is used in accordance with the intended goal of determining improvements in science process skills and student learning outcomes. The following table shows the one-group pretest-posttest design:

Table 2. One Group Pretest-Posttest Design research design

Pre-test	Treatment	Post-test
O1	X	O2

(Sugiyono, 2016)

Information:

O1 = Initial test (pretest) before treatment is given
O2 = Final test (posttest) after treatment is given
X = Providing treatment (treatment)

Based on the table pattern above, it's clear that the pretest was administered before the treatment, while the posttest was administered after the treatment. This research pattern is simple. However, it's important to remember that the difference in pretest and posttest results reflects the effect of the treatment.

2. Time and Location of Research

This research will be conducted in August of the odd semester of the 2025/2026 academic year at the UPTD of SDN 122345 Pematangsiantar. This research will be conducted at the UPTD of SD Negeri 122345 located in Siantar Timur District, Pematangsiantar City in the odd semester of the 2025/2026 academic year.

3. Research Population and Sample

Population is a collection of elements that are the object of research (Munirah, 2019). In accordance with these limitations, the population in this study is all 26 students of Class IV of UPTD SDN 122345 Pematangsiantar.

A sample is defined as a portion of the subjects in a population being studied, considered representative of the population. Sampling is one of the main keys to successful research (Sutrisno 2017:45). The sampling technique used in this study was total sampling. This technique involves taking the entire population as a sample.

Table 3. Sample Conditions

No	Class	Man	Woman	Amount
1	IV	10	16	26
Number of Students				26

(Source: Data from the Class IV homeroom teacher of UPTD SDN 122345 Jl. Thamrin)

Based on the table pattern above, it's clear that the pretest was administered before the treatment, while the posttest was administered after the treatment. This research pattern is simple. However, it's important to remember that the difference in pretest and posttest results reflects the effect of the treatment.

4. Data Collection Techniques

Data collection techniques are the most strategic step in research, as the primary goal of research is to obtain data. Without understanding data collection techniques, researchers will not obtain data that meets established data standards.(Sugiyono, 2016:45). Data collection techniques in this study were carried out in several ways, namely as follows:

1. Observation
   The observation technique is to systematically observe and record the objects being studied, this aims to directly observe the learning conditions that occur in the classroom, both before using Interactive Animation Media and after using Interactive Animation Media.
2. Test (Pretest and Posttest)
   Researchers gave students multiple-choice questions related to the material to be taught. This test was administered twice: before and after the learning activity. The first test was called a pretest. A pretest is given at the beginning of the lesson to determine students' initial abilities. After the treatment (learning process) was administered, a posttest was administered. The posttest is given after the learning activity and aims to determine students' abilities after participating in the learning process. The pretest and posttest consisted of 40 multiple-choice questions.
3. Documentation
   Documentation is a tool used to provide a clearer picture of the learning situation, documentation carried out by researchers, namely observing the condition of the teacher, the condition of the students, the condition of the facilities/infrastructure and taking pictures/photos as evidence or signs that Interactive Animation media has been implemented in the Science subject with the material "Plants, the Most Important Process on Earth".

RESULTS AND DISCUSSION

This section will describe the results found in the study. The results in question are conclusions drawn based on the collected and analyzed data. This study aims to determine whether there is an effect of the Student Teams Achievement Divisions (STAD) Learning Model on the Science Learning Outcomes of Grade IV Students at the UPTD of Elementary School 122345 Pematangsiantar in the 2025/2026 academic year.

This research instrument was in the form of test questions as a tool to measure students' cognitive abilities. Before the questions were given to the research subjects, each item underwent a feasibility test to ensure that the instrument was suitable and could be used as a measurement tool in the research. The first test was a validity test, then the valid questions were tested for reliability, item discrimination power, and item difficulty level. The results showed that 25 of the 30 items were declared valid and reliable with a very high reliability coefficient (0.960). The items used were also able to differentiate students well based on their ability levels. The level of difficulty of the questions was evenly distributed, with the majority being in the moderate to easy category, which is suitable for use by elementary school students, especially fourth grade students. Therefore, the 25 questions can be used as a measurement tool during the research.

During the research timeline, data collection was conducted by giving students two questions to answer: a pretest given before the treatment and a posttest given after the treatment. The pretest results were quite concerning, as only six of the 26 students met the Learning Objective Achievement Criteria (KKTP). The average score obtained by students was also quite low, at 58.7. Meanwhile, the posttest results showed a significant increase. Twenty-five students were declared to have completed the course, and the average score increased sharply to 86.6. This indicates that the use of the Student Teams Achievement Divisions learning model has a positive impact on student understanding. In fact, the highest score reached 100, and only one student did not achieve the Learning Objective Achievement Criteria (KKTP). Overall, this improvement was very clear when compared to the pretest results.

The pretest is to test students' mastery of the material or material taught before receiving treatment, and the posttest is to test students' mastery of the material after receiving treatment. All pretest and posttest data were analyzed by testing their normality using the Shapiro-Wilk test. The results showed that the average pretest score was 58.7. And the average posttest score was 86.6. The results of the normality test analysis showed that the pre-test and post-test data were normally distributed because the Sig. value was > 0.05. The pre-test data had $0.079 > 0.05$, and the post-test data had a value of $0.403 > 0.05$. After the normality test was carried out, an N-Gain analysis was carried out which was calculated based on the pretest and posttest scores. Based on the results of the N-Gain test, it was concluded that there was an increase with the criteria of the N-Gain Score value of 0.6930 or categorized as moderate and the N-Gain Percent of 69.2971% which shows that the Student Teams Achievement Divisions Learning Model is quite effective in improving the learning outcomes of Grade IV Students in Science. After fulfilling the test requirements, namely the normality test and the N-gain test, the hypothesis testing was carried out. Inferential statistical analysis technique using partial test formula or t test with frequency (dk) of 26-1=25 at 5% significance level obtained 1.708 and from the results of the student test obtained $t\_hitung = 15.61$. Therefore $t\_hitung > t\_tabel = 15.61 > 1.708$ which means H_o is rejected and H_a is accepted which means that there is an influence of Student Teams Achievement Divisions (STAD) Learning Model on the learning outcomes of Class IV students of UPTD SD Negeri 122345 Pematangsiantar TA 2025/2026.

The results of the analysis above which indicate the influence of the Student Teams Achievement Divisions (STAD) Learning Model are in line with the results of the observations made. The results of the observations show that students experienced changes, some students did other activities at the beginning of the lesson, and some were less focused during the lesson. Students were not very active when the meeting began. However, students began to be actively involved in the learning process when the Student Teams Achievement Divisions (STAD) Learning Model was used. Based on the results of the analysis obtained and the results of the observations that have been made, it can be concluded that there is an influence of the Student Teams Achievement Divisions (STAD) Learning Model on the Learning Outcomes of Fourth Grade Students in the UPTD of SD Negeri 122345 Pematangsiantar in the 2025/2026 Academic Year.

CONCLUSION

Based on the results of the research that has been done, it can be seen that the Student Teams Achievement Divisions (STAD) Learning Model has an influence on the learning outcomes of fourth grade students in the UPTD of Public Elementary School 122345 Pematangsiantar in the 2025/2026 Academic Year in the Plant Body (Leaves) section. This can be seen from the increase in the average value of students, namely the average value of students at

the time of the pre-test of 58.7 and the average value of students at the time of the post-test of 86.6. The results of the N-Gain test show that most students experienced an increase in understanding with an average N-Gain score obtained of 0.6930 and an average N-Gain Percent of 69.2971%, so it is classified as a moderate category. In addition, a t-test was conducted, obtained Data on student test results obtained t count of 15.61 and t table of 1.708 with an error rate of 5%. Thus, thitung > ttabel which means Ho is rejected and Ha is accepted, meaning there is a significant difference between student learning outcomes before using the Student Teams Achievement Divisions (STAD) Learning Model and after being given action with the Student Teams Achievement Divisions (STAD) Learning Model, so that student scores increase with an average score of 86.6.

REFERENCES

A. Octavia, S, 2020. Learning Models. Yogyakarta: CV Budi Utama.

Abrori, AN, Sumadi, CD, Telang, JR, Kamal, K., Bangkalan, K., Jawa, P., & Kode, T. (2023). The Effect of the STAD Type Cooperative Learning Model on the Learning Activity of Grade 2 Students at SDN Morkoneng 1. Journal of Educational Science Innovation, 1(4), 296–315. https://doi.org/10.55606/lencana.v1i4.2385

Adya Winata, K., & Hasanah, A. (2021). Implementation of the Social Interaction Learning Model to Improve Student Character. Journal of Education, 9(1).

Afidah, A. (2020) 'The Effect of the Student Teams Achievement Divisions (STAD) Cooperative Learning Model on the Thematic Learning Outcomes of Class V Students of MI Hidayatul Mubtadi'in Tegalsari Barat, Ampelgading District, Pemalang Regency, 2019-2020 Academic Year', Jurnal Ibtida, 1(1), pp. 1–19. Available at: https://journal.stitpemalang.ac.id/index.php/ibtida/article/view/ 182/152.

Agusti, NM, & Aslam, A. (2022). The Effectiveness of Wordwall Application Learning Media on Elementary School Students' Science Learning Outcomes. Basicedu Journal, 6(4), 5794–5800. https://doi.org/10.31004/basicedu.v6i4.3053

Ahmad Rivai, Sudjana Nana (2013). Teaching Media. Bandung: Sinar Baru Algesindo

Ahmad, TP (2024). Planning meaningful learning and independent curriculum assessment. Scientific Journal of Pedagogy, 20(1), 75–94.

Aningsih, Sugiharti, RE, & Uhrifah, A. (2023). Application of the STAD (Student Team Achievement Divisions) Cooperative Model to Improve Student Learning Outcomes in Elementary Schools. Basicedu Journal, 7(6), 3602–3615. https://doi.org/10.31004/basicedu.v7i6.6342

Anitah W., Sri, DKK (2017): Learning Strategies in Elementary Schools, Banten: Open University

Ansari, B.I., Junaidi, J., Maulina, S., Herman, H., Kamaruddin, I., Rahman, A., & Saputra, N. (2023). Blended-Learning Training and Evaluation: A Qualitative Study. Journal of Intercultural Communication, 23(4), 155–164. https://doi.org/10.36923/jicc.v23i4.201

Anwar, RN, & Azizah, N. (2020). Early Childhood Care in the New Normal Era: An Islamic Perspective. Thufuli: Scientific Journal of Islamic Education for Early Childhood, 2(2), 1. https://doi.org/10.33474/thufuli.v2i2.8966

Asrini. (2021). Strategy for Improving the Quality of the Learning Process Through the Problem-Based Instruction Model. Jurnal Bina Ilmu Cendekia, 2(2), 142–148. https://doi.org/10.46838/jbic.v2i2.114

Asyafah, A. (2019). Considering Learning Models (A Theoretical-Critical Study of Learning Models in Islamic Education). Journal of Islamic Education, Vol. 6 No. 1.

Damayanti, A. (2022). Factors Influencing Student Learning Outcomes in Economics Subject of Class X SMA Negeri 2 Tulang Bawang Tengah. SNPE FKIP Universitas Muhammadiyah Metro, 1(1), 99–108.

Faizah, Silviana Nur. (2017). The Nature of Learning and Teaching. At-Thullab: Journal of Elementary School Teacher Education, 1, no. 2:275-185

Fathurrohman, Muhammad. 2016. Innovative Learning Models. Yogyakarta: Ar-ruzz Media.

Fikri Nur Syamsu, Intan Rahmawati, Suyitno (2019). The Effectiveness of the STAD Learning Model on Mathematics Learning Outcomes in Spatial Geometry. International Journal of Elementary Education. Volume 3, Number 3, 2019, pp. 344-350.

Giddens, Anthony. 1999. The Third Way The Renewal of Social Democracy Translated by Ketut Arya Mahardika. Jakarta: Gramedia Pustaka Utama.

Henniwati, H. (2021). The Effectiveness of Problem Based Learning Method to Improve Mathematics Learning Outcomes on the Topic of Determinants and Matrix Inverses for Grade X MM1 Students of SMK Negeri 1 Kabanjahe in the Even Semester of the 2019/2020 Academic Year. Serunai: Scientific Journal of Educational Sciences, 7(1), 83–88. https://doi.org/10.37755/sjip.v7i1.424

Herman, H., Shara, AM, Silalahi, TF, Sherly, S., and Julyanthry, J. (2022). Teachers' Attitude Towards Minimum Competency Assessment at Sultan Agung Senior High School in Pematangsiantar, Indonesia. Journal of Curriculum and Teaching, 11(2), 01-14. DOI: https://doi.org/10.5430/jct.v11n2p1.

Isjoni.2009. Cooperative Learning Improves Communication Intelligence among Students. Yogyakarta: Pustaka Pelajar.

Isriani & Puspitasari, D. (2015). Integrated Learning Strategy: Theory, Concept & Implementation. Yogyakarta: Rela Inti Media Group.

KBBI (Big Indonesian Dictionary). Online version of the dictionary. Accessed December 10, 2020. https://kbbi.web.id/didik

Khasanah, U., Herman, H., Pratama, HC, & Darodjat, D. (2024). THEMATIC LEARNING: CONCEPT, APPLICATION, AND ASSESSMENT. Surakarta: Tahta Media Publisher. Retrieved from https://tahtamedia.co.id/index.php/issj/article/view/785

Komalasari, Kokom. 2010. Contextual Learning: Concepts and Applications. Bandung: Refika Aditama

Mariani, M., Butarbutar, M., Siahaan, Y., Silalahi, M., and Herman, H. (2022). The influence of digital literature, creativity, and learning motivation in the era of society 5.0 on student learning outcomes of the Holy Kalam Suci (Holy Kalam) at SD Christian Elementary School in Pematang Siantar: A review from a parent's perspective (a case study of science class V). Sultanist: Journal of Management and Finance, 10(2), 177-186. DOI: https://doi.org/10.37403/sultanist.v10i2.443

MATH, IPS Abdurrahman, Mulyono. 2018. Mathematics Learning Objectives. Jakarta: Prima. Amir, Sofan. 2013. Development and Learning Models in the 2013 Curriculum. Jakarta: Pretasi Pustakarya. Aqib, Zainal. 2013. Models, Media, and Learning Strategies. Mahakam Journal of Elementary Education, 2014, 1.1: 54-64.

Nasution, T., Meliani, F., Purba, R., Saputra, N., and Herman, H. (2023). Participation Performance of Students' Basic Teaching Skills in Microteaching. Al-Ishlah: Jurnal Pendidikan, 15(2), 2441-2448. DOI: https://doi.org/10.35445/alishlah.v14i4.2307

Nirmala, M., Mega, A., & Timoteus, T. (2024). Improving Learning Outcomes by Using the Problem Based Learning (PBL) Learning Model on the Opportunity Material for Class VIII Students of SMPK St. Theresia Kupang. Journal on Education, 06(02), 12296–12301.

Purba, Jon Roi Tua, et al. 2023. Teaching and Learning Strategies. Medan: Edupedia Publisher

Purba, R., Herman, H., Purba, A., Hutauruk, AF, Silalahi, DE, Julyanthry, J., and Grace, E., (2022). Improving teachers' competence through the implementation of the 21st-century competencies in a post-COVID-19 pandemic. Jurnal Masyarakat Mandiri, 6(2), pp. 1486-1497. DOI: https://doi.org/10.31764/jmm.v6i2.7340

Rusman. 2010. Learning Models (Developing Professionalism. 2nd ed. Jakarta: Raja Grafindo Persada.

Santyasa, IW (2006). Innovative Learning: Collaborative Model, Project-Based, and NOS Orientation. Paper. Semarapura: Ganesha University of Education.

Seminar, P., Hdpgsdi, N., & Iv, W. (2017). COGNITIVE, AFFECTIVE AND PSYCHOMOTOR LEARNING OUTCOMES THROUGH THE USE OF LEARNING JOURNALS FOR PGSD STUDENTS Elsinora Mahananingtyas. 192–200.

Shoimin, Aris. 2017. 68 Innovative Learning Models in the 2013 Curriculum. Yogyakarta: Ar-. Ruzz Media.

Sianturi, HW., Panjaitan, MB, & Sihombing, LN (2024). The Effect of the Student Teams Achievement Divisions (STAD) Learning Model on Elementary School Students' Social Studies Learning Outcomes. Basicedu Journal, 8(3), 1793–1803. https://doi.org/10.31004/basicedu.v8i3.7485

Simamora, N., Manurung, AA, Sinaga, YB, Siregar, EAR, Manurung, RGH, Herman, H., and Sinaga, JAB (2023). Analysis of Literacy Culture in Developing Reading Interest in Public Elementary School 154500 Aek Tolang. Journal on Teacher Education, 4(3), 196-203. DOI: https://doi.org/10.31004/jote.v4i3.12244

Simamora, A. 2024. Cooperative Learning Model. West Java: Indonesian Bright House Association.

Simanjuntak, MM, Saputra, N., Afrianti, D., Mulyadi, J. and Herman. (2022). Implementing Multimodal Literacy to Improve Students' Ability in Literacy for Classroom Practice. Sarcouncil Journal of Education and Sociology, 1(4), pp 1-5

Slameto. 2010. Learning and the Factors That Influence It. Jakarta: Rineka Cipta

Stiglitz, Joseph Eugene. 2022. Globalization and Its Discontents. United States: WW Norton & Company.

Sudrajat, Ahmad. 2010. Cooperative Learning Jigsaw Technique. Online: akhmadsudrajat.wordpress.com.

Sugiyanto. 2010. Innovative Learning Models. Surakarta: Yuma Pressindo

Sugiyono. (2014). Educational research methods: Quantitative, qualitative, and R&D approaches. Bandung: Alfabeta.

Sugiyono. (2016). Quantitative, qualitative, and R&D research methods. Bandung: Alfabeta.

Sugiyono. (2019). Quantitative, qualitative, and R&D research methods. Bandung: Alfabeta.

Sunarti, S. (2021). Improving Student Learning Outcomes in Mathematics Using the Gasing Mathematics Learning Method in Elementary Schools. TANGGAP: Journal of Research and Innovation in Elementary Education, 2(1), 29–38. https://doi.org/10.55933/tjripd.v2i1.263

Susanto, Ahmad. 2011. Learning and Teaching Theory in Elementary Schools. Jakarta: Kencana Prenada Media Group.

Trianto. (2022). Innovative HOTS-Oriented Learning Models. Jakarta: Prestasi Pustaka

Wijayanto, PW, Priyatiningsih, N., Herman, H., Sudadi, S., and Saputra, N. (2023). Implementation of Problem-Based Learning Model to Improve Early Childhood Abilities in Creative Thinking. Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 7(1), 1017-1023. DOI: 10.31004/obsesi.v7i1.3909

Wijayanti, MS, and Brata, DPN 2020. "The Role of Community Leaders in." Proceedings of the Conference on Research and Community Services 2 (1): 850–861. https://ejournal.stkipjb.ac.id/index.php/CORCYS/article/view/1667/1402.

Wulandari, Inayah. (2022). STAD (Student Team Achievement Divisions) Learning Model in MI Learning. PAPEDA Journal. 4(1), 17-23.

Yandi, A., Nathania Kani Putri, A., & Syaza Kani Putri, Y. (2023). Factors Influencing Student Learning Outcomes (Literature Review). Indonesian Journal of Cyber Education, 1(1), 13–24. https://doi.org/10.38035/jpsn.v1i1.14

Yeni, W.M., Hanesman, Jasril, I.R., & Anori, S. (2023). The Effect of the STAD Cooperative Learning Model on Vocational High School (SMK) Student Learning Outcomes. J-HyTEL: Journal of Hypermedia & Technology-Enhanced Learning, 1(3), 136–145. https://doi.org/10.58536/j-hytel.v1i3.92

Yoseva, T. (2023). The Effect of Using the Student Team Achievement Divisions (STAD) Cooperative Learning Model on Student Learning Outcomes in Islamic Religious Education Subjects at Sumber Agung Elementary School. 6–12

Zendrato, EP, Ambarita, HB, Budu, PF, Herman, H., and Siahaan, TM (2023). Teachers' Efforts to Improve Discipline of Grade 2 Students at GKPS II Pematang Siantar Private Elementary School in the Online Learning Process Using the Video Media Method. Journal on Teacher Education, 4(3), 181-187. DOI: https://doi.org/10.31004/jote.v4i3.12228