Increasing Motivation of 8th Grade Students at SMPN 2 Telukjambe Barat to Learn Elements through the STAD Model

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Article Info	ABSTRACT
	Natural Sciences have many aspects that are difficult for students to understand, making it difficult for students to be motivated to study Science. Even though motivation is very important in learning activities because learning without or lacking motivation will not be optimally successful. The learning model is one of the factors that significantly influences learning motivation. One learning model that has been widely applied to improve the quality of learning is the student teams achievement division (STAD) type cooperative learning model. This research aims to improve the quality of science learning, specifically the elemental material in terms of increasing student learning motivation by implementing the STAD type cooperative learning model in 8th grade student of SMPN 2 Telukjambe Barat. The research methodology used is classroom action research with student evaluation sheets, Teacher Performance Assessment Tool forms, and observation sheets as research instruments. The results of data analysis revealed that there was an increase in the average student test score from 30.86 to 49.43. The value of teaching modules and the value of learning improvement practices also increased. On the observation sheet there are also additional criteria marked as existing (appearing). Based on this, it can be concluded that the student team's achievement division (STAD) type cooperative learning model can increase the motivation to learn science material for 8th grade students at SMPN 2 Telukjambe Barat.

INTRODUCTION

Education is very important for human life. Education plays a hug role in providing and advancing reliable Human Resources (HR) who can compete fairly (Alpian et al., 2019). The continuity and success of the teaching and learning process in education, apart from being influenced by intellectual factors, is also influenced by non-intellectual factors, one of which is students' ability to motivate themselves. Motivation is very important in learning activities because motivation can encourage enthusiasm for learning, and vice versa, lack of motivation will weaken enthusiasm for learning. Students who study without or lack of motivation will not succeed optimally (Suharni, 2021).

Natural Sciences is one of the subjects in junior high school. Science subjects have many aspects that are difficult for students to understand, making it difficult for

students to be motivated to study science (Faizzah et al., 2022). Apart from that, the opinion of most students that science is difficult to understand makes them think science is a scary thing to learn (Sridadi, 2020). Meanwhile, from the teacher's side, Widiastiti & Sumantri (2020) said that sometimes science is still seen as the most difficult subject for teachers to teach. Most teachers still have difficulty determining the right learning model, namely one that suits the science subject material to be taught. Students are less active in exploring science learning. This causes students to lack concentration in studying and are not interested in science subjects, making students less motivated in studying science. The low motivation of students in studying science as mentioned by (Prayogi et al., 2023) can be overcome by implementing a learning model that is able to attract students' interest and motivate learning, namely an innovative learning model.

Efforts to increase motivation and learning outcomes depend on various factors that influence them, one of which is teachers who are innovative and creative in implementing learning models that can improve students' thinking processes (Yohana, 2023). The learning model is one of the factors that significantly influences learning motivation (Lestari & Irawati, 2020). One of the learning models that is in the spotlight is the cooperative learning model. The cooperative learning model emphasizes cooperation and interaction between students to achieve learning goals. This model aims to create a collaborative learning environment; namely, students support each other, work together, and learn together. This model places students in small, heterogeneous groups, that is, each group member has their own role and responsibility so that they depend on each other to achieve learning goals (Sappaile et al., 2023).

Student teams achievement division (STAD) learning is a type of cooperative learning that requires interaction between students to motivate each other and help each other in learning material and achieving achievements. Working in groups gives students more freedom to ask their group friends about material they have not yet mastered. Students in learning using the STAD type cooperative learning model are divided into small groups consisting of 4-5 students with different levels of ability to jointly complete group assignments in the form of working together collaboratively in understanding the lesson (Wulandari, 2022). Students are not only grouped based on differences in academic ability, but also based on differences in gender, race and ethnicity. The STAD learning model is the most widely researched type of cooperative learning. This model is also the best model for encouraging students to help each other and encourage each other to master the material. The STAD model is the best learning model for teachers who are new to using a cooperative approach. The STAD model involves competition between groups. The success of the group in learning using the STAD model depends on the success of each group member in the individual test which is held at the end of the lesson so that each group member cannot depend on other members when taking the test (Syamsu et al., 2019).

The STAD learning model is the simplest cooperative learning approach because the learning activities carried out are still closely related to conventional learning (Asmedy, 2021). The STAD model can unite various students' thoughts in one group. Students are given the freedom to collaborate with their peers to collaborate in the form of group discussions to solve a problem. Students at the discussion stage are

trained to have the courage to express opinions and be active in learning. The STAD type cooperative learning model consists of five main components, namely class presentation, group activities, quiz work, calculating individual progress scores, and giving group awards (Rofi'ah, 2021).

The STAD type cooperative learning model has been studied to increase junior high school students' motivation in studying science; specifically elements, compounds and mixtures. This study was carried out by Israil (2019). Israil (2019) revealed that the implementation of the STAD type cooperative learning model in science learning on elements, compounds and mixtures can increase students' learning motivation as indicated by an increase in the percentage of learning completion in cycle II. The percentage of student learning completion in this study increased from 33% during cycle 1 to 91% during cycle 2.

Based on the problems above, the author wants to improve the quality of science learning, specifically the elemental material; in terms of increasing student learning motivation by implementing the STAD type cooperative learning model in class VIII SMPN 2 Telukjambe Barat.
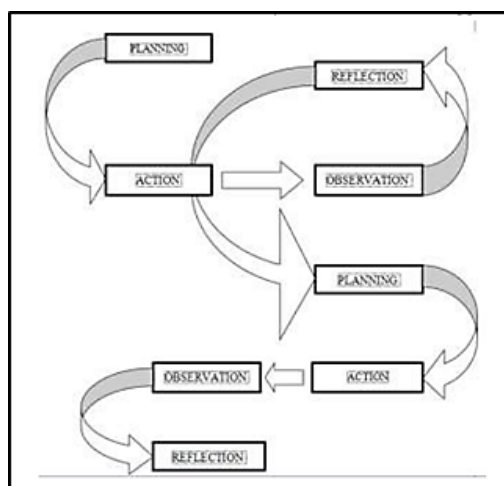
METHODS

Figure 1. Classroom action research (CAR) cycle (Putra et al., 2021)

This research method uses classroom action research (CAR). Wardani & Wihardit (2022) revealed that classroom action research is research carried out by teachers in their own classes which is carried out through self-reflection which aims to improve the quality of their work as teachers so that student learning outcomes can improve. The subjects in this research were 35 of 8th grade students (VIII G) at SMP Negeri 2 Telukjambe Barat. The data analysis technique for this research uses quantitative and qualitative descriptive analysis techniques. The flow of research implementation can be seen in Figure 1.

Data collection is carried out by filling in student evaluation sheets (quizzes) by students. Students who get a quiz score of more than or equal to the minimum completeness criteria, namely 70, can be said to have completely mastered the material. Data collection is also carried out by filling in the Teacher Performance Assessment Tool (TPAT) 1 and 2 forms by Supervisor 2. TPAT 1 form is for assessing teaching modules, while TPAT 2 is for assessing the practice of implementing learning

improvements. The better the teaching module created, the closer the score obtained on the TPAT 1 form will be to 5. Likewise in terms of practice. The better the practice implemented, the closer the score obtained on the TPAT 2 form will be to 5. Apart from the TPAT form, data collection by Supervisor 2 is also carried out by filling in an observation sheet. The teacher's practice of improving learning is considered to be better if more criteria on the observation sheet are marked as existing (appear).

RESULT AND DISCUSSION

Based on the implementation of cycle 1 of this research, data was obtained in the form of student test scores as shown in Table 1.

Table 1. Student test scores in Cycle 1

Student Name (initials)	Scores Test	Information	
		Completed	Not Completed
Aaf	40		✓
AN	40		✓
Aap	40		✓
AF	0		✓
BW	20		✓
DS	0		✓
DY	0		✓
DA	20		✓
FRN	40		✓
FD	0		✓
HM	30		✓
I	40		✓
IDPH	70	✓	
KA	50		✓
MS	70	✓	
MA	50		✓
MASu	100	✓	
MASa	0		✓
MR	70	✓	
MI	0		✓
NHZ	60		✓
NAN	60		✓
NY	0		✓
P	0		✓
RPM	30		✓
RF	0		✓
RFA	0		✓
S	0		✓
SN	40		✓
SH	20		✓
SK	10		✓
SIC	40		✓
TNA	50		✓
YNR	90	✓	

ZDP	0		✓
Amount	1080	5	30
Average	30.86		

Based on Table 1, it is known that only 5 out of 35 students whose test scores have reached the minimum completeness criteria (≥70), with an average score of 30.86. This shows that there are still many students who have not completely mastered the material. A total of 30 students who have not mastered the material indicates that the motivation to learn science in these 30 students has not yet emerged.

The large number of students during cycle 1 who had not yet mastered the material could be caused by students still adapting to the student teams achievement division (STAD) cooperative learning model. Teachers of class VIII G students at SMPN 2 Telukjambe Barat—in this case the author—have been carrying out science learning without a specific learning model. Most of the methods used are lecture methods. This further correlates why during cycle 1 most of the students had not yet completed their mastery of the material.

The same thing also happened in Israil (2019)'s study. Cycle 1 in this study did not achieve complete learning because students were not used to it and had never experienced learning using the STAD type cooperative learning method. Students in this study were still passive in participating in learning. This can be seen from the lack of communication between students during group discussions, the lack of student awareness in answering student discussion sheets, and the presence of students who expect answers from their friends. Apart from the students' side, the cause is also from the teachers' side who are still less able to manage classes using the STAD learning model.

Incomplete student learning in cycle 1 can also be caused by the incomplete implementation of the STAD type cooperative learning model. This is what happened in Israil (2019)'s study. Cycle 1 of Israil (2019)'s study was not perfect in terms of the number of evaluation questions being too many, the inactivity of some students in discussions, the presentation of student discussion results being uneven, the teacher's attention to all groups being uneven, there was no control from the teacher over students who were not active in certain groups, and teachers do not provide reinforcement and feedback to students. As for this research, based on the reflection that has been carried out, the implementation of cycle 1 has not been perfect in terms of the lack of use of special learning media due to limited facilities and infrastructure in schools. The laboratory at SMPN 2 Telukjambe Barat has not been able to provide pure elements such as iron, gold, silver, copper and tin as requested by the source book for practical materials for identifying elements. Apart from that, the large number of questions on the student worksheets given to students makes students feel difficult when working on them within the specified time duration.

Meanwhile, in Cycle 2 of this research, student test scores were obtained as shown in Table 2. Based on Table 2, in cycle 2 there was an increase in the number of students whose test scores had reached the minimum completeness criteria, with an average score of 49.43. Some students experienced an increase in their grades and some experienced a decrease. As many as 7 students experienced a decrease in their scores, as many as 8 students had constant scores, and the remaining 20 students experienced an increase in their scores with 17 of them scoring ≥70. A total of 7 students

experienced a decline in their scores, 4 of whom got a score of 0 in cycle 2. Meanwhile, among the 8 students whose scores were constant, 6 of them got a score of 0 in both cycles. A score of 0 is known as not taking the quiz. A total of 4 out of 7 students who initially took the quiz in cycle 1 then did not take the quiz in cycle 2, indicating a decrease in motivation to learn science. There were 6 out of 8 students who did not take the quizzes in cycles 1 and 2, indicating that the motivation to learn science had not yet emerged in these 6 students.

Table 2. Student test scores in Cycle 2

Student Name (initials)	Scores Test	Information	
		Completed	Not Completed
Aaf	30		✓
AN	40		✓
Aap	80	✓	
AF	50		✓
BW	30		✓
DS	80	✓	
DY	10		✓
DA	80	✓	
FRN	0		✓
FD	70	✓	
HM	80	✓	
I	40		✓
IDPH	100	✓	
KA	100	✓	
MS	90	✓	
MA	60		✓
MASu	90	✓	
MASa	0		✓
MR	100	✓	
MI	0		✓
NHZ	70	✓	
NAN	0		✓
NY	80	✓	
P	100	✓	
RPM	70	✓	
RF	0		✓
RFA	0		✓
S	0		✓
SN	70	✓	
SH	0		✓
SK	0		✓
SIC	60		✓
TNA	70	✓	
YNR	80	✓	
ZDP	0		✓
Amount	1730	17	18
Average	49.43		

Based on the reflection that has been carried out regarding the implementation of cycle 2, some students still do not have motivation and there are students who experience a decrease in motivation because some students do not bring smartphones to school or bring smartphones but do not have internet access. Working on questions in the student worksheets and quizzes does require the internet. Although some answers to these questions can be found in the source book, the answers in the source book are not very complete and the ability to search for answers on the internet aims to broaden students' horizons. Martin et al. (2022) said that the internet can be used as a source other than books to make it easier to find as much information as possible quickly. Utilizing the internet as a learning resource allows students to learn independently (Martin et al., 2022). This is in accordance to learn with the STAD model which requires students to work together with their group friends in understanding the learning material. Apart from that, in an era where information and communication technology is increasingly sophisticated, students are required to be familiar with and interact frequently with technology. For this reason, the teacher allows students to explore their student worksheets answers from various sources on the internet and the teacher also evaluates students with quizzes which are carried out online (Google form).

In connection with the above, therefore, students who do not bring a smartphone or carry a smartphone but do not have internet access; they become confused about how to solve the student worksheets questions and quizzes. Some groups even have members who don't bring a cellphone or some who do but don't have an internet quota. This can be resolved when students are still in the group activity stage (second stage of the STAD model), namely by borrowing cellphones from other groups, many of whose members carry cellphones with internet quota. However, when students are at the individual test stage (the third stage of the STAD model), students who do not bring a cellphone with internet quota or do not bring a cellphone at all cannot borrow a cellphone from a friend because each student is busy with his own quiz which must be completed within the duration. certain time. The confusion created by not bringing a cellphone with internet quota or by not bringing a cellphone at all makes students unmotivated to participate in learning well.

Based on the discussion above, it is known that by implementing the student team's achievement division (STAD) type cooperative learning model in learning can increase students' science learning motivation as proven by an increase in the number of students whose test scores have met the minimum completeness criteria. Furthermore, apart from getting used to applying the STAD learning model to students while perfecting the implementation process, teachers must also perfect other learning tools such as learning media. The learning media, as in the reflection discussed above, are tools and materials for science practicums and demonstrations, Wifi for internet access, and student worksheets (simplification of questions). Schools and the government in this case need to help teachers to procure and improve learning media, especially tools and materials for science practicums and demonstrations as well as Wifi. Megasari (2020) said that in teaching and learning activities, with the increasing development of science and technology, it is necessary to utilize teaching aids and practical tools to build students' learning motivation and also save time. An alternative solution related to the problem of not having Wifi in schools is to carry out

individual student tests when learning using the STAD model compared to online quizzes, teachers can use quiz questions that have been printed on paper or give questions written on the blackboard so that students can take the quiz without cell phone.

Teachers also really need to know the economic background of students' families. Ramadhani (2023) said that parents' socio-economic conditions can have an influence on student learning outcomes. If the parents' economy is sufficient and the material environment faced by the family is extensive, children will have wider opportunities to develop various kinds of skills that cannot be developed if they do not have the infrastructure. Therefore, in this research, teachers need to know whether it is true that students who do not bring cellphones have left their cellphones at home or actually do not have cellphones. All of this is done so that in the end all students without exception have high motivation to learn science.
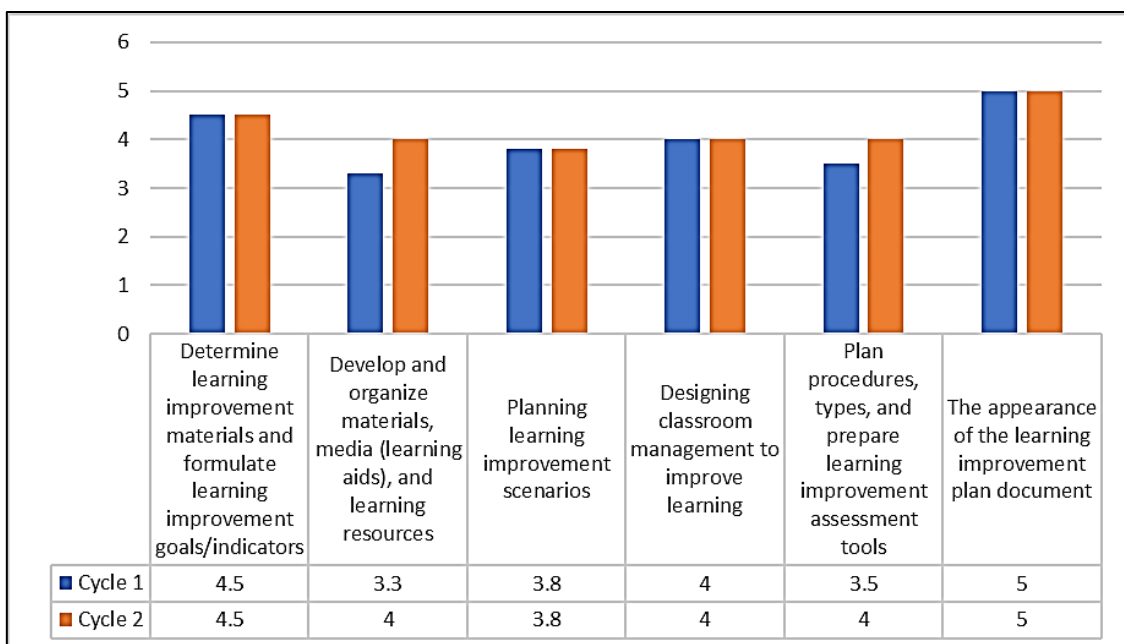

	Determine learning improvement materials and formulate learning improvement goals/indicators	Develop and organize materials, media (learning aids), and learning resources	Planning learning improvement scenarios	Designing classroom management to improve learning	Plan procedures, types, and prepare learning improvement assessment tools	The appearance of the learning improvement plan document
Cycle 1	4.5	3.3	3.8	4	3.5	5
Cycle 2	4.5	4	3.8	4	4	5

Figure 2. Comparison of the Values of Cycle 1 and Cycle 2 Teaching Modules

The results of this research are slightly different from several other studies which also have the aim of increasing student learning motivation by implementing the student team's achievement division (STAD) type cooperative learning model. Even though this research is the same as several other studies, namely that there was an increase in student learning evaluation results during cycle 2, this research still has many shortcomings as explained (there are students who still do not have motivation and there are students who experience a decrease in motivation in cycle 2). Some of the research in question is Adnyana (2020) and Murtiningsih (2021)'s research. Adnyana (2020) stated that in his research the learning improvements that he had carried out made students' learning motivation increase, which was marked by an increase in the average score of student learning achievement from 61.17 (categorized as sufficient) in cycle I, to 76.53 (categorized as good) in cycle II. As for Murtiningsih

(2021)'s research, learning with the STAD learning model increased the percentage of classical completion, from 66.67% in cycle I to 88.89% in cycle II.

Observations are not only made on student test scores, but also carried out on teaching modules and learning improvement processes. The teaching module for implementing cycle 2 learning improvements has a higher value than the value of the teaching module for cycle 1. The teaching module has increased in value from 4.02 to 4.22. This can be seen in more detail through Figure 2.

Based on Figure 2, it can be seen that improvements occurred in terms of developing and organizing materials, media (learning aids), and learning resources; as well as in terms of planning procedures, types and preparation of learning improvement assessment tools. Teachers in cycle 2 in their teaching modules are able to develop and organize learning materials, determine and develop learning aids, and create assessment tools and answer keys.
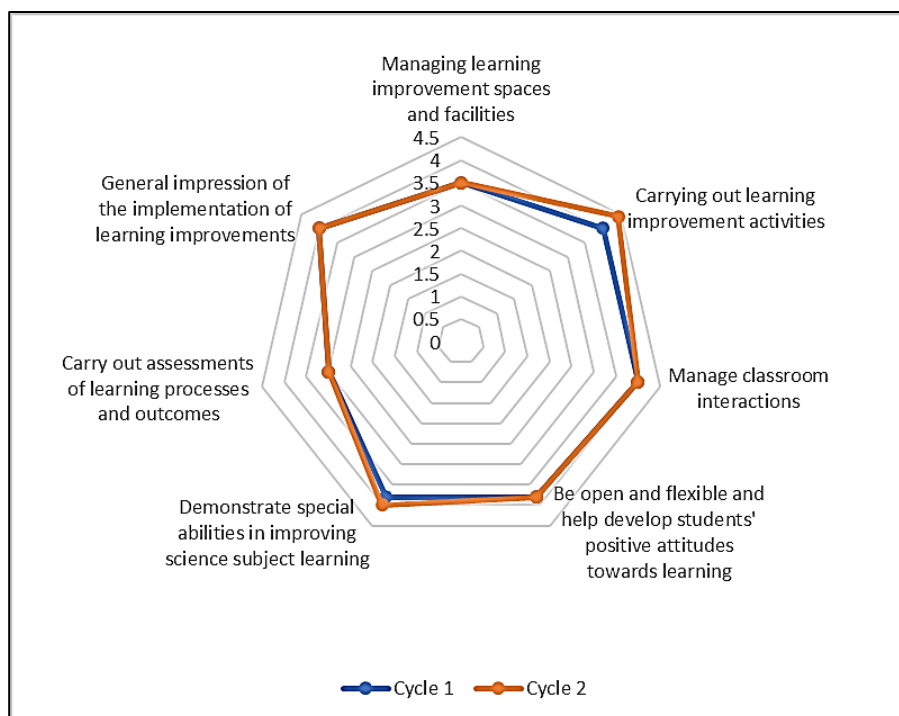

Figure 3. Comparison of the value of Cycle 1 and Cycle 2 learning improvement practices

The learning improvement process also experienced an increase in value, namely from 3.7 to 3.82. Figure 3 above shows the differences in the value of learning improvement practices for cycle 1 and cycle 2. Based on Figure 3, it can be seen that the improvement occurred in terms of implementing learning improvement activities and demonstrating special abilities in improving learning in science subjects. Teachers in cycle 2 in their teaching modulescano use learning aids (media) that are appropriate to the indicators/goals, students, situations and environment. Apart from that, during cycle 2 the teacher was also skilled in conducting science experiments and was correct in choosing science teaching aids. Apart from the APKG 2 form, assessment of learning improvement practices is also carried out by filling in observation sheets. Based on Supervisor 2's observations recorded on the observation sheet, learning improvement

practices have increased with the emergence of presentation and demonstration methods.

CONCLUSION

The student teams achievement division (STAD) type cooperative learning model can increase the motivation to learn science material for class VIII G students at SMPN 2 Telukjambe Barat. This can be seen from the increase in students' average test scores from 30.86 to 49.43. The teaching module experienced an increase in value from 4.02 during cycle 1 to 4.22 during cycle 2. The learning improvement process also experienced an increase in value, namely from 3.7 during cycle 1 to 3.82 during cycle 2. The assessment on the observation sheet stated that there was an increase the quality of the teacher's teaching performance, namely as indicated by the addition of criteria marked as existing (appearing). Teachers still have a lot to learn to apply the student teams achievement division (STAD) type cooperative learning model. Teachers must then get used to applying the STAD learning model to students. Teachers must also perfect other learning tools such as learning media. Teachers also really need to know the economic background of students' families. All these efforts are made so that the good impact of implementing the student teams achievement division (STAD) type cooperative learning model can be maximally felt by students.

REFERENCE

Adnyana, M. E. (2020). Implementasi Model Pembelajaran STAD untuk Meningkatkan Motivasi dan Prestasi Belajar. *Indonesian Journal of Educational Developmen*, *1*(3), 496–505. https://doi.org/10.5281/zenodo.4286979

Alpian, Y., Anggraeni, S. W., Wiharti, U., & Soleha, N. M. (2019). Pentingnya Pendidikan bagi Manusia. *Jurnal Buana Pengabdian*, *1*(1), 66–72.

Asmedy. (2021). Pengaruh Model Pembelajaran Kooperatif Tipe STAD terhadap Hasil Belajar Siswa Sekolah Dasar. *Ainara Journal (Jurnal Penelitian Dan PKM Bidang Ilmu Pendidikan)*, *2*(2), 108–113. http://journal.ainarapress.org/index.php/ainj

Faizzah, U. N., Indrawati, & Budiarso, A. S. (2022). Pengaruh Model Pembelajaran GI-GI (Group Investigation-Guided Inquiry) Terhadap Motivasi dan Hasil Belajar IPA Siswa SMP. *PSEJ (Pancasakti Science Education Journal)*, *7*(1), 1–8. https://doi.org/10.24905/psej.v7i1.133

Israil, I. (2019). Implementasi Model Pembelajaran Cooperative Learning Tipe STAD untuk Meningkatkan Motivasi Belajar Siswa dalam Pembelajaran IPA di SMP Negeri 1 Kayangan. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *5*(2). https://doi.org/10.33394/jk.v5i2.1807

Lestari, D. G., & Irawati, H. (2020). Literature Review: Peningkatan Hasil Belajar Kognitif dan Motivasi Siswa pada Materi Biologi Melalui Model Pembelajaran Guided Inquiry. *BIOMA*, *2*(2), 51–59. https://scholar.google.co.id,

Martin, Y., Montessori, M., & Nora, D. (2022). Pemanfaatan Internet sebagai Sumber Belajar. *Journal of Multidisciplinary Research and Development*, *4*(3), 242–246. https://doi.org/10.38035/rrj.v4i3

Megasari, R. (2020). Peningkatan Pengelolaan Sarana dan Prasarana Pendidikan untuk Meningkatan Kualitas Pembelajaran di SMPN 5 Bukittinggi. *Jurnal Bahana Manajemen Pendidikan*, *2*(1), 636–648.

Murtiningsih, E. (2021). Model Pembelajaran STAD Untuk Meningkatkan Motivasi Dan Prestasi Belajar Siswa 8I SMPN 1 Dolopo. *Diklabio: Jurnal Pendidikan Dan Pembelajaran Biologi*, *5*(2), 198–207. https://doi.org/10.33369/diklabio.5.2.198-207

Prayogi, D., Widyangrum, H., & Widowati, A. (2023). Implementasi Model Pembelajaran Discovery Learning Guna Meningkatkan Motivasi Belajar IPA Peserta Didik Kelas VII SMP. *PSEJ (Pancasakti Science Education Journal)*, *8*(2), 41–48. https://doi.org/10.24905/psej.v8i2.183

Putra, R. M., Solekhah, S., Agustina, D. D., & Sobirov, B. (2021). Action Learning Strategy to Enhance Students Speaking Skill: A Classroom Action Research. *Anglophile Journal*, *2*(1), 37–54. https://doi.org/10.51278/anglophile.v2i1.269

Ramadhani, S. (2023). Pengaruh Latar Belakang Sosial Ekonomi Orang Tua Terhadap Hasil Belajar Siswa SD. *Biblio Couns : Jurnal Kajian Konseling Dan Pendidikan*, *6*(3), 190–203. https://doi.org/10.30596/bibliocouns.v5i2.10390

Rofi'ah, S. (2021). Penerapan Model Pembelajaran Kooperatif Tipe STAD (Student Teams-Achievement Divisions) untuk Meningkatkan Hasil Belajar Siswa. *LEARNING : Jurnal Inovasi Penelitian Pendidikan Dan Pembelajaran*, *1*(2), 145–153.

Sappaile, B. I., Ahmad, Z., Hita, I. P. A. D., Razali, G., Lokita, R. D., Dewi, P., & Punggeti, R. N. (2023). Model Pembelajaran Kooperatif: Apakah efektif untuk meningkatkan motivasi belajar peserta didik? *Journal on Education*, *06*(01), 6261–6269.

Sridadi. (2020). Peningkatan Hasil Belajar IPA Melalui Model Pembelajaran Kooperatif Team Game Tournament pada Siswa Kelas VIII SMP. *Edudikara: Jurnal Pendidikan Dan Pembelajaran*, *5*(3), 183–194. www.ojs.iptpisurakarta.org/index.php/edudikara

Suharni. (2021). Upaya Guru dalam Meningkatkan Motivasi Belajar Siswa. *Jurnal Bimbingan Dan Konseling*, *6*(1), 172–184.

Syamsu, F. N., Rahmawati, I., & Suyitno. (2019). Keefektifan Model Pembelajaran STAD terhadap Hasil Belajar Matematika Materi Bangun Ruang. *International Journal of Elementary Education*, *3*(3), 344–350. https://ejournal.undiksha.ac.id/index.php/IJEE

Wardani, IG. A. K., & Wihardit, K. (2022). *Penelitian Tindakan Kelas* (2nd ed.). Universitas Terbuka.

Widiastiti, N. L. A., & Sumantri, M. (2020). Model Quantum Teaching Berbasis Pendidikan Karakter Terhadap Motivasi Belajar IPA Siswa Kelas IV. *Jurnal Pedagogi Dan Pembelajaran*, *3*(2), 303–314.

Wulandari, I. (2022). Model Pembelajaran Kooperatif Tipe STAD (Student Teams Achievement Division) dalam Pembelajaran MI. *Jurnal Papeda*, *4*(1), 17–23.

Yohana, S. (2023). Penerapan Model Discovery Learning pada Pembelajaran IPA untuk Meningkatkan Motivasi dan Hasil Belajar Siswa SMP. *Jurnal Inovasi Karya Ilmiah Guru*, *3*(4), 159–165.