Jurnal Pijar MIPA
https://jurnalfkip.unram.ac.id/index.php/JPM

ISSN 1907-1744 (Print)
ISSN 2460-1500 (Online)

Improving Students' Learning Outcomes Through Make-a-Match Cooperative Model on Human Respiratory System Topic

Nufitasari, Asriah Nurdini Mardiyyaningsih*, Andi Besse Tenriawaru

Biology Education Study Program, Tanjungpura University, Pontianak, Indonesia
*E-mail: asriah.nurdini.m@fkip.untan.ac.id

Received: July 24, 2024. Accepted: September 25, 2024. Published: September 30, 2024

Abstract: The make-a-match cooperative model is a learning model in which the teacher prepares cards containing questions or problems and prepares answer cards, and then students look for their card pairs. The direct involvement of learners in the learning process will lead to the formation of knowledge and skills that will improve learning outcomes. Implementing the make-a-match learning model is more directed to the game because each learner can search for answers or pairs of question cards obtained more freely and actively. Science learning at MTs Negeri I Kubu Raya still needs to provide a pleasant learning experience. Students' interest in participating in science learning still needs to be higher. It impacts unsatisfactory learning outcomes, as seen from the many student learning outcomes below the Minimum Completion Criteria set by the school. This condition requires science learning that can encourage students to be directly involved and play an active role during learning so that the learning process can run well. The cooperative model of the match type is predicted to increase collaborative learning and student participation in a fun learning situation wrapped in a game situation. This model requires students to find question-answer pairs through interaction with friends in one class. This study aims to measure the improvement of students' learning outcomes in class VIII B MTs Negeri I Kubu Raya on the material of the human respiratory system using the make-a-match cooperative model. The research was conducted over two cycles, and each cycle consisted of two meetings with four stages: planning, action, observation, and reflection. The research subjects totalled 32 people, all of whom were female. Data collection techniques include observation and tests using observation sheet instruments and learning outcomes test questions that have been previously validated. The improvement in learning outcomes focused on this research is the improvement of cognitive learning outcomes. The data was presented as a percentage score of observation of the learning process of the match cooperative model and classical completeness. The results showed that the achievement of implementing the learning process using the make-a-match cooperative model was 100% in both the first and second cycles. The average learning outcome of students on human respiratory system material in the first cycle was 79.68 and increased to 84.84 in the second cycle. Activities carried out by students also increased in each cycle. The increase leads to the activeness or participation of students during learning. Based on the study's results, it can be concluded that learning using the make-a-match cooperative model can improve learning outcomes and students' activeness.

Keywords: Cognitive Learning Outcomes; Cooperative Make-a-Match Model; Learning Model.

Introduction

Science is one of the subjects in the 2013 curriculum for junior high school. Science is knowledge obtained from experimental data collection, observation and deduction to produce an explanation of natural phenomena that can be trusted [1]. Learning science means discovering nature and living things systematically, learning about knowledge through facts, concepts, or principles and observing, discovering, and communicating. Given the importance of science for students' understanding, science learning is expected to be carried out effectively [2].

Science learning at MTs Negeri I Kubu Raya has not been effective, as seen from the learning outcomes of students who are still many below the Minimum Completeness Criteria set by the school. Based on interviews conducted with science teachers, it is suspected that the low learning outcomes of students are caused by the fact that the learning that takes place is still more teacher-centred through the dominant use of the lecture method. This differs from the spirit of 21st-century learning, where the curriculum developed encourages teachers to change the learning approach from teacher-centered to student-centered [3]. The use of the lecture method causes students to be less active, which is one of the factors causing low science learning outcomes in secondary schools [4].

The science teachers at MTs Negeri 1 Kubu Raya have tried to increase students' activity by asking them to summarise or record the material first and listen to the teacher explain the science topic. Still, this method has not increased students' activity during the learning process. Only a few students actively participate in their learning. The lack of interest in learning from students impacts their learning outcomes. The science formative test of class VII MTs Negeri I Kubu Raya in the 2022/2023 school year shows that the material of the human respiratory system has the lowest percentage of completeness compared to other biological science materials, namely 52.5%. This topic includes the structure and function of the human respiratory system, human respiratory mechanisms, respiratory frequency, respiratory volume, and disorders of the respiratory system

How to Cite:
Nufitasari, N., Mardiyyaningsih, A. N., & Tenriawaru, A. B. (2024). Improving Students Learning Outcomes through Implementing Make-a-Match Cooperative Model on Human Respiratory System Topic. *Jurnal Pijar Mipa*, *19*(5), 922–927. https://doi.org/10.29303/jpm.v19i5.7421

and efforts to maintain or overcome them. Therefore, it is required that the process of implementing science learning be able to improve student learning outcomes.

Science learning should align with the spirit of 21st-century learning so that students' competencies increase to become resources that can face global competition and challenges following the demands of the times [5]. Using 21st-century learning methods is one solution to reduce the existing problems. Collaborative learning is an example of 21st-century learning methods. Collaborative learning is a general term that includes a variety of interactive approaches and methods for group work [6]. One of the collaborative learning models that can be used is the cooperative learning model. Cooperative learning is an active learning that emphasises the activities of students together in groups. Group learners develop skills such as finding and solving problems, decision-making, logical thinking, communicating effectively and working together [7]. The cooperative learning model has many types, including the make-a-match type.

The cooperative model of a match type projects active learners by finding their pairs of questions brought by a learner with answers to questions owned by their friends [8]. This model supports 21st-century learning by emphasising collaboration with others to achieve goals. Implementing the make-a-match learning model also includes more nuanced games that support joyful learning. By actively learning in the game of finding question-answer matches, students are helped to learn and improve their understanding/mastery of learning materials. The make-a-match model is a model that contains elements of the game so that students will be active and not feel bored when learning takes place. The activities of students who dominate in learning indirectly increase the activity of students, which impacts the learning outcomes obtained by students [9].

Other researchers have used the make-a-match cooperative model to improve learning outcomes. The cooperative learning model of make a match can improve learning outcomes, which is indicated by an increase in the acquisition of the average score of learning outcomes from the first cycle with an average of 72.50 to 80.33 in cycle II and an increase in the number of classical learning completeness of students from 60% to 93% in the second cycle [10]. In addition, the results of science learning using the cooperative learning model type make a match, and conventional models show differences in the average learning outcomes of students; namely, learning outcomes using the cooperative model make a match significantly higher than the comparison class (with conventional models) [11].

Based on this background, class action research using the make-a-match type cooperative model was conducted to determine the improvement of students' learning outcomes on the human respiratory system topic using the make-a-match cooperative model in class VIII B MTs Negeri I Kubu Raya.

Research Methods

Classroom Action Research (CAR) was conducted at MTs Negeri I Kubu Raya in the even semester of the 2023/2024 school year. The type of research adopted the Kemmis and Taggart model. Each cycle consists of four stages: planning, action, observation, and reflection. The research was carried out for two cycles, each with two meetings. Before using the learning tools, the content was compiled and validated using the Aikens ' V formula, and reliability testing was performed using the Interclass Correlation Coefficient (ICC) formula. In addition, the test questions developed have also been content-validated using the Kuder-Richardson method. The data collection techniques used in this study were interviews, observations and tests. Learning media uses paired cards of question and answer cards made based on respiratory system material. In its implementation, students are divided into two groups and asked to stand facing each other. Then, the teacher distributes question and answer cards to students in each group. Learners are given time to find pairs of cards they have, and when students have found a pair of cards, they are required to report to the teacher to be given a serial number as a sign; after the time runs out, the pair of students present the question and answer cards that have been paired. If there are students who do not find a pair of cards they have or incorrectly pair the cards, they will be given a penalty according to the agreement.

Cognitive learning outcomes data were then analysed by scoring the test results, 1 for the correct answer and 0 for the wrong answer, after converting the score into a value with the formula [12]:

$$N=\frac{SP \times 100}{SM}$$

Notes:
N = Students' scores
SP = Scores obtained
SM= Maximum score

Then, the percentage of classical completeness (Minimum completeness criteria is 73), with the formula [13]:

$$\%\ \text{Achievement} = \frac{\sum \text{Students who complete} \times 100}{\sum \text{All students}}$$

Conclusions were drawn based on the comparison analysis of the average learning outcomes and classical completeness at the end of each meeting and cycle. The achievement indicator in this study is an increase in the completeness of the learning outcomes of students who take part in learning the material of the human respiratory system with the make-a-match cooperative model based on the test results, namely at least 60% of students who are complete at the end of the first cycle and 75% at the end of the second cycle. Students are complete if they get test results with a score ≥ 73.

Results and Discussion

Based on the research that has been carried out, the results are obtained in achieving the learning implementation process and improving learning outcomes in cycles I and II. The first stage of this research is planning, and planning activities are the initial stage of conducting class action research. This stage is the foundation for the following stages: action, observation, and reflection [14]. In the planning stage, the researcher plans the stages of action to be taken, including what, why, when, where, by whom, and how the action will be carried out [15]. In this stage, learning tools were produced and used in the action stage, both in the first

and second cycles, consisting of Learning Implementation Plans, question and answer cards, learning media through Canva, Learner Worksheets, and evaluation questions.

The learning tools prepared were validated by three validators consisting of 2 lecturers of Biology Education, FKIP UNTAN, and 1 science teacher, MTs Negeri 1 Kubu Raya. After all devices are analysed and show valid and reliable results, the devices are used in the action stage. The planning stage is carefully organised so the following stages can run smoothly and purposefully. Planning in the second cycle is adjusted to improve the shortcomings in the first cycle so that the same mistakes are not repeated in the second cycle. The action stage follows the lesson plan's steps, from the introduction to the closing activities. As the collaborator and observer, the teacher observed the learning implementation process during the learning process.

Based on the observation results, it is known that the learning implementation process using the make-a-match cooperative model has been carried out following the lesson plan, thus obtaining a percentage of achievement of 100% in each meeting in both the first and second cycles in all stages contained in the observation sheet of the learning implementation process have been carried out without any stages being missed. Although the learning implementation process has been carried out with a percentage of 100%, technical matters are continuously improved at each meeting. In the first cycle, there were still students who looked busy on their own, panicked, and less focused on the material being studied, so class conditions became less conducive and did not help their groupmates when working on learner worksheets. In contrast, students looked more focused, enthusiastic, and calm in the second cycle, so class conditions became conducive. There was good cooperation when working on learner worksheets.

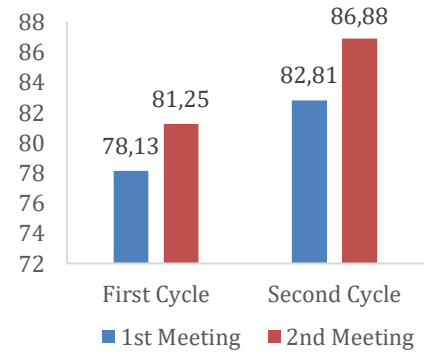

Figure 1. Average Value of Students Learning Outcomes

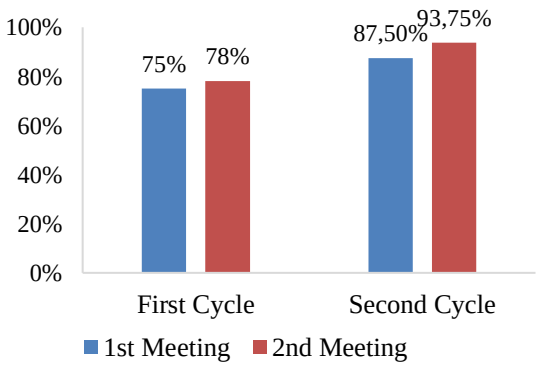

Figure 2. Percentage of Completion Students

Based on Figure 1, it is known that the average learning outcomes obtained by students in the first cycle 1st meeting were 78.13, 2nd meeting was 81.25, while in the second cycle, 1st meeting obtained an average of 82.81, and 2nd meeting was 86.88. The learning outcomes obtained by students have increased at each meeting in the first and second cycles. In Figure 2, it is known that in the first cycle, 1st meeting reached a percentage of completeness of 75%, meeting two increased to 78%, then in the second cycle, 1st meeting, the percentage of completeness increased again to 87.50%. At 2nd meeting, the percentage of completeness reached 93,75%, so the average learning outcomes of first-cycle students were 79.68 with a percentage of 76.5%. In comparison, in the second cycle, the average learning outcomes of students reached 84.84 with a percentage of 88.75%.

Each meeting experienced an increase both from meetings I and II in the first and second cycles. This increase occurred due to the use of the make-a-match cooperative model in learning and improvements that continue to be made at each meeting. Cooperative make-a-match is a learning technique that provides opportunities for students to work together with others by finding a partner while learning to recognise a concept or topic in learning so that all students can become active during the learning process [16]. The use of the make-a-match model in science learning aims to train understanding of a concept or principles, solve problems, and develop an attitude of tolerance and cooperation in group situations in a group situation [17]. Using the make-a-match cooperative model, students are given problems or tasks individually in the form of problem cards so that students are required or required to learn to solve the problems or tasks given. Not only are certain students active, but all students participate actively during learning, which impacts increasing students' understanding. Learner learning outcomes are inseparable from learning activities carried out during learning.

Learning activity is an individual activity that can cause changes in a better direction due to interactions between individuals and individuals, as well as individuals and the environment [18]. A good learning activity is a situation where students actively manage and respond to various information the teacher conveys during learning [19]. During the learning process, students must engage in activities such as listening, paying attention, and digesting the lessons the teacher gave. In addition, students can provide feedback through questions, ideas, thoughts, feelings, and desires. Student learning activities can develop the creativity of students in thinking to master learning materials and increase curiosity to strengthen the creativity of students in remembering and analysing, as well as the confidence to express opinions, to improve student learning outcomes [20]. With activities, the learning process can occur well because activities are a very important principle in teaching and learning.

In this research, the activities observed only include six things, namely students answering greetings, listening to teacher explanations, asking questions about material that has not been understood, being able to find pairs of cards owned, being able to discuss and work together, and presenting the results of discussions, these six things have been adapted to the learning model used in this study. Based on the observations of student activities, it is known that

some students have not carried out all six activities, and some only carry out three or four activities, which affects their learning outcomes. However, in each meeting, the overall activity carried out by students increased. This can be seen from the number of students who carry out the six activities observed. In the first cycle, 1st meeting, the percentage of students who carried out the six activities was 22%, then increased at 2nd meeting to 28%, then increased again in the second cycle, to 31% at 1st meeting, and 38% at 2nd meeting.

Students who follow the learning with the make-a-match model will actively participate in learning to have a meaningful learning experience [21]. The make-a-match learning model can increase the learning creativity of students and avoid boredom in students participating in the teaching and learning process [22]. Students will also remember the subject matter longer because they are involved in learning, so this model is effective enough to improve student learning outcomes [23]. Using a match cooperative model in learning also creates a new passion for students to follow all learning series. When implementing learning using this model, students look cheerful, enthusiastic, and active. This also impacts increasing students' understanding of the material studied and will lead to increased learning outcomes obtained by students.

The advantages of the make-a-match learning model are that it is effective for training the discipline of students, especially in terms of respect for time, can increase the learning activities of students cognitively and physically, provide opportunities for students to interact and peer tutor with other students, the ability to interact in addition to the ability to think quickly through the game of finding a partner with the help of a card [24]. The make-a-match model can also increase learning motivation for students [25]. Motivation is internal and external to students learning to change behaviour [26]. So when students have good motivation in learning, the learning outcomes will also be better, and vice versa.

In addition, based on the research that has been conducted, it has been proven that using the cooperative model of make-a-match type, the learning atmosphere created is not monotonous. Students are enthusiastic because it contains elements of the game. In the make-a-match card game, there is competition between students to get a pair of cards they have. There is an award for students who succeed in getting a pair of cards correctly, causing students to be more enthusiastic and motivated to follow learning activities well, can improve students' understanding of the material being studied. This is evidenced by the increase in learning outcomes obtained by students, and also by using the make a match cooperative model students become more active participants in learning. The results of other researchers' research are followed and reinforced by the results where the make-a-match learning model can improve science learning outcomes in 9th-grade students of SMP Negeri 2 Kayangan in the 2017/2018 academic year [27].

Then, based on research conducted at SMA Negeri 1 Aramo, it is known that learning with the make-a-match model can increase student learning creativity, avoid student boredom in participating in the teaching and learning process, can foster student cooperation in answering questions by matching the cards in their hands, the learning process is more interesting. Most students are more enthusiastic about the learning process, and student activeness is visible when looking for their respective card pairs [28]. The observation stage is carried out simultaneously with the implementation of learning actions from beginning to end. Observations were carried out by the science teacher of MTs Negeri 1 Kubu Raya (as a collaborator) to see the activities of researchers in implementing learning by using the make-a-match cooperative model and assisted by three other observers to see the activities carried out by students during the learning process.

The observation stage is centred on the process and learning outcomes obtained when implementing learning the topic of the human respiratory system at each meeting. Based on observing the learning implementation process, the achievement percentage was 100% in each meeting of the first and second cycles. All stages in the lesson plan have been carried out without missing a single stage. However, some technical things still need to be improved at each meeting. The learning outcomes obtained by students continue to increase, as evidenced in the first cycle, 1st meeting The average value of student learning outcomes was 78.13 with a percentage of completeness of 75%, 2nd meeting was 81.25 with a percentage of completeness of 78%, in second cycle, 1st meeting obtained an average of 82.81 with a percentage of completeness reaching 87.50%, and 2nd meeting was 86.88 with a percentage of completeness reaching 93,75%. After making observations, the next stage is reflection.

Reflection is a key feature of classroom action research because it is to change teaching behaviour [29]. The reflection stage is carried out to analyse the success rate of the process and learning, evaluate the learning that has been carried out, identify factors that cause failure and support success, plan efforts to optimise the learning process and results and improve and develop learning [30]. The learning outcomes and the percentage of completeness obtained by students have reached the Minimum Completion Criteria and continue to increase at each meeting. The improvement that continues to occur at each meeting is influenced by the results of reflection, which continues to improve at each meeting. All syntax of the make-a-match cooperative model has been carried out at each meeting. Still, in its implementation, several things need to be improved, namely regarding class management and time to be better managed.

There was a habituation of the learning flow using cooperative make-a-match for up to 4 meetings, which changed students' activities, where students became aware of the flow of activities so they could participate actively. The more learning activities that are carried out, the better the learning outcomes will be because by carrying out learning activities properly and correctly, students' understanding of the material being studied will also increase. The success of students' learning is evident in how much behavioural change they can achieve through learning. a person is said to be successful in learning if he changes his behaviour after learning [31]. Learners who succeed in learning succeed in achieving learning objectives; when students are active in learning, they can likely understand concepts related to the learning, so the research objectives to improve student learning outcomes using the make-a-match cooperative model have been achieved [32].

Conclusion

The cooperative model of making a match on the material of the human respiratory system can improve students' learning outcomes. This can be seen from the average learning outcomes obtained by students in the first cycle, which reached 79.68 with an average meeting one of 78.13 with a 75% completeness percentage and meeting two of 81.25 with a 78% completeness percentage. In the second cycle, it reached 84.84 with an average of meeting one of 82.81 with a completeness percentage of 87.50% and meeting two of 86.88 with a completeness percentage of 93,75%. Implementing learning using the make-a-match cooperative model resulted in a 100% achievement percentage at each meeting. Still, each meeting improved technical matters such as class and time management.

References

[1] Sutrisna, N., & Gusnidar. (2022). Pengembangan Buku Siswa Berbasis Inkuiri Pada Materi IPA Untuk Siswa Kelas VIII SMP. *Journal Inovasi Penelitian, 2* (8), 2859-2867.

[2] Yuniastuti. (2013). Pembelajaran IPA SMP dalam Kurikulum 2013. Bandung: Alfabeta.

[3] Firmansyah, R., Marlina, L., & Dwikoranto. (2023). Penerapan Model Pembelajaran *Project Based Learning* Pada Materi Energi dan Perubahannya Untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa di SMKN 1 Kertosono. *PENDIPA Journal of Science Education, 7* (1), 80-86.

[4] Sulthon. (2019). Pengembangan Media Pembelajaran Sains Berbasis Pemanfaatan Barang-Barang Bekas Dari Lingkungan Sekitar Bagi Siswa Madrasah Ibtidaiyah (MI) di Daerah Pingiran Kota Kabupaten Kudus. *Jurnal Keilmuan dan Kependidikan Dasar, 11*(1), 17-26.

[5] Pratiwi, S. N., Cari, C., & Aminah, N. S. (2019). Pembelajaran IPA Abad 21 Dengan Literasi Sains Siswa. *Jurnal Materi dan Pembelajaran Fisika (JMPF), 9*(1), 34-42.

[6] Amirudin. (2019). Pembelajaran Kooperatif dan Kolaboratif. *Journal of Education Science (JES), 5*(1), 24-32.

[7] Tabrani, & Amin, M. (2023). Model Pembelajaran Cooperative Learning. *Jurnal Pendidikan dan Konseling, 5*(2), 200-213.

[8]Aliputri, D., H. (2018). Penerapan Model Pembelajaran Kooperatif Tipe Make A Match Berbantuan Kartu Bergambar Untuk Meningkatkan Hasil Belajar Siswa. *Jurnal Bidang Pendidikan Dasar, 2*(1),70-78.

[9] Hidayat, A. F., & Hartati, S. (2018). Efektifitas Model Make A Match Berbantuan Media Visual Terhadap Hasil Belajar IPA. *Joyful Learning Journal, 7*(1), 32-38.

[10]Ismail, I. L. (2019). Peningkatan Aktivitas dan Hasil Belajar IPA Siswa Kelas VIII A SMP Melalui Model Pembelajaran Kooperatif Tipe Make A Match Negeri 1 Rantepao. *Jurnal Pemikiran dan Pengembangan Pembelajaran, 2*(2), 89-103.

[11] Winarti, E., Tawil M., & Mamin, R. (2021). Pengaruh Model Pembelajaran Tipe Make A Match Terhadap Hasil Belajar IPA Peserta Didik Kelas VIII SMPN 31 Bulukumba (Studi Pada Materi Pokok System Pencernaan Manusia). *Jurnal IPA Terpadu*, 4 (2),1-11.

[12] Sudjana. (2005). *Penilaian hasil proses belajar mengajar*. Bandung: PT. Remaja Rosdakarya.

[13] Kelirik, N. (2018). Penerapan metode diskusi kelompok untuk meningkatkan hasil belajar IPA di Sekolah Dasar Negeri 1 Sukadana. *Jurnal IKA, 16* (1), 1-1.

[14] Nuraeni, A., N., Alfania, G., T., Kurniawan, I., Mursidah, R., R., & Ajid, R., M. (2023). Strategi Perencanaan Dalam Penelitian Tindakan Kelas. *Jurnal Kreativitas Mahasiswa, 1*(2),185-194.

[15] Machali, I. (2022). Bagaimana Melakukan Penelitian Tindakan Kelas Bagi Guru. *IJAR : Indonesian Journal of Action Research, 1*(2), 317-327.

[16] Budiyanto, A. K. (2016). *Sintak 45 model pembelajaran dalam student centerd learning (SCL*). Malang: Universitas Muhammadiyah Malang Press.

[17] Sari, S., P., Aprilia, S., Khalifatussadiah. (2020). Penggunaan Metode Make a Match Untuk Meningkatkan Hasil Belajar Siswa SD. *Educational journal of elementary school, 1*(1),19-24.

[18] Wijaya, R. S. (2015). Hubungan Kemandirian Dengan Aktivitas Belajar Siswa. *Jurnal Penelitian Tindakan Bimbingan dan Konseling, 1*(3), 40-45.

[19] Aprilia, S., Zubaidah, & Fitriawan, D. (2022). Aktivitas Belajar Siswa Dalam Pembelajaran Matematika Pada Masa Pandemi covid-19. *Jurnal AlphaEuclidEdu, 3*(1), 100-107.

[20] Nuraini, Fitriani, & Fadhilah, R. (2018). Hubungan antara aktivitas belajar siswa dan hasil belajar pada materi Pelajaran kimia kelas X sma negeri 5 Pontianak. *Ar-Razi Jurnal Ilmiah, 6* (1), 30-39.

[21] Shoimin, A. (2014). 68 M*odel Pembelajaran Inovatif dalam Kurikulum 2013*. Yogyakarta: AR-Ruzz Media.

[22] Istarani. (2012). 58 *Model Pembelajaran Inovatif Referensi Guru Dalam Menentukan Model Pembelajaran.* Medan: PT. Media Persada.

[23] Khoirudin, M. (2019). Model Pembelajaran Make A Match Untuk Meningkatkan Motivasi Dan Hasil Belajar Mendeskripsikan Nilai Juang Pancasila Sebagai Dasar Negara Pada Siswa Kelas Vi SDN I Guwotirto Tahun Pelajaran 2013/2014. *Elementary School, 6*(2), 190–195.

[24] Suprapta, D., N. (2020). Penggunaan Model Pembelajaran Make A Match Sebagai System Meningkatkan Hasil Belajar System Inggris Siswa. *Journal of Education Action Research, 4* (1), 240-246.

[25] Lestari, A., Muhajir, & Saputra, H., J. (2019). Keefektifan Model Make A Match Terhadap Motivasi Belajar Siswa Pada Pelajaran IPA Tema 5 Kelas V SDN Jatingaleh 01 Semarang. *Elementary School, 6*(2), 139–144.

[26] Hidayah, N., & Hermansyah, F. (2018). Hubungan antara Motivasi Belajar dan Kemampuan Membaca Pemahaman Siswa Kelas V Madrasah Ibtidaiyah Negeri 2 Bandar Lampung Tahun 2016/2017. *Jurnal Pendidikan dan Pembelajaran Dasar, 3*(2), 282.

[27] Iswantari, I. (2019). Meningkatkan Hasil Belajar Siswa Melalui Implementasi Model Pembelajaran Make A Match di SMP Negeri 2 Kayangan. *Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran, 5*(2), 109-116.

[28] Harefa, D. (2020). Peningkatan Hasil Belajar Siswa Dengan Pembelajaran Kooperatif Make A Match Pada Aplikasi Jarak dan Perpindahan. *Jurnal Kajian, Penelitian dan Pengembangan Pendidikan, 8(*1), 1-18.

[29] Madya, S. (2007). Penelitian Tindakan Kelas. Bandung: Alfabeta.
[30] Abdillah, Leon A. (2021). *Penelitian Tindakan Kelas Teori dan Penerapannya*. Indramayu: CV. Adanu Abimata.
[31] Saptono, Y., J. (2016) Motivasi dan Keberhasilan Belajae Siswa. *Jurnal Pendidikan Agama Kristen, 1*(1), 189-212.
[32] Wati, N., Qadar, R., & Matius, B. (2020). Hubungan Antara Kinerja Dengan Hasil Belajar Siswa Pada Pembelajaran Berbasis Inkuiri Laboraturium Terbatas di SMA Negeri 13 Samarinda. *Jurnal literasi Pendidikan biologi*, *1*(1),73-80.