

Utilizing Cooperative Learning Model Types Make a Match to Promote Primary Students' Achievement in Science

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Abstract

This study aims to promote primary students' achievement in science learning utilizing cooperative learning model types make a match. The method is Classroom Action Research by applying cooperative learning model type make a match. The data collected in this research are observation sheet of teacher activity and student activity and learning result. The average learning outcomes of science obtained before the action was 62.33 increased to 77.67 in first cycle by percentage of 24.61%. In the second cycle increased to 88.00 with a percentage increase of 41.18%. Thus, it can be concluded that cooperative learning model type make a match effectively to promote primary students' achievement in science learning.

Keywords: cooperative learning model type make a match, primary students' achievement of science

1. INTRODUCTION

One of the main subjects at elementary school is science. Science is the meaning of nature and various phenomenon/ behavior/ characteristics that are packaged into a set of theories and concepts through a series of scientific processes carried out by humans (Mariana & Praginda, 2009; Hermita, N, *et al.*, 2013). This organized theory and concept becomes an inspiration for the creation of technology that can be utilized for human life. Science requires the ability of memory and understanding of the concept and apply it in everyday life. The problem faced in science subjects is the difficulty of students in understanding the concept in each

material. Students assume that science subjects are difficult to learn.

Based on result of observation got result of science learning is low. This is due to as the following: (1) The teacher conveys monotonous learning and often uses the lecture method; (2) Lack of interaction learning process is still focused on the teacher; (3) The use of less attractive learning models for students to enable students to be inactive; (4) The media used in learning uninteresting. The above problems can be seen with the following symptoms: (1) Lack of student activity to participate actively in learning activities; (2) The difficulty of students in understanding the concept science material; (3) Students look bored and less interested in learning process; (4)

Students tend to pay less attention to teacher and passive explanations when given the opportunity to ask or answer questions.

The students' condition has not shown satisfactory activity in the learning process. Taking into account these assumptions, it is necessary to attempt to improve science learning outcomes by using a more varied learning model. Thus, the selection of the model and the appropriate learning media is absolutely done by the teacher. Teachers need to apply an interesting learning model, so that learning outcomes can increase. One of them is cooperative learning model of make a match type, because the learning model is fun and can be applied to all subjects at every grade level which is done by playing looking for partner, so that by playing the students will not feel bored, saturated and lazy to learn. Related to this, it is expected to facilitate students to understand and accept the material delivered and the results obtained by students also increased.

Cooperative learning model type make a match is students looking for a partner while learning about a concept or topic (Rusman, 2011). The application of this model begun by students are asked to look for the pair of cards which is the answer/ question before the time limit, the students who can match the cards are given points.

Learning outcomes are a culmination of the learning process and result of learning interaction (Dimiyati & Mudjiono, 2010). From the teacher side, the teaching act ends with the evaluation process of learning outcomes. From the student side, learning outcomes are the peak of the

learning process. After learning the students will have the skills, knowledge, attitudes, and values.

Learning is teaching students use the principle of education and learning theory, is a major determinant of the success of education (Sagala, 2010). Learning is a two-way communication. Teaching is done by the teacher as an educator, while learning is done by learners.

Science is as a discipline and its application in society makes science education very important an understanding of the importance of studying nature so that it will bring human beings to life meaningful and dignified (Mariana & Praginda, 2009; Hermita, N., *et al.*, 2017a; Hermita, N., *et al.*, 2017b; Hermita, N., *et al.*, 2017c; Hermita, N., *et al.*, 2017d; Hermita, N., *et al.*, 2017e; Hermita, N., *et al.*, 2017f; Hermita, N., *et al.*, 2018). Science learning should involve full students' activity as well as good science learning should connect science with the daily life of students. Students are given the opportunity to ask questions, generate student ideas, build curiosity about everything in their environment, build skills which is necessary, and raises students' awareness that learning science is indispensable to learn.

Science learning involves the full students' activity, it is necessary learning model that can make students actively, one of which is cooperative learning model type make a match. Cooperative learning model of make a match type can improve students' motivation and achievement of learning (Shifiya, 2013; Sulistyaningsih, 2014; Fatimah, 2017; Wibowo & Marzuki, 2015). One of the advantages of cooperative learning model type make a

match is students looking for a partner while learning about a concept or topic. Students are invited to be active and communicative in learning activities. There is a very significant difference between students learning with cooperative learning model type make a match with those who do not use cooperative learning model type make a match (Mustadil, 2017; Anggarawati, 2014). Cooperative learning model type make a match brings the concept of creative and innovative understanding in the learning process that can optimize learning outcomes (Dewi, 2013). Thus can increase student learning activities, both cognitive and physical and also improve students' understanding of the material learned and improve student learning outcomes.

Cooperative learning model type make a match provides meaningful experience to the students, so that what is expected can be achieved well and can improve student achievement (Mikran, 2014; Astika & Nyoman, 2012; Wiguna, 2014). Because this type of make-match cooperative learning model makes learning activities more conducive, simple, meaningful, and fun (Artini, 2014; Maulana & Rustopo, 2012; Suraidah, 2016).

This study aims to promote primary students' achievement in science learning utilizing cooperative learning model types make a match.

2. METHOD

This research was conducted in October until November 2017 academic year 2017/2018 in 3rd grade Primary School located at SDN 42 Pekanbaru. The subjects of this study are 30 students consisting of 16 boys and 14 girls. The method of research used classroom action research design. The research of class action is a reflection of learning activities in the form of an action, which is deliberately raised and occurs in a class simultaneously (Arikunto, 2010). This classroom action research was conducted to promote primary students' science learning achievement by applying cooperative learning model of tipemake a match. Classroom action research conducted by two cycles which in each cycle there are two face-to-face meetings and one daily test. The data and instruments in this study consist of; syllabus, lesson plan, observation sheet of teacher and student activity, worksheet, and rubric of activity assessment. Teknik data collecting in this research is test technique, observation technique, and documentation technique.

a. Analyzing Observation Data

Observation data obtained then analyzed descriptively. Thus, provide a clear picture of the learning activities undertaken by teachers. Implementation of learning by teachers and students is based on the following criteria (Asmani, 2011)

Table 2. Learning Activities Categorizes

No	Categories	Learning activities
1	Very good	85% – 100%
2	Good	70% – 84,5%
3	Good enough	55% – 69,9%
4	Enough	40% – 54,9%
5	Poor	0% – 39,9%

b. Primary Students' Achievement

Student learning outcomes (first and second cyclus) are calculated and classified by category of acquisition value and classical success rate. Minimum completeness standard that must be achieved by students for

science subjects 3rd in SDN 42 Pekanbaru is 70. Next, calculated the percentage of the average class. Here is the classification of values, grade averages, and percentages of completeness in a classical way (Asmani, 2011).

Table 3. Categorization of Student Learning Achievement

No	Categories	Student's score	Rata-Rata Kelas
1	Very good	85,00 – 100	85,00 – 100
2	Good	70,00 – 84,5	70,00 – 84,5
3	Good enough	55,00 – 69,9	55,00 – 69,9
4	Enough	40,00 – 54,9	40,00 – 54,9
5	Poor	00,00 – 39,9	00,00 – 39,9

While classical completeness can be achieved if the percentage classically at least 70%. That is, if 70% or more students in one class has reached the value of KKM then the class is declared completely classical. If under 70% then the class is declared incompletely classical.

The success of teacher action in applying cooperative learning model type make a match to promote science learning outcome of 3rd grade students can be known by counting the difference of percentage of learning outcome obtained by all students before the action is done and the percentage of complete learning outcome obtained by whole students after action is taken. Indicators of improving student learning outcomes in this study are: (1) There is an increase

in the average class at each stage of the study; (2) There is an increase in the percentage of learning mastery by class in every research stage.

3. RESULT AND DISCUSSION

a. Planning Stage

Planning that researchers do before the action is preparing the learning and data collection instruments. Learning tools consist of syllabus for first cycle and second cycle, lesson plans and worksheet. While the data collection instrument consists of: observation sheet, observation sheet of student activity counted four times, daily test of first cycle and daily test of second cycle.

b. Implementing Stage

The implementation stage is done by two cycles. The first cycle held three meetings in the form of two teaching and learning process, the first meeting was held on Wednesday, October 25, 2017, and the second meeting was held on Saturday, October 28, 2017, and one daily repeat I held on Wednesday 1 November 2017. In the second cycle the implementation stage is the same as the first cycle, which is three meetings consisting of two teaching and learning process, the first meeting was held on Saturday 4 November 2017, and the second meeting was held on Wednesday 8 November 2017 and once daily test II which was held on Saturday November 11, 2017. Implementation of the action carried out based on the planning that has been prepared by applying the model of cooperative learning type make a match.

c. Observation Stage

Observations are done in tandem by the implementation of the action. Observations were made by the observer by filling out the observation sheet of the teacher activity, the observed aspects were: (conveying the purpose and motivating the students, presenting the information, organizing the students into study groups, guiding

the working group and studying, giving evaluation, and rewarding), then the observed aspects of student activity are: (listening and recording the competencies to be achieved, listening and observing the material presented by the teacher, forming the group according to the teacher's instructions, working and studying with the group, listening and answering the evaluation questions provided by the teacher, awards given by teachers) based on rubric assessment of teacher activity and student activities in the application of cooperative learning model type make a match

d. Reflection

Reflection is done by studying, seeing and considering the results or the impacts and actions, weaknesses and deficiencies of the results or data obtained for analysis which are then used as a reference for improving actions in the next cycle.

1) Result

Assessment of teacher activities by using observation sheet which refers to teaching and learning activities by using model of cooperative learning type make a match can be seen in table 4.

Table 4. Observation Teacher Activities in two cycles

Aspect	1 st cycle		2 nd cycle	
	I	II	I	II
Students	18	20	22	23
Percentage	75%	83,33%	91,67%	95,83%
Categories	Good	Good	Very Good	Very Good

Based on Table 4.it was found that in teacher aspects activities observed in first and second

cycle increased. The first meeting of cycle I the number of observed aspects was 18 with the percentage of 75%

and good category. At the second meeting, the number of aspects increased to 20 with the percentage of 83.33% and the good category. While in second cycle the number of aspects observed at the first meeting with a score of 22 with a percentage of 91.67% and very good category,

increased in the second meeting with a score of 23 with a percentage of 95.83% and very good category. Observation of student activities during teaching and learning process in first and second cycle can be seen in table 5.

Table 5. Observation Results of Student Activity in Two Cycles

Aspect	1 st cycle		2 nd cycle	
	I	II	I	II
Students	17	19	21	23
Percentage	70,83%	79,16%	87,50%	95,83%
Categories	Good	Good	Very Good	Very Good

Based on Table 5 can be seen result of student aspects activities at each meeting has increased. First cycle of student activities with score 17 with percentage 70.83% and good category. The second meeting total score increased to 19 with 79.16% percentage and good category.

First meeting in second cycle got 21 with 87.50% percentage and very good category. The second

meetingscores obtained is 23 with 95.83% percentage and very good category.

Student learning outcomes through implementation cooperative learning model type make a match in 3rd grade can be known by doing analysis of students' learning outcome. Based on daily test of cycle and daily test result of cycle II can be presented student learning outcome in table 6.

Tabel 6. Results Average Student Science Results from Basic Score

Aspects	Basic Score	I	II
Amount of score	1.870	2.330	2.640
Students	30	30	30
Average score	62,33	77,67	88,00
Increasing average score		15,34 poin	25,67 poin
Percentage increasing		24,61%	41,18%

Based on Table 6, the preliminary data the amount of value only amounted to 1.870 with an average of 62.33 increased in the first cycle the number of values to 2,330 with an average of 77.67, as well as an increase in the average value of 15.34 points and the percentage increase of 24, 61%. Next on the second cycle the

number of values increased to 2640 with an average of 88.00, as well as an increase in average value of 25.67 points and a percentage increase of 41.18%.

The result of science learning before and after the action has increased, it means cooperative learning model of make a match type

can promote primary student's learning outcomes compared to not using cooperative learning model type make a match. Cooperative learning model type make a match can greatly improve student-learning outcomes because in the model of cooperative learning type make a match will create students to participate actively and participate in cooperation so that students will think. In addition, the average student learning outcomes are increasing, the increase also occurs in the completeness of student learning outcomes. Before applied cooperative learning model type make a match primary students' achievement classical in science 40.00%. Then after the implementation cooperative learning model type make a match, the first cycle students' learning outcomes increased to 80.00% and second cycle students' learning outcomes increased to 96.67%. This shows that the model of cooperative learning type make a match has guaranteed the involvement of students in the learning process, so that student-learning outcomes increase.

2) Discussion

The discussion of the implementation cooperative learning model type makes a match in 3rd grade students. Improving the teaching and learning process conducted by teachers involved students' achievement. Student activities grow because in the learning process students learn more from their friends than teachers do so that the teaching and learning process centered on students and teachers as a facilitator. Students were active in learning, confident with their opinion and teacher centered.

Cooperative learning model type make a match can be actively learning, students centered (Febriana, 2011; Zamandri, 2017). Based on the analysis of teacher activity data first and second cycle showed an increase in the percentage of teacher activity. Only the weakness is in the first cycle the percentage is only 75% with good category, this is because researchers are still lacking in score classically and at the second meeting the percentage became 83.33% good category, the researcher has been able to master the class. Likewise, in second cycle got percentage of 91.67% and an increase in teacher activity at the second meeting to 95.83%.

Student activity after applying cooperative learning model make a match type also increased, the percentage on first cycle was 70,83%, the second meeting increased to 79,16%. Furthermore, during the second cycle of the first meeting the percentage of 87.50% increased at the second meeting to 95.83%. Increased percentage of students indicate that in the learning process students have understood the steps model of cooperative learning type make a match so that student learning outcomes also increased.

4. CONCLUSION AND RECOMMENDATION

a. Conclusion

Based on the data analysis and discussion conducted can be concluded that, the implementation of cooperative learning model type make a match can improve primary students' learning outcomes in science, (1) Teacher

activity is increasing, the first cycle first meeting activity the teacher is 75%, increased at the second meeting to 83.33%. In second cycle the first meeting increased again to 91.67%, at the second meeting increased again to 95.83%. And the activity of student in first meeting of first cycle is 70,83%, increase at second meeting become 79,16%, thesecond cycle in first meeting increase again become 87.50%, at second meeting increase again to 95,83%. (2) Increased learning outcomes increase from the basic score average learning outcome 62.33 with 40.00% classical completeness increased in the first cycle to average learning outcome 77.67 with 80.00% classical completeness and increased again in second cycle is the average learning result 88.00 with 96.67% classical mastery. With the increase of the average score from first outcome score of 15.34 points and the percentage increase of 24.61%, as well as the increase in the average score from the second outcomescore by 25.67 points and the percentage increase of 41.18 %.

b. Recommendation

Based on the conclusions mentioned above, the researcher hopes and suggests: (1) Schools with similar characteristics, teachers can apply cooperative learning model type make a match to improve student learning outcomes because considering cooperative learning model type make a match able to create active learning and fun. (2) Researchers by applying cooperative learning model make a match type can be used as a reference

or basis to improve learning outcomes in science or other subjects.

REFERENCES

- Anggarawati, I. A. (2014). Pengaruh Make a Match Berbantu Media Kartu Gambar terhadap Hasil Belajar IPS SD. *Jurnal Mimbar PGSD Universitas Pendidikan Jurusan PGSD*.
- Arikunto, S. (2010). *Penelitian Tindakan Kelas*. Jakarta: Bumi Aksara.
- Artini, L. (2014). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match Berbasis Budaya Lokasi Bali untuk Meningkatkan Hasil Belajar Matematika Siswa Kelas V SDN 2 Cempaga. *Journal Mimbar PGSD Universitas Pendidikan Ganesha Jurusan PGSD*.
- Asmani, J. M. (2011). *Penelitian Tindakan Kelas*. Jakarta: Transmedia.
- Asmani, J. M. (2011). *Penelitian Tindakan Kelas*. Jakarta: Transmedia.
- Astika, N., & Nyoman, N. (2012). Efektivitas Model Pembelajaran Kooperatif Tipe Make a Match terhadap Hasil Belajar Siswa. *Jurnal Penelitian Pendidikan Fisika*.
- Dewi, L. M. (2013). Pengaruh Model Pembelajaran Kooperatif Tipe Make a Match berbantuan Media Grafis terhadap Hasil Belajar IPS Siswa Kelas V SDN 18 Pemecutan. *Jurnal Mimbar PGSD Universitas Pendidikan Ganesha Jurusan PGSD*.
- Dimiyati, & Mudjiono. (2010). *Belajar dan Pembelajaran*. Jakarta: Rineka Cipta.

- Fatimah, I. D. (2017). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match dengan Media Kartu Bergambar untuk Meningkatkan Motivasi dan Hasil Belajar Siswa . *Jurnal Ilmiah Pendidikan Sosiolitas*.
- Febriana, A. (2011). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match untuk Meningkatkan Kualitas Pembelajaran IPS Siswa Kelas V SDN kalibantengkidul Kota Semarang. *Jurnal Kependidikan Dasar*.
- Hermita, N., Adiputra, Sari. (2013). Pengaruh Pendekatan Pembelajaran Berbasis Masalah Terhadap Peningkatan Keterampilan Berpikir Kritis Siswa Dalam Pembelajaran IPA Kelas V Sd Negeri 99 Pekanbaru. *Jurnal Primary*, 2(2), 53-66, 2013.
- Hermita, N., Suhandi, A., Syaodih E., Samsudin, A. (2017a). Profil Learning Progression Mahasiswa Calon Guru Sd Terkait Konsep Benda Netral Setelah Aktivitas VMMSCT ext. *Jurnal Pedagogik dan Dinamika Pendidikan*, 7(2), 2017.
- Hermita, N., Suhandi, A., Syaodih E., Samsudin, A. (2017b). Level Conceptual Change Mahasiswa Calon Guru SD Terkait Konsep Benda Netral Sebagai Efek Implementasi VMMSCT EXT. *Jurnal Wahana Pendidikan Fisika (2017) Vol.2 No.2 : 71-76*
- Hermita, N., Suhandi A., Syaodih, E., Samsudin, A., Isjoni, Rosa, F., Sapriadil, Setyaningsih, R. & Johan, H . (2017c). Constructing and Implementing a Four Tier Test about Static Electricity to Diagnose Pre-Service Elementary School Teachers' Misconception. *Journal of Physics: Conference Series*, 895.012167.
- Hermita, N., Suhandi A., Syaodih, E., Samsudin, A, Isjoni & Rosa. (2017d). Assessing Pre-Service Elementary School Teachers' Alternative Conceptions through a Four-Tier Diagnostic Test on Magnetism Concepts. *Advanced Science Letters (ASL)*, Vol 23 no 11.
- Hermita, N., Suhandi, A., Syaodih E., Samsudin, A., Isjoni, Rosa, R, Sopandi W., Muslim, Maftuh, B., Wibowo, Sumardi, Mustafa, Prasetyo, Zuhdan K, Marhadi, H. & Coştu, B. (2017e). The effectiveness of using virtual simulation and analogy in the conceptual change oriented-physics learning (VSAO-PL) On direct current circuits. *Turkish Online Journal of Educational and Technology (TOJET)*, Special issue Desember 2017 For INTE 2017.
- Hermita, N., Suhandi, A., Syaodih E., Samsudin, A., Maftuh, B & Coştu, B. (2017f). The effectiveness of visual multimedia supported conceptual change text on overcoming students' misconception about Boiling concept. *Turkish Online Journal of Educational and Technology (TOJET)*, Special issue Oktober 2017 For INTE 2017.

- Hermita, N., Suhandi, A., Syaodih E., Samsudin, A., Mahbubah K, Kurniaman, O., Noviana, E. (2018). Constructing VMSSCCText for Re-conceptualizing Students' Conception. *Journal of Applied Environmental and Biological Sciences. J. Appl. Environ. Biol. Sci.*, 8(3)1-1, 2018.
- Mariana, I., & Praginda, W. (2009). *Hakikat IPA dan Pendidikan IPA untuk guru Sekolah Dasar*. Jakarta: PPPPTK IPA.
- Maula, M., & Rustopo. (2012). Pengaruh Model pembelajaran Kooperatif Tipe Make a Match terhadap Hasil Belajar Matematika Siswa Kelas IV SD. *Majalah Ilmiah Pendidikan Dasar*.
- Maulana, M., & Rustopo. (2012). Pengaruh Model Pembelajaran Kooperatif Tipe Make a Match terhadap Hasil Belajar Matematika Siswa Kelas IV SD. *Majalah Ilmiah Pendidikan Dasar*.
- Mikran. (2014). Penerapan Model pembelajaran Kooperatif Tipe Make a Match untuk Meningkatkan Hasil Belajar Siswa kelas VII SMP Negeri 1 Tomini pada Konsep Gerak. *Jurnal Pendidikan Fisika Tadulako*.
- Mustadil. (2017). Perbandingan Hasil Belajar Matematika dengan Menggunakan Metode Pembelajaran Make a Match dan Scramble pada Peserta Didik Kelas IV SD Inpres Tanah Karaeng. *Jurnal Matematika dan Pembelajaran*.
- Rusman. (2011). *Model-model Pembelajaran, Mengembangkan Profesionalisme Guru*. Jakarta: Rajawali Press.
- Sagala, S. (2010). *Konsep dan Makna Pembelajaran*. Bandung: Alfabeta.
- Shifiya, A. R. (2013). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match untuk Meningkatkan Motivasi dan Hasil Belajar Sosiologi Siswa kelas XI IPS 3 SMA Negeri 3 Wonogiri Tahun 2012/2013. *Jurnal Ilmiah Pendidikan Sosial*.
- Sulistyaningsih, F. (2014). Penerapan Model pembelajaran Kooperatif Tipe Make a Match Berbantuan Power Point dilengkapi LKS untuk Meningkatkan Motivasi dan Hasil Belajar pada Pokok Bahasan Isomer dan Reaksi Senyawa Hidrokarbon Kelas X SMA Batik 1 Surakarta Tahun Pelajaran 2012/2013. *Jurnal Pendidikan Kimia*.
- Suraidah. (2016). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match untuk Meningkatkan Hasil Belajar Ilmu Pengetahuan (IPA) Siswa Kelas V SDN 003 Sungai Manasib . *Jurnal Online Mahasiswa Universitas Riau*.
- Wibowo, K. P., & Marzuki. (2015). Penerapan Model Make a Match Berbantu Media untuk Meningkatkan Motivasi dan Hasil Belajar IPS. *Jurnal Pendidikan Sosial*.
- Wiguna, I. K. (2014). Pengaruh Model Kooperatif Tipe Make a Match terhadap Hasil Belajar Matematika Siswa Kelas IV di Gugus III kecamatan Rendang.

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Pendidikan Ganesha Jurusan
PGSD.*

Zamandri. (2017). Penerapan Model Pembelajaran Kooperatif Tipe Make a Match untuk Meningkatkan Hasil Belajar IPS Siswa Kelas VI SDN 26 Padang Mutung. *Jurnal Online Mahasiswa Universitas Riau.*