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Learning Outcomes Improvement in Animal's Life Cycle Material (Theme 6 Sub-Theme 2) Through Card Sort Strategy Implementation Toward Fourth Grade Students Of Mi Tarbiyatul Islamiyah Panjunan Sidoarjo

Revida Wahyu Putri Nurrohmah
MI Tarbiyatul Islamiyah Panjunan
Email: *revida@gmail.com*

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ABSTRACT

This research was conducted due to the low learning outcomes of fourth-grade students of MI Tarbiyatul Islamiyah Panjunan Sidoarjo in the animal's life cycle materials (Theme 6 Sub-theme 2). It was proved by the learning outcomes of students were still under minimum completeness criteria due to the difficulty of distinguishing the animal's life cycle as complete metamorphosis, incomplete metamorphosis, or ametamorphosis. The minimum completeness criteria are only 40% (not good). Therefore, the effort conducted by researchers in improving learning outcomes is through the card sort strategy. The purpose of this research were; 1) describe the implementation of a card sort strategy toward fourth-grade students MI Tarbiyatul Islamiyah Panjunan Sidoarjo in animal's life cycle material, 2) describe the increase of students learning outcomes in animal's life cycle material after implementing the card sort strategy. This study used Classroom Action Research (CAR) with Kurt Lewin's model in which there are 4 stages namely planning, observing, acting, and reflecting. Data collection techniques used were interviews, documentation, observation, and test. The subject of this research was 30 students of fourth grade MI Tarbiyatul Islamiyah Panjunan Sidoarjo. The results showed that; 1) The implementation of card sort strategy has been done well, it can be seen from the increase of teacher and student's activity percentage; 2) the result of students learning outcomes has increased significantly which can be seen from student's completeness percentage to 93%. Thus, it can be said that this research has been successful.

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INTRODUCTION

Natural Science is a branch of science relates to all the events associated with the nature (Samatowa, 2011). Natural science is study of natural phenomena in the form of fact or occurrence that relate the causes and consequences of events existing in nature (Widi, 2014).

Natural sciences discusses the events of nature which are compiled based on the results of experiments and observations. As Powler stated that natural science is science that deals with natural phenomena, which are arranged regularly in the form of observations and experiments collection. According to Winaputra, that also requires a way of thinking and solving problems. From Powler and Winaputra, it can be concluded that the learning of natural science is to use curiosity to understand natural phenomena through problem solving with observations and experiments.

Learning natural science become means for learners in studying the nature around. Because it trains students to think critically and objectively, i.e. knowledge that can be accepted by common sense (rational) and in accordance with the object, fact and observation through the senses (Objective). Learners are also expected to understand the nature and able to solve problems that exist in their surroundings. The importance of an educator should be able to teach usabilities and create a pleasant learning atmosphere so that the learning process can run effectively (Wisudawati & Sulistyowati, 2014).

Based on the observation result conducted by researcher at the fourth grade students of MI Tarbiyatul Islamiyah Panjunan Sidoarjo, in animal's life cycle, many students do not reach the Minimum Completeness Criteria yet. It was only 40%, in other words it only 12 of 30 students who reach minimum completeness criteria. It was categorized as less completeness and some students who can not distinguish between the animal's life cycle as complete metamorphosis, incomplete metamorphosis, and ametamorphosis. Teacher has difficulties to activate the students, they pay less attention and the learning process was less able to attract the interest of students (Aini, 2019). Effort to increase student learning outcomes cannot be separated from the various factors that influence it. The teacher as one of the factors that affect the learning outcomes required to be creative in planning the learning to be more interesting and fun, so students would be more easily understand the material being taught.

Based on the problems, one of the learning strategies that are effective to make the students active is a card sort (Sorting Cards). The implementation of card sort is expected to improve the enthusiasm of students in learning, especially in animal's life cycle material. The use of card sort strategy encourages cooperation in the class. Card sort strategy teach the concept, characteristics, clarification, and facts about the object or review the material that has been discussed on previous learning. Card sort strategy is also need more physical movement that can liven up the class (Fathurrohman, 2015). Physical movement in the classroom can stimulate students who feel bored or tired and this activity could be used to discuss and work together to resolve the issue of the card sort (Siberman, 2016).

Research using card sort strategy have also been carried out by previous researchers, namely, Ketut Sanjaya and his friends in the year 2016 by the title of "Implementation of Card Sort Learning Strategy to Improve the Science Activity and Learning Outcomes". The result showed that card sort strategy can improve student learning outcomes (Sanjaya, 2016). Relevant research have also been carried out by Resti Tri Astuti in 2017 by the title "Implementation of Active Learning Strategy Card Sort Type to Improve Learning Outcomes for Chemistry Students in Class X". The result of the research concluded that student learning outcomes of chemical class Xf SMA Negeri 1 Indralaya can be increased (Astuti, 2017). The purpose of this study was to determine the implementation of card sort strategy in animal's life cycle material of fourth grade

students MI Tarbiyatul Islamiyah Panjunan Sidoarjo and determine the improvement of learning outcomes through the implementation.

METHODS

This research uses method of classroom action research which is conducted in MI Tarbiyatul Islamiyah Panjunan Sidoarjo on November 12th, 2019 – February 20th, 2020. The subject of research is 30 students of fourth grade students of MI Tarbiyatul Islamiyah Panjunan Sidoarjo.

Action Plan

1. Cycle I
   a. Planning
      1) Planning the learning implementation
      2) Creating written test instrument
      3) Creating instrument of teacher activity observation sheet
      4) Creating instrument of student activity observation sheet
      5) Creating instrument of interview
      6) Validation
   b. Acting
      After developing the planning, the researcher then carrying out actions that have been formulated in Lesson plan, teacher activities are as follow:
      1) Greeting and pray
      2) Preparing students
      3) Providing the motivation and aperception about the animal's life cycle
      4) Conveying the learning objectives.
      5) Asking students to convey what they get from the activity of observing and reading.
      6) Asking students to come forward and taking the card that has been sorted.
      7) Asking students to find friends fits with the image of animal's life cycle they brought to be sorted.
      8) Giving cardboard and worksheet to the leader of each group.
      9) Guiding students if there are difficulties.
      10) Asking each group to present the result in front of the class.
      11) Clapping hands to give appreciation to all the groups.
      12) Reinforcing and explaining the material.
      13) Guiding students to conclude the learning.
      14) Providing reinforcement to students.
      15) Giving assignments.
      16) Conditioning the student to lead the prayer.
   c. Observing
      Observe the learning process and evaluate the sheets of research instrument in order to determine the result. The results of these observations are used to plan follow-up on the next cycle.
   d. Reflecting
      Collect and analyze the results of the findings obtained during the learning process. Researcher analyzed the data about results of the finding in the learning process. Then making revision to design remedial action on the second cycle
2. Cycle II
   a. Planning
      Researcher creates learning plan based on the results of Cycle 1 reflection.
   b. Acting
      Teacher implement learning by using card sort strategy based on the learning results of the cycle I reflection.
   c. Observing

Researcher conducted observations of learning activity as in the first cycle.

d. Reflecting

Researcher conducted reflection of the second cycle implementation as in the first cycle, then analyze to make conclusions of learning implementation as well.

Data Collection Technique and Data Analysis

Techniques of data collection using qualitative and quantitative, namely: Interview, Observation, Test, Documentation. Technique of data analysis used in this study as follows:

Data Analysis of Interview

Researcher analyzed the data of interview by giving some of the main questions for students and teachers who have difficulties in the learning process.

Data Analysis of Students dan Teacher Activity

The activity of students and teachers in learning was measured by using the observation sheet. Then, it will be analyzed using formula 3.1 (Sunarti, and Selly Rahmawati, 2014) with the criteria of students and teacher activity in table 3.1 as follows:

Formula 3.1
Data of Students and Teacher Activity

$$Value = \frac{obtained\ score}{maximum\ score}\ x100$$

Table 3.1
Criteria of Students and Teacher Activity

value	Qualification
91-100	Very Good
81-90	Good
71-80	Enough
60-70	Less
<60	Not Good

Students and teacher activities can be said in line with expectation if students and teachers acquire good category that is 81.

Data Analysis of Student Learning Outcomes

The level of learning outcomes can be known through the test consisting of 10 multiple choice and 5 essay questions. To determine the value of the final result, it can be calculated by using formula 3.2 (Purwanto, 2012) and the criteria as in table 3.2 as follows:

Formula 3.2 Learning Outcomes

$$Value = \frac{obtained\ score}{maximum\ score}\ x100$$

Table 3.2 Learning outcome criteria

value	qualification
90-100	Very Good
80-89	Good
65-79	Enough
55-64	Less
<55	Not Good

Calculating formula to determine the average value of class can be seen in formula 3.3 (Arikunto, 2014) and criteria of the average value in table 3.3 as follows:

Formula 3.3 Class Average

$$\bar{x} = \frac{\Sigma X}{\Sigma N} = \cdots$$

Where;
$\bar{x}$ = average
ΣX = Total of students value
ΣN = Total number of students

Table 3.3 Criteria

value	qualification
90-100	Very Good
80-89	Good
65-79	Enough
55-64	Less
<55	Not Good

Calculating presentation of learning mastery by using formula a 3.4 (Rukajat, 2014) and the criteria in table 3.4 as follows:

Formula 3.4 mastery of learning

$$P = \frac{f}{N} \; x \; 100\%$$

where:
P= percentage
f = students who master the learning
N = total number of students

Table 3.4 Mastery of learning criteria

value	qualification
90% - 100%	Very Good
80% - 89%	Good
65% - 79%	Enough
55% - 64%	Less
0% - 55%	Not Good

Data Analysis Documentation

Documentation analysis requires the data that support research such as Lesson plan from cycle I, list of absent, observation sheet, evaluation sheet, learning result and other supporting data.

Performance Indicators

Succes is indicated by the score increase in each of cycle than in the previous, and the percentage of experience more than ever before. Performance indicators which are necessary in CAR, there are:

1. Fourth grade students of MI Tarbiyatul Islamiyah Panjunana Sidoarjo categorized to be successful if it increases and reach minimum completeness criteria of 75.
2. Percentage of learning mastery with good category of 80% from the total number of students.
3. Percentage of teacher activity with Good category reached 81.
4. Percentage of student activity with Good category reached 81.

RESULTS AND DISCUSSION

Data obtained through observation, interview, documentation and test of learning outcomes. Observation is used to observe the activities of teacher and students when implementing card sort strategy in learning. Interview is used to identify the constraints in learning, characteristics of students, minimum completeness criteria of class IV as well as find out the picture of the learning outcomes before and after learning by using card sort strategy. Documentation is used to collect data such as the value of daily exercises, student attendance, lesson plans, instruments, interviews, worksheets, and evaluation for students and pictures of the learning activities and process. The test of learning outcomes used to determine the increase of students learning outcomes after applying card sort strategy. Researcher grouped data into 3 (three); pre-cycle, cycle I, and cycle II. Here is description of the results at each cycle carried out in the learning

Pre-Cycle

The activities in pre-cycle is conducted to collect initial data through interview with the class teacher, the result is some students could not distinguish animal's life cycle as complete metamorphosis, incomplete metamorphos, or ametamorphosis. Besides, teachers still having trouble conditioning students of class IV, which are mostly classified as active.

In addition to the interviews, the researcher collect data documentation about the value of student learning outcomes related to animal's life cycle. Based on the data, number of students who complete only 12 students and 18 students do not complete yet.

Data of student's value before

being implemented card sort strategy are presented in Table 4.1 below;

Table 4.1 Learning Outcome in Pre-Cycle

No.	Name	Completeness	Value	C/NC
1	Adelio	75	78	C
2	Raihan	75	74	NC
3	Aisyah	75	86	C
4	Fiyah	75	91	C
5	Aulia	75	62	NC
6	Carissa	75	81	C
7	Cinta	75	63	NC
8	Davien	75	91	C
9	Devina	75	64	NC
10	Dinda	75	81	C
11	Hanysa	75	82	C
12	Keisya	75	69	NC
13	Fadhil	75	61	NC
14	Keyla	75	86	C
15	Da'ian	75	87	C
16	Ara	75	62	NC
17	Syifa	75	87	C
18	Mirza	75	68	NC
19	Andre	75	65	NC
20	Haidar	75	85	C
21	Amir	75	68	NC
22	Bani	75	74	C
23	Fatan	75	59	NC
24	Nikita	75	58	NC
25	Nabila	75	66	NC
26	Rara	75	63	NC
27	Vindy	75	69	NC
28	Nanta	75	71	NC
29	Zahra	75	61	NC
30	Yoga	75	67	NC
	Total of students value			**2179**
	Total number of students			**30**
	Students reach completeness			**12**
	Students do not reach completeness			**18**

Researcher then conduct the process of learning in animal's life cycle use card sort strategy for cycle I and cycle II, as follows:

Implementation of Card Sort Strategy to Improve Learning Outcomes in Animal's Life Cycle Material of fourth Grade Students MI Tarbiyatul Islamiyah Panjunan Sidoarjo.

The implementation of card sort strategy is suitable to apply in the topic because this strategy activates students through physical movement which support the class characteristics, so students are enthusiastic to learn by this fun strategy. Card sort strategy has been shown to have an increase in cycle I to cycle II with the constraints that there be improvements in the next cycle.

Observation of teacher and students activity during the two cycles have increased in cycle II. The observation value of teacher activity in cycle II increased to 91 while student activity in cycle II increased to 92. The increased in cycle I and cycle II can be seen in figure 4.1 and 4.2 as follows:

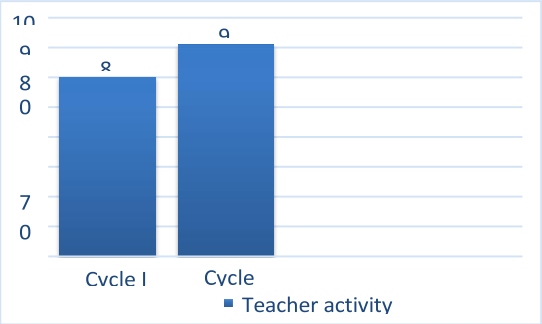

Figure 4.1 observation of teacher activity

Based on figure 4.1, it is known that the result of teacher activity increased from cycle I with score of 90 with the value of 80 and belongs to enough category. It still has not reached the criteria and performance indicators of 81 with good category. Then, fromthe less achievement of in the first cycle can be corrected in the next cycles. Corrective action made by teacher on the cycle II are; 1) Teacher convey learning objectives so being focused on the competencies to be achieved; 2) Teacher emphasizes the material in the beginning of learning by providing important record of the information they got from reading and observing, teacher explained more when

each group has presented the discussion results, and at the end of lesson teacher strengthens material they've got. Explanation is suitable to do at beginning, middle or the end of lesson. It is because the existence of explanation is to strengthen the student's knowledge related to the material (Huda, 2010); 3) Teacher give feedback according to the material being taught. Based on the students activities such reading, observing and listening to teacher explanation, it is able to train students in thoroughness, and earnestness in searching information (Wakhidah, 2016).

Improvement of teacher activity who has been applied in cycle II largely increased and got score of 102 and value of 91 included in the good category and achieving performance indicators..

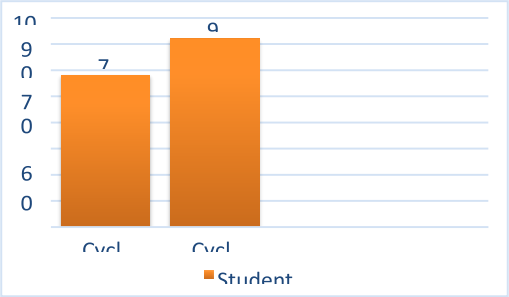

Figure 4.2 observation of students activity

While based on figure 4.2 on the observation of student activity increased from cycle I to obtain the results of the 78 that belongs to the enough category. From the result obtained in cycle I that still haven't reached the criteria and performance indicators, it is 81 with good category. Corrective action at cycle II, there are 1) teacher divide students into 6 groups, then proceed to share card sort in each group, 2) teacher does not point the head of group, the transmitter to student is directly the teacher. Because the teacher became the center of information, so that students are not rowdy with the same question about the way of doing discussion sheet, 3) teacher gives questions in each presentation to other groups so that students focus with group presentation. Based on the solution which has been applied in the second cycle, the result has increased, teacher activity get score of 103 and value of 92 which belongs in very good category.

After the implementation of reflection on card sort strategy it obtain very good results and has increased from cycle I. Students also understand with the implementation of this card sort strategy. One of the student revealed that card sort strategy is very fun to implement by drawing up a card that has been sorted, at once they become active to play with their classmates then all of the students involved in learning activities in the classroom (Puspitasari, 2020).

The Increase of Students Learning Outcomes in Animal Life Cycle Material (Theme 6 Sub-theme 2) by implementing Card Sort Strategy

Based on the result of pre-cycle, cycle I and cycle II data, it is known that there is a significant increase of students learning outcomes. The improvement of learning outcomes after implementing card sort strategy can be seen in figure 4.3 percentage of students completeness as follows:

The Increase In Student Learning Outcomes

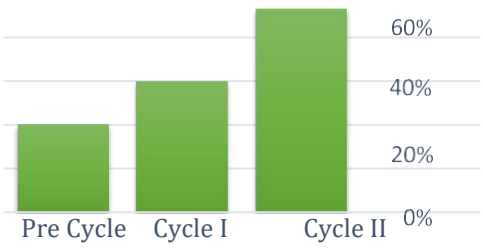

Figure 4.3 The Increase In the Value of completeness percentage

Based on the picture above it can be seen that the results obtained on students mastery percentage has increased for each cycle. This is supported by the reflection in each cycle and the result of interview with the class teacher. In pre-cycle, which the result is still relatively low because there are some difficulties in categorizing animals including in complete metamorphosis, incomplete metamorphosis, or ametamorphosis. The implementation of appropriate learning strategies to the material to be conveyed is one of the efforts to improve student learning outcomes. Teachers have to master various forms of teaching strategies and use the appropriate one for each material that will be taught. The success of the teaching-learning process is largely determined by the ability of teachers in managing the learning process (Astuti, 2017).

The follow up towards the first cycle increased percentage of 60% of students learning completeness. This is due to the lack of reinforcement of the material and students are still confused about sorting animal cycle with his friend so being unconduscively. Therefore, researcher conduct a follow-up to the second cycle. The percentage level of learning outcomes in cycle II increased up to 93%. The increase of completeness percentage is due to the implementation card sort strategy as an active learning which is expected to optimize student's activity and learning outcomes. According to Miftahul Jannah et al who implement the card sort strategy, they explained that the strategy enable individuals and groups in the classroom can improve the learning outcomes (Jannah et al, 2017). Teacher emphasizes the material in the beginning of learning by providing important record of the information they got from reading and observing, teacher explained more when each group has presented the discussion results, and at the end of lesson teacher strengthens material they've got.

Therefore, the actions in second cycle can improve the students learning outcomes in animals life cycle material of fourth grade students MI Tarbiyatul Islamiyah Panjunan Sidoarjo by applying the card sort strategy, it has achieved the performance indicators so researcher do not need to do the next cycles.

CONCLUSION

Based on the results and discussion related to the improvement of learning outcomes in animal's life cycle material through the implementation of card sort strategy toward fourth grade students of MI Tarbiyatul Islamiyah Panjunan Sidoarjo, it can be concluded that:

1. The implementation of card sort strategy in animal's life cycle material toward fourth grade students of MI Tarbiyatul Islamiyah Panjunan Sidoarjo is very well. It is proved by the results which in the first cycle observation of teacher activity the score is 80 (enough), while in the second cycle observation increase to 91 (very good). While the student activity in cycle I get the value of 78 (enough) and in cycle II increase to 92 (very good).
2. Learning outcomes of fourth grade students MI Tarbiyatul Islamiyah Panjunan Sidoarjo in animal's life cycle material increase after the implementation of card sort strategy. It can be seen in the results of the first cycle, students get 60% completeness (enough) and increase to be 93% (very good).

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