

**USE OF CARTON MEDIA TO INCREASE STUDENT LEARNING RESULT IN
LEARNING MATHEMATICS OF MATERIALS TO BUILD CUBE ROOMS
AND BEAMS IN PRIMARY SCHOOL****Teti Rohmawati¹, Eni Supriati², Rizki Pebriana³**^{1, 2, 3}, Elemenary Education, IKIP Siliwangi, Cimahi City, West Java, Indonesia¹ tetirohmawati@gmail.com, ² bunda.eni14@gmail.com, ³ rizkipebriana@ikipsiliwangi.ac.id**ABSTRACT**

This study is based on student learning activities when learning takes place only a few students who pay attention. The results of the mathematics exercise and repetition of students also always get a low score. The use of carton media can help students understand abstract mathematical concepts and can make students more activities in the learning process. This method of classroom action research takes the form of a cycle that will last more than one cycle depending on the success of the target to be achieved. The use of carton media can improve student learning outcomes, either individually or in groups. This is evident from the results of student learning initial data percentage of 35.71%. However, after applying the use of carton media students' learning outcomes increased by 71.42% and in the second cycle reached 92.85%. In addition, the value of the group also increased, the first cycle was 85.71%, and in cycle II reached 100%

Keywords: Carton Media, Result In Learning Mathematics, Build Cube Rooms And Beams**INTRODUCTION**

Math is a universal science that underlies the development of modern science, has an important role in sharing discipline and advancing the human mind. Rapid development in the field of information technology and communication today is based on the development of mathematics in the field of number theory, algebra, analysis, probability theory and discrete math. To master and create technology in the future requires a strong mastery of mathematics from an early age.

Mathematics as an object of abstract study, of course very difficult to accept elementary school age children (SD). As stated by Piaget (Eman Suherman, 2003: 27) that 'elementary school age is classified as still in the stage of concrete operational thinking'. Elementary students have not been able to think formally because the orientation is still related to concrete objects. However, given the pentinnya mathematics to be taught early on, how to mengeola process of teaching and learning mathematics in SD must be digested well by elementary school students. In addition, mathematics must also be useful and relevant to their lives.

Just like what happens in one primary school based on the statement of the teacher, during this learning activity of students when the learning takes place only a few students who pay attention, while the other students cool with their activities like each mangobrol and

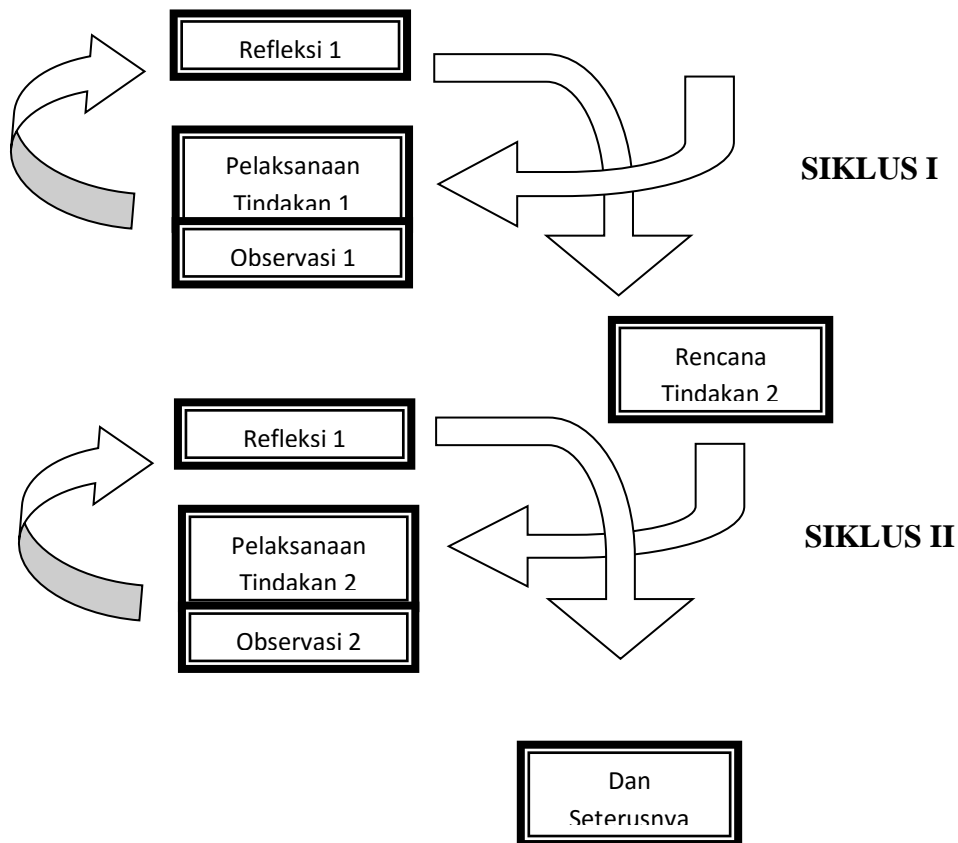
joking with his friend. The results of the students' mathematics training and repetition also always get low score, seen from the acquisition value of training and repetition of students, from 28 students who reach the KKM only 10 people, and 18 others have not fulfilled the KKM. In addition students are less able to cooperate with others and are reluctant to ask when things are not understood.

Less productive student activity activities and low rehearsal and rehearsal results are assumed to be indicators that students do not understand what the teacher is describing and are bored when the teacher presents the subject of learning. From the misunderstanding it causes students can not respond and react to the questions given by the teacher and prefer The use of media can help students understand abstract mathematical concepts and can make students more activities in the learning process. More to teach at the elementary school level that the stage of development is still at the stage of thinking concrete oprasi. Teaching students in Elementary School must be preceded by concrete objects. Gradually with work and observation, students consciously interpret the mathematical patterns contained in the concrete object. Students should also be actively involved in learning mathematics by devoting the making and use of the media in groups, with the aim of training cooperation, motoring, and providing direct experience to students.

The main ingredients used to make the media in this study are cardboard, cardboard is a paper that is usually thicker and stronger than paper or printed paper, but is more flexible and lighter than cardboard The cardboard is commonly used for postcard and other card making materials require higher endurance than plain paper. The texture of this paper is usually smooth, but can also be textured or shiny. The weight of this paper is usually more than 200 g / m² and consists of one or more layers of material obtained from raw pulp or mechanical pulp or recycled paper (Wikipedia, 2011). Carton paper is selected for several reasons, such as easy to obtain, low cost, durable and easily formed. Thus, it can be concluded that carton media is a teaching aid which is a channel or a bridge of messages messages delivered from the message source (teacher) to the message recipient (student) with the intention that the messages can be absorbed quickly and according to the purpose, with the main ingredients used to make the media in this research is cardboard, the cardboard is a paper that is usually thicker and stronger than paper or printed paper, but is more flexible and lighter than cardboard.

METHOD

The method in this classroom action research takes the form of a cycle that will last more than one cycle depending on the success of the target to be achieved, where each cycle can consist of one meeting even more. The selected research procedure is with the Spillar model of Hopkins (Muslich, 2009: 43). Like the next page:



Gambar 1. Spiral Penelitian Tindakan Kelas

Obviously the flow of activities carried out, where the first is the planning of action (planning) is the stage where all the needs of action is prepared carefully and taken into account all obstacles that will occur in order to be anticipated quickly so that at the time of implementation of the action can go according to plan. In the second stage of action (action) and observation (observing). Measures and observations on the implementation can not be separated because at the time the action is implemented, observations conducted at this stage of action is the implementation of all prepared planning. While in the observation stage all the data about the implementation of the action from the start of the plans that have been made, the actions taken and the impacts arising on the process and learning outcomes are collected by means of research instruments at this stage, the teacher does not work alone, but

assisted by peers or by outside observers, expected by observers observation activities can actually encompass all changes in learning performance, but not too dominate in making decisions made principal researchers ie teachers. The next is the reflecting process of the data / input obtained during the observation, in this stage of reflection, all experiences, knowledge and theory of learning that are mastered and relevant to the research conducted can be consideration and comparison so that can be drawn a solid and valid conclusion. The steps on the Kemmis and Taggart cycle model on learning the diversity of natural features by using the environment as a learning resource are as follows:

1. Action Planning

This stage includes all action planning, such as making a learning implementation plan which includes preparing the place as the implementation of research and learning resources. In this stage the authors define the whole action plan that will be done in the use of carton media with the method of pratik in learning mathematics material wake cube and beam space, as for the planning steps are:

- a. Request permission from the principal
- b. Assessment of Competency Standards, Basic Competencies, Indicators and learning objectives which are then shown together in the form of learning implementation plan (RPP)
- c. Researchers formulate the goals to be achieved from the use of carton media and determine the concept to be implanted to students
- d. After doing a survey to where it will go, Note the phenomena or circumstances that will be in carefully that will attract students and can be used as a source of learning
- e. From the survey results make a Group Worksheet (LKK) in accordance with the goals and concepts that will be implanted to students

2. Implementation of Action

In this stage the steps of learning and action refers to the planning that has been made, that is in the process of learning activities with carton media in learning mathematics material abngun cube space and beams. Teachers should guide students to perform activities in accordance with the LKK or other instruments that are made.

3. Observation Stage

At this stage consists of collecting data and record each student activity and teacher performance during the implementation of the action takes place. Observer duty to observe the performance of student activities during the learning process took place with reference to the observation sheet.

This observation was conducted by the researcher by observing student activity and teacher performance in learning mathematics of cube room and beam building with carton media from the beginning of learning until the end of learning. It is intended to know whether the student activity is in accordance with what is listed in the observation sheet or not, so that the observation can be improved in the next cycle.

4. Reflection stage

Reflection is an assessment of the results of data that have been obtained when the observer by researchers, praktikan and pembimbing. Reflection is useful to give meaning to the process and results (changes) that have been done. The results of reflection that will be taken into consideration to make action planning in the next continuous cycle until the learning is declared successful.

The researcher will reflect at the end of the lesson by contemplating intensive events or events that cause something to be expected or not expected. Reflection is a very important part to understand and give meaning to process and learning result that happened and done in the following way:

- a. Check the completeness of the data that is netted during the action process
- b. Discuss and collect data between teacher, researcher and principal (supervisor) in the form of student value, observation, field note and others.
- c. The preparation of the next plan of action formulated in the learning scenario based on the data analysis of the process in the previous action to improve the learning process that has been done in cycle I to arrange the action to be done in cycle II.

RESULTS AND DISCUSSION

Based on the results of planning data analysis, the Learning Implementation Plan (RPP) in this study is in accordance with the steps of using carton media. Basically the RPP components that are made equal to the RPP components are generally in accordance with the Education Standards Agency (2006), ie RPP identity (school name, class / semester, subject, material, sub-material and time allocation), Competency Standards, Basic Competencies, Indicators, learning objectives, values inculcated, Teaching Materials, Learning models, learning methods, learning activities (Activities of interest, core activities consisting of exploration, elaboration and conformation, closing activities), assessment (procedures, techniques, question form, instrument / problems) and the last Tools and Learning Resources. Based on the results of RPP implementation data analysis on the teacher performance sheet, it

can be seen that the implementation of the researchers from cycle I to cycle II has been in accordance with the steps of the use of carton media, namely the initial activities of teachers convey the purpose and steps of learning. Where teachers convey the purpose of learning to be achieved students, so that students become motivated to implement learning. The teacher then explains to the students how the learning steps will be followed by the use of carton media. LKK is distributed to each group to clarify the steps of making the carton media. In the core activities of teachers divide the students into groups, classify students and carry out practicum and fill out the LKK about the concept to be studied. Students are also trained to work together in carrying out group learning activities. Then in groups students prepare tools and materials to make carton media, such as: paper carton, pencil, ruler, scissors and glue.

Drawing patterns, students create spatial patterns with pencil and ruler on paperboard according to LKK instructions and teacher guidance . Then cut the pattern with the scissors of the wake-up pattern on the previously drafted cardboard according to the LKK's guidance and teacher's guidance. After that give the glue on a particular part and paste it to form a wake in accordance with the guidance and guidance of teachers from LKK. In confirmation activities, uninformed learners are given the opportunity to ask, if there are still students who do not understand then the teacher re-explain in part that is not understood, the teacher also gave the hadaiah to the best group, after which teachers and students make conclusions about learning today , then the students do the evaluation questions individually. The implementation of learning cycle I and cycle II has been implemented in accordance with the RPP that has been maturely created by the researcher so that its implementation in accordance with the steps of the use of carton media above.

From the observation in cycle I, it can be seen that almost all learning activities have been done well enough, but in the core activities of learning when the teacher explains the learning steps that will be implemented, the students pay less attention to the cool with their activities, so there are still many students who are confused during practice and discussion in groups, in addition to practice and discussion there are many passive and less interacting students, there are also students who do all the work of the group so that the members of the group become passive. But based on the analysis of the results of student activity observations in cycle II experienced a very significant change that is 100% student activity indicators implemented, the increase in activity caused due to the results of the reflection of

the first cycle that requires researchers to improve the existing cycles in cycle I and apply it in cycle II .

Based on observations made every cycle twice there is an increase in student activity. Student activity has changed very well that is increase from every cycle and now have reached the target which is desired, that is 100% achievement indicator. This is the result of reflection from cycle I which requires researchers to improve the existing cycles in cycle I and apply them in cycle II. The percentage of student activity in the learning process from cycle I to cycle II, that is cycle I 73,33% and cycle II 100%. The above data can be illustrated in the following diagram

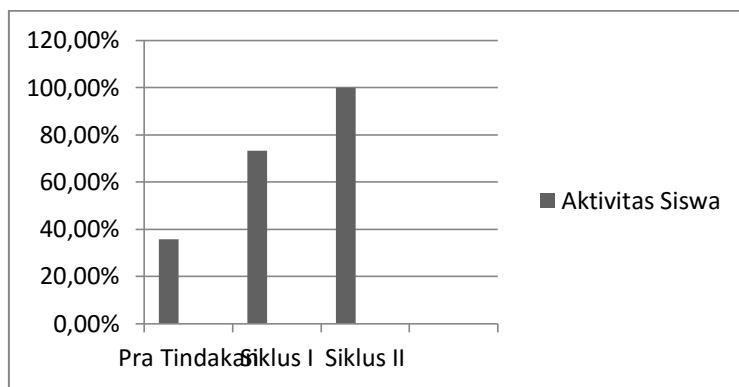


Diagram 1. Percentage of Student Activity

Based on the results of data analysis of the percentage of student learning, it can be seen that there is an increase in student achievement. In the first cycle as many as 18 people or 71.42% who meet the KKM and on the second cycle as many as 26 people or 92.85% who have met the KKM. This is because researchers always provide the right solution to improve learning so that there is an increase in student learning outcomes.

The above data can be illustrated in the following diagram.

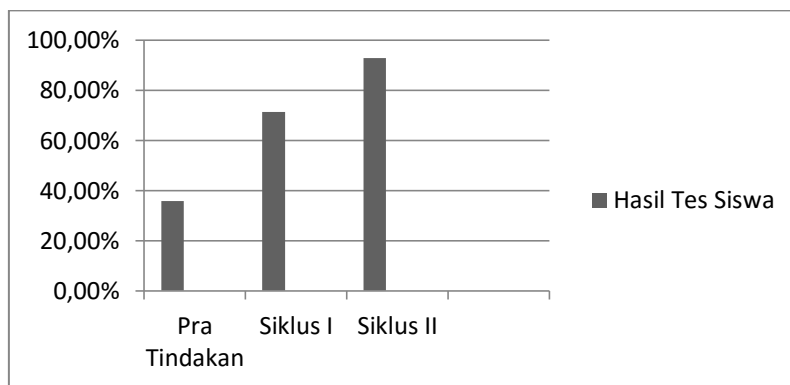


Diagram 2. Percentage of Student KKM Achievement

In addition to the application of the use of carton media shows that the learning process can help students understand the abstract mathematical concepts and can make students more active in the learning process. Because by doing the practice directly students can better understand what is being learned and provide experience directly to students. By doing the practice of students will also be more active so that students are more productive in learning. Student learning outcomes will increase with understanding of improved materials and more productive activities.

CONCLUSION

Based on the results of research that has been done on the use of carton media to improve student learning outcomes in learning mathematics material build space cube and beam, obtained the following conclusion:

1. The implementation plan of mathematics learning by using carton media of building material of cubes and blocks has been significantly improved and improved. Judging from the acquisition of observation observations conducted by the observer in each cycle.
2. The activity of teachers and students increases in learning mathematical material of building cube space and beam by using carton media. Activity of teachers who initially only use ordinary methods or commonly called the conventional method, where in this conventional method only one-way communication, the teacher explains abstract mathematical concepts without any media as aids in the learning process. Student activity also increased.
3. The use of carton media can improve student learning outcomes, either individually or in groups. This is evident from the results of student learning initial data percentage of 35.71%. However, after applying the use of carton media students' learning outcomes increased by 71.42% and in the second cycle reached 92.85%. In addition, the value of the group also increased, the first cycle was 85.71%, and in cycle II reached 100%

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