IMPROVING SCIENCE LEARNING USING STM (SCIENSE TECHNOLOGY COMMUNITY) LEARNING MODEL IN CLASS IV STUDENTS OF SD NEGERI 1 CANGKREP LOR

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ABSTRACT

Learning in the classroom aims to improve thinking and creative skills in CHAPTER 4 Changing Energy Forms using the STM learning model. The learning was carried out in Class IV of SD Negeri 1 Cangkrep Lor with a total of 29 students consisting of 15 male students and 14 female students. The method used in class learning uses the experimental method and the data collection uses experimental results sheets and evaluation sheets. The learning results show that there are students' thinking skills where there are obstacles when conducting experiments, but students can face these obstacles by trying to return to their experiments and increase students' creativity in conducting experiments. The conclusion is that through the Science Technology Society (STM) learning model, it shows an increase in students' thinking and creative skills in CHAPTER 4 Changing Energy Forms in class IV SD N 1 Cangkrep Lor.

Keywords:Science, technology, science learning models

INTRODUCTION

Education is the most important thing in life. Without going through learning, we do not get the knowledge that can be obtained. The government's efforts to realize the goals of education in Indonesia are by holding reforms. Renewal of the national education system is carried out to update the vision, mission and strategy for national education development. IPAS is a group of natural and social science subjects. The provision of science and technology subjects is intended to acquire scientific and technological competence and to cultivate scientific, creative and independent thinking. Science subjects also aim to develop curiosity, positive attitudes and awareness about the interplay between science, environment, technology and society and to be able to solve problems and make decisions related to everyday life.

Based on the results of observations on science subjects on energy and energy transformation tend not to be optimal in the process skills acquired by students. These conditions cause learning to be less meaningful for students, as well as students' interest and motivation in learning science subjects to be low. Students are also still low in critical thinking so they pay less attention to social issues in society. In addition, students' scientific literacy also tends to be low. This is different from science learning which is carried out through practical activities so that students do not only exercise their minds but also exercise their hands.

Science learning in elementary schools can develop cognitive, affective, psychomotor. The process of teaching activities certainly uses a variety of appropriate approaches. In its application, the learning approach must be carried out according to the needs of students because each learning approach has different objectives, principles and main pressures. There are many approaches that can be applied to science and technology subjects, one of which is the Community Science and Technology approach. This approach was used in England where at

that time until now, this approach can be used to improve science learning. The challenge in learning natural sciences in elementary schools is that they need to adjust to advances in science and technology, and to be able to adapt to science and technology. For this purpose, learning science needs to be linked to aspects of technology and society. One type of approach that is appropriate for learning natural sciences is the Science Technology Community Approach or what is often called STM. At SD Negeri 1 Cangkrep Lor, Purworejo, science learning at that school is still not optimal. This is due to the lack of student interest in learning science and the result is unsatisfactory science learning outcomes, one of the reasons being the teacher's lack of knowledge about applying the right approach to learning science. It is known that student learning outcomes are still not satisfactory so that efforts are needed to improve science learning, the material "Energy and Energy Transformation" is suitable for use with the STM Approach, namely by connecting issues that exist in society. So that students will be more interested and easier to understand the material presented.

Based on the stages of cognitive development by Jean Piaget there are four stages including: (1) sensory-motor (ages from birth-2 years) children use their perception that certain things are considered the same when placed in different places; (2) pre operational (age 2-7 years), children are just starting the process of acquiring a logical adult intellectual structure; (3) concrete operations (age 7-11 years) children begin to be able to classify, combine, and compare; (4) formal operations (starting around the age of 11 years) children already have the intellectual ability to do formal reasoning (Hill, W. F. 2010: 161-163). Based on these four stages, each stage shows an increase over the previous stage in terms of the child's ability to think abstractly, predict the world accurately, explain the causes of something happening accurately, and face the world intellectually. Most of the fourth grade students at SD Negeri 1 Cangkrep Lor, aged between 10 and 12 years, are in the concrete operational stage with the characteristics of children being able to recognize something, deny something, and look for mutual relationships between several things. IPAs is one of the subjects that is quite influential in the formation of knowledgeable human beings. Science is studied from elementary school to university. According to H. W Fowler (Trianto, 2007: 136) IPA is knowledge that is systematic and formulated, which relates to material phenomena and is based mainly on observation and deduction. IPA is a science that seeks to seek knowledge to understand natural phenomena or tries to explain natural phenomena and is a systematic knowledge of cause and effect interactions.

In the IPAS material, there are basic competencies that must be mastered, namely material on energy and energy transformation. Understanding learning is a series of activities designed to enable the learning process to occur in students (Winataputra, 2008). Meanwhile, according to Law Number 20 of 2003 concerning the National Education System, learning is a process of interaction between students and educators and learning resources in a learning environment. The purpose of this research is to improve learning. Masbied (2010) states that improvement is a process of action, a way of increasing effort, and so on. John Locke stated that improvement is an increase in the level of development of human life that will shape human behavior. So the improvement in this research is the process of increasing learning in science subjects with the STM Approach according to The Nation Science Teachers Association (NSTA) Science Technology Society is learning to teach science in the context of human experience (Asy'ari, M. (2006). Poedjiadi (2006) 2012:47) says that the STM approach means using technology as a link between science and society.So it can be concluded that the STM approach is learning science in the context of human experience by using technology as a link between science and society.The steps for using the STM approach in this study are five steps namely a) Invitation, exploration, appreception: b) Concept formation c) Application of the concept d) Consolidation of the concept e) Assessment Based on the description of the literature review and the framework above, a class action research hypothesis can be formulated that if the

STM step is carried out correctly then appropriate yes which are planned and run well will be able to improve science learning.

METHOD

This research is a class action research (CAR). The approach that researchers use is a qualitative and quantitative approach, because according to classroom action research, researchers want to observe phenomena that occur in the classroom. This type of research is Classroom Action Research (PTK) or Action Research.

This research was conducted at SD N 1 Cangkrep Lor, Purworejo, with a total of 29 students. The research data source is the science learning process in class IV SD N 1 Cangkrep Lor, which includes lesson planning, learning implementation, learning evaluation activities, teacher and student behavior during the learning process. Data were obtained from the subjects studied and fourth grade students at SD N 1 Cangkrep Lor with a total of 29 people. Research data collection techniques were carried out using lesson plans assessment sheets, observation sheets on the implementation of learning with the STM approach from the teacher and student aspects, and evaluation. Each of them is described as follows: The learning implementation plan (RPP) assessment sheet contains the aspects that will be assessed in the preparation of the lesson plan. Observation sheets basically contain descriptions or are in the form of exposure to practitioners' actions during learning with the STM approach. The understanding of the elements observed in the implementation refers to what is stated on the observation sheet. The researcher acts as a practitioner who carries out the activities in the planning and the class teacher acts as an observer who is outside the activity but is still in a research setting. Evaluation is used to strengthen observation data that occurs in class, especially in items of mastery of learning material from student elements. This is done to obtain accurate data on students' ability to understand science learning on energy and energy transformation materials using the STM approach. The research was conducted in semester 1 of the 2022-2023 academic year in class IV of SD N 1 Cangkrep Lor, Purworejo. Qualitative data in the form of information about the implementation of learning steps using STM

in improving science learning through the process of observation. Quantitative data in the form of figures of values or percentages of actions are then used as indicators of the implementation of actions in the form of written tests of data analysis procedures.

RESULTS AND DISCUSSION

Table 1. Observation Results of Teacher Activities in Managing Learning

Stage	Percentage
Cycle 1	69,2%
Cycle 2	82,6%

Table 2. Observation Results of Student Activities During Learning Activities

Stage	Percentage
Cycle 1	70%
Cycle 2	88,3%

Table 3. Student Learning Outcome Score

Stage	Average Value
Cycle 1	71,5
Cycle 2	83,4

DISCUSSION

At the planning stage the researcher compiled an action plan contained in the Learning Implementation Plan (RPP). Researchers plan to use the STM approach in the science learning process. Researchers prepared assessment sheets for written tests, trial sheets, interview sheets for teachers and student ts.To find out usage STM approach used observation of teachers and students, as well as interviews as data supporters. Teacher learning activities are assessed by observers. In addition to teacher learning activities, student learning activities are also assessed by observers.

In addition, based on the results of interviews with several students, it showed that students were happy and understood more easily with the material delivered by the teacher when teaching using the STM approach. Students are not bored and can communicate with friends and teachers more boldly and not shyly when learning science is carried out. Use of the STM approach very helpful for teachers and students because it can improve learning which has an impact on improving evaluation results. The relation in carrying out this classroom action research, in order to obtain other data, the researcher conducted a pretest or initial test to find out how much students' ability to understand science lessons on Energy and Energy

CONCLUSION

Based on the results of research on science subject matter, namely energy material and energy transformation at SD Negeri 1 Cangkrep Lor, it tends to not be very optimal because students' processing skills are relatively low and do not yet have very broad ideas in learning science material about energy and energy transformation.

In observing the research on energy and energy transformation, students were very enthusiastic about following it well and enthusiastically. These observations were carried out in the classroom and outside the classroom so that many children were interested in learning outside the classroom because they were more flexible in carrying out the tasks given by the teacher.

Of the many students we observed, there were one, two, three children who tended to be quiet and didn't really follow them, but we responded well and encouraged these students with enthusiasm so they could participate in science learning with joy and enthusiasm.

Science learning using the STM approach at SD N 1 Cangkrep Lor increased learning outcomes, in cycle 1 and cycle 2 there was an increase in the average student result

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