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Creative Problem Solving Model to Student's Problem Solving Ability in Natural Science Learning for Primary Students

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Abstract

The purpose of this research is to find out out the effect creative problem solving model to student's problem solving ability in natural science learning for primary students. the research used a quantitative approach with experimental research by using quasi-experiment. This research was done in SDN 060827 at grade V consisting of two paralel classes and the object of the research was 30 students with two paralel classes. The data collection techniques obtined by students' sheet of learning activity and observation sheet for Assessment and interview. The research procedure was used planning, action, observation, and reflection. The result of this research were students' ability to solve problem could improve by using the Creative Problem Solving (CPS) model in the classroom interaction of natural science learning for primary students.

Keywords
creative; problem solving; science learning

I. Introduction

The efforts to improve education quality can be done through improving the quality of learning determined by the teacher in the classroom interaction. Classroom interaction is not only about participation in the teaching and learning process and sharing their knowledge of a material at each other, but it is also about a relationship at each student to other students in the classroom (Dharmawati, 2020). In addition, the benchmark for the success of teaching and learning process can also be determined by learning facilities and infrastructure, class conditions and learning methods. The students need to have thought creatively in solving problem given by the teacher. Creative thinking is very important for students in helping students to solve problems that are often faced in the science learning.

Good quality education can occur through a variety of factors that are related toplanning, process, community support, and facilities in schools. Planning in this case means the readiness and strategy of what is done by the teacher through a design created by understanding the condition of the class. The process is aimed at how the classroom engineering is done by the teacher as well as in-depth understanding of the material so as to create conducive learning conditions. (Ainsyiyah, E. et al. 2020)

Creative thinking can also improve the students' curiosity in their learning so they find the way to solve problem faced when classroom interaction occured. By helping the teacher to improve the students' learning outcomes, one way for teacher to develop students' thinking creatively is by providing a right learning model that help students to understand in science learning more easily. In creating a quality learning process is by using a learning model and one of learning models is called by cretive problem solving. Creative Problem Solving is a learning model that creates problem solving skills. This model trains students to have students' logical thinking skills in solving their own problem. Creative problem solving is

a learning model that challenges students to think creatively to find solutions to real problems. As Ritongan (2021) mentiones that this learning is learner centered, who develops problem-solving abilities and independent learning abilities. Creative Problem Solving is a type of learning model that emphasizes problem-solving with creative ideas to solve a problem (Yuliati & Lestari, 2019). The creative problem solving is needed in natural science learning.

Natural science learning is one of subjects in primary scool which covers many academic diciplines such as ecology, natural resources, environment, plant science, animal science, entomology, etc. It forces students to think and do actively in the classroom interaction. By actively participating in the exploration, the students will learn the teaching materials and the learning process of several fields in the same learning process (Fitria, 2018). It means that the students who learn natural science must be active in the class to get good result from creative problem solving method given by the teacher. As a result, students can develop their problem solving ability in answer questions and understand the lessons. Based on the explaination above, the use creative problem solving in teaching natural science learning can improve students' problem solving. Budiana (2013) in her research result stated that creative problem solving can improve students' problem solving ability in natural social science learning.

Based on observation and interview done in SDN 060827 that the science learning outcomes obtained by students in class V have not been maximized, this is caused by several factors when classroom interaction happened. The teacher used the lecture method (Conventional method) that it can effect to students' thinking. Other factor is lack of giving hands on experience with the material studied against students and lack of learning innovations that can be applied in primary schools. So, to solve this problem, there is a need for good learning innovation in implementation learning. As it is known that the important components in learning is to make students unboring become fun by using appropriate resources and varied learning models such as creative problem solving. It is supported by Nuraidah (2017) on her research about stated that creative problem solving is a welcome addition to the contemporary primary education curriculum, connecting knowledge and creativity in a fun and flexible way.

Based on the description above, then this research further examines the effect of creative problem solving model to students' solving ability. The aim of this research is to find out the effect creative problem solving model to student's problem solving ability in natural science learning for primary students

II. Review of Literature

2.1 Creative Problem Solving

Creative problem solving emphasizes students who practice to think and apply their knowledge and skills in real learning. From these definitions, it can be concluded that creative problem solving is the ability to plan a new and unique (creative) way or idea to answer a question (problem). Having creative problem solving model, students are expected to be more responsive in solving problems and can apply creative thinking in facing the problems in life, especially in natural science learning. Creative education foundation defines creative problem solving is as a proven method for approaching a problem or a challenge in an imaginative and innovative way. Creative Problem Solving comes from three word, they are creative, problem and solving. Yuliani (2019) States that the syntax or stages of the Creative Problem Solving learning model are: (1) the problem clarification stage; (2) the stage of expressing opinions; (3) the evaluation and selection stage; and (4) the implementation stage, as shown in figure 1 below.

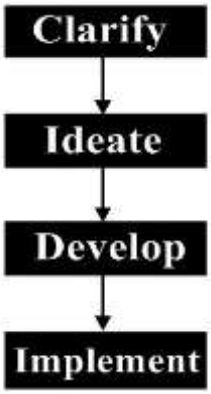

Figure 1. *Stages of the Creative Problem Solving learning model*

2.2 Problem Solving Ability

Problem solving ability is a person's ability to think about knowledge to find a solution from a problem faced. Solution to problem is a basic ability that must be possessed by students. Ritonga (2018) stated that problem solving is a process to ease difficulies found to achieve an expected goal. Guntara (2014) aIso said that Problem solving ability is the skill or potential that students have in solving problems and applying them in everyday life. Problem solving activities must be done by students, if they do not do the activity of thinking while learning, then what they get is just memorization and does not understand the core or concept of the material that has been learned (Pohan, 2020).

In finding solutions, students must assemble them based on their knowledge and thought processes, they will often develop understanding in natural science learning. In applying problem solving ability, sometimes we find some goodness and badness from this model. The goodness are to train or educate students to think systematically, find a variety of live out of a difficulty from the problem faced, learn to analyze a problem from various aspects.

2.3 Natural Science Learning

Natural science comes from two words, they are natural means science related to nature, and science sistematically knowledge. Natural science is a systematic collection of theories, its application is generally limited to natural phenomena, birth and develop through scientific methods such as observation and experimentation as well as demands scientific attitudes such as curiosity, openness, honesty, and so on (Trianto, 2015).

Natural Science learning in primary schools aims to create students creativity and think in facing problems that require problem solving. Learning Science basically consists of four components, namely scientific attitudes, processes and processes scientific products, scientific products, and applications. In teaching natural science for primary students, the teacher should improve students' creativity in order to create students' problem solving ability by thinking sistematically, scientifically and logically. As supported by the previous research from Fitria (2017), she stated that Natural science knowledge has an important role in improving the quality of education, especially to produce a quality generation namely humans who are able to think critical, creative, and logical.

III. Research Method

This research used a quantitative approach with experimental research by using quasi-experiment. The quasi experimental is a kind of method used by the researcher to manipulate the condition in the classroom interaction. In this method, the researcher gave treatments to the group that was belong to the experimental group then analyzed the changes of the students' achievement compared to the other group that belong to the control group. The purpose of using the quasi-experiment is to analyze the effect creative problem solving model to student's problem solving ability in natural science learning for primary students.

This research was conducted at SDN 060827 which held at grade V consisting of two paralel classes. The object of the research was 30 students with two paralel classes. The data collection techniques were students' sheet of learning activity and observation sheet for Assessment and interview. Data analysis techniques were students' activity analysis, learning outcome analysis, and hypothesis testing. The prosedure of this research was carried out in 4 stages, namely: planning, action, observation, and reflection as shown in figure 2 below.

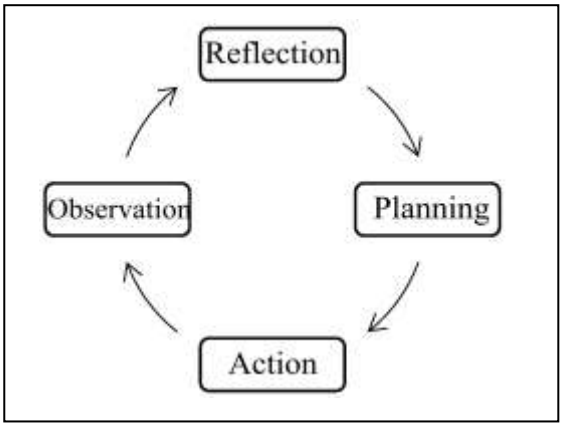

***Figure 2**. The Prosedures of the Research*

Planning was the first step, the researcher was prepared everything needed in classroom interaction such as lesson plan, teaching facilities, teaching materials and time allocation. There were many activities that would be done in this step. Second step was Action, in this step the research implemented all plans made in learning process. The research gave students learning material to teach, explain and practice the students to improve their creativity. The third was observation, it was done to consider, reduce and choose the subjectivity the data collection. The last step was reflection, This stage showed the findings of the research. All the findings from the research were formulated together with the teacher partner as the result of direct observation in the classroom interaction.

IV. Result and Discussion

Classroom interaction in natural science for primary school in SDN 060827 was done at grade V students. It was done by having explination and practicing by the students. After each meeting, students were given problem solving evaluation. In doing the evaluation, the students must solve the problem given by having creative answers. The students had to work by themselves, they were not allowed to discuss and work together with their friends. So, the teacher can give evaluation for students.The evaluation consisted of 5 items in the form of a description question. This evaluation was given to find out whether students able to

understand and comprehend the natural science material as their subject and can complete problem well. Based on the test results obtained the score at the following data:

Table 1. Result Test of Students' Problem Solving Ability

Students	Students' Score ≥ 70	Presentation of Students' Score ≥ 70	Class Average	Achievement Criteria
Class A	24	80	76	Good
Class B	28	93	83,48	Very Good

The explanation of result test on the table about students' problem solving ability above can be drawn in grap as folowing figure below.

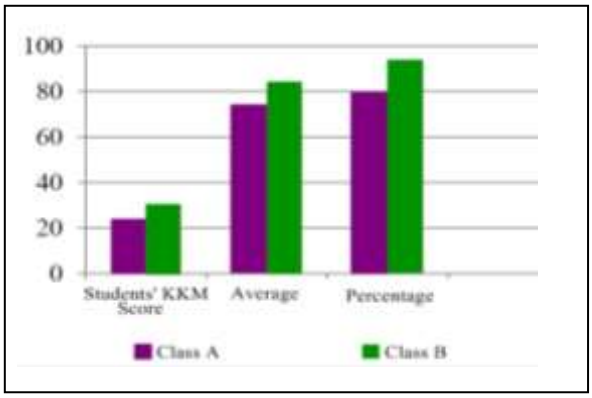

Figure 3. *The Graph of Result Test*

Based on the analysis, it can be conclude that students had good learning outcomes if the test evaluasion have been obtained the minimum completeness criteria (KKM) > 70%. Class A got process test evaluation results was 76, it can be seen from the number of students who scored > 70 as many as 24 students with 80% percentage. And class B the number of students who got score > 70 as 28 students and the avarage score was 83,48 with percentage was 93%.

Every students has different ability in solving problem. So, it can be said that problem solving defined as the process of using knowledge, skills, understanding students to fulfill demands from the the goal of teaching learning process. In the classroom interaction, the teacher gave students a problem to solve. The problem was a problem given by the teacher is a problem that requires a high level of creativity in solving it. The problem given is a challenging problem and of course it must be solved systematically and scientifically.

The process of systematic in thinking begins with an awareness of the existence of a problem until a conclusion is formed. The process of thinking in the implementation of the scientific method is carried out in a controlled manner, namely in thinking scientifically it is done consciously and awake. And scientific thinking is rational thinking and empirical thinking. It is called by a scientific if it contains truth objectively, because it will be supported by information that has been verified and presented in depth. So indeed not all thinking will produce knowledge and science and also not all thinking is called scientific thinking. Because scientific thinking has its own rules and rules that must be followed.

The researcher also analyze the students'activity in classroom interaction, and the result as shown in figure 4 below.

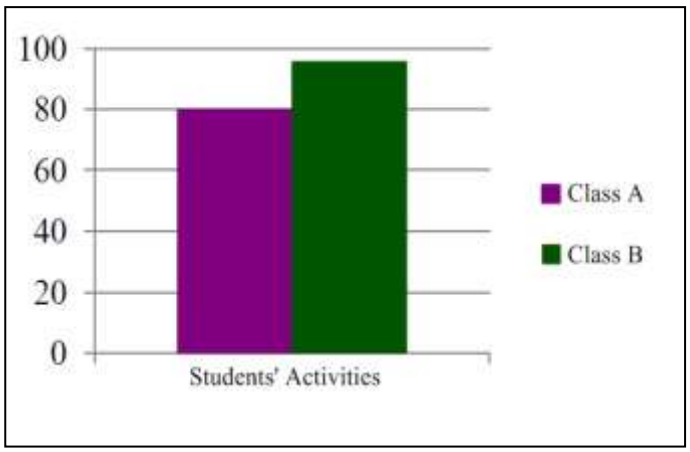

Figure 4*.The Percentage of Students' Activities*

Based on the figure, it can be concluded that in the classroom interaction, both the students in class A and B increased learning activities. In class A, the percentage showed the learning activity was 80% and in class B, the percentage of learning activity was got 92%.

Figure 5. *The Example of The Evaluation*

The classroom interaction in natural science learning, the teacher gave some pictures consisting of the teaching material for primary school at grade V. They were given a problem to solve by looking at the pictures. The teacher gave the time for students to think and analyze the picture and then the teacher would ask the students to solve the problem based on the picture.

Teaching learning activity organized by the teacher who used creative problem solving can improve students' learning activity. Because the teacher gave practice to students to solve problem given by the teacher. And it seemed that the students understood the role about creative problem solving applied by the teacher in teaching natural science learning. Althogh there were some students looked confused with the role but overall, the students were very anthusiastic in following natural science learning in the classroom interaction. Sometimes students seemed competing in answering the problem given by the teacher.

Based on the statement above, it can be concluded that the students' problem solving abilities will certainly bring out students' creativity as a result or output. Their creativity is the ability of a student to create something new, both in the form of ideas, suggestion, comment and real works that are relatively different from what has existed before in their daily life. So, It proved that the use of the Creative Problem Solving (CPS) model can improve students' ability to solve problems.

V. Conclusion

Based on the data analysis, it can be concluded that students' ability to solve problem could improve by using the Creative Problem Solving (CPS) model in the classroom interaction especially in teaching natural science learning for primary students at garde V. It can be done by training students to think creatively.

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