

# The Effect of Creative Problem Solving Model toward Students Learning Activities and Learning Outcomes of Science Learning

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**Abstract**—The purpose of this research to determine the effect of Creative Problem Solving learning model on the activity and learning outcomes of students on science learning in grade VI elementary school. The type of this research was quasi-experiment research with post test only control group design. The population of this research were the students of class VI SD / MI cluster III Padang Utara. The sampling technique in this research was simple random sampling. The sample in this research was class VIA MIN 3 Padang as experimental class and class VI C MIN 3 Padang as control class. Instruments used consist of an observation sheet of learning activity and test of learning result. Data were analyzed by using descriptive and test-t. From the analysis results obtained: (1) learning activities of students who were taught by Creative Problem Solving model are better than the students' activity taught by conventional model ( $t_{count} = 12,30 > t_{table} = 1,67$ ), (2) Creative Problem Solving model gives better result of students' learning taught by conventional model ( $t = 9,92 > t_{table} = 1,67$ ). It can be said that the Creative Problem-Solving learning model have an effect on students' learning activity and outcome.

**Keywords**—creative problem solving model, activities, konvensional

## 1. INTRODUCTION

Education is one manifestation of the dynamic culture and development requirements. Therefore, change or development of education is indeed supposed to take place in line with the change in a culture of life. Changes in the sense of improving education at all levels need to be continuously carried out in anticipation of future interests.

The concept of education is increasingly important when one should enter the life in society and the world of work because he should be able to apply what is learned in school to deal with problems in everyday life, now or in the future. Therefore, the government implemented a national education system that is oriented towards improving the quality of education. Quality education will produce students who are qualified and noble. This is in accordance with national education goals contained in Law No. 20 of 2003.

Informal education institutions, the process of producing culture and value systems are made through the subjects taught by the teacher to the students in the class. One of the subjects that plays an important role in education to develop a values system, cultures, skills and

scientific attitudes from an early age is science. Science is a subject that must be implemented in elementary school that associated with the phenomena of nature and daily life of students. The science is a collection of systematic theory, its application is generally limited to the phenomena of nature, was born and developed through scientific methods such as observant and experimentation as well as demanding scientific attitude, such as curiosity, open, honest, etc {1}.

Science learning can be carried out through the discovery approach. This discovery model will provide the right learning experience. Through the model Finding students can observe phenomena, ask questions and hypotheses, prove hypotheses by experimenting and draw conclusions from these experiments {2}.

States that science learning has a very strategic potential to prepare human resources to face competition. This potential can only be realized if science learning is able to prepare students who are strong in science and foster the ability to think creatively {3}.

Examine the problems of students who have not shown activity in learning, and it is difficult to understand the material and learning science concepts, it adversely affects the student learning outcomes. Similarly, the case in some primary schools in cluster III Padang Utara.

To overcome these problems, the teacher must look for solutions to solve them. One of the solutions to solve the problems of student learning outcomes are still low, by determining the accuracy of the learning model that is used in accordance with the intended learning objectives. The learning model used by teachers is the most important factor and dominant. Variations learning model that can be applied to solve problems is learning model creative problem solving, which is a variation of the learning problem solving through systematic techniques for organizing creative ideas to solve the problem.

This CPS learning model emphasizes students who practice to think, apply their knowledge and skills in real life. The CPS learning model emphasizes students to think creatively and apply students' knowledge and skills to real life outside the classroom, while training students to understand and learn science. In other words, the innovation involves creative thinking skills in problem solving.

The CPS model is a learning model that emphasizes problem solving skills through stages that systematically use a variety of thinking patterns [5]. Meanwhile, CPS is a learning model that focuses on teaching skills in problem solving. When students are faced with a question, they will be able to solve problems to choose and develop responses, not only by memorizing and thinking, problem solving skills also expand the thinking process [6].

Many benefits can be obtained by implementing this CPS learning model. States that by using the CPS learning model students will be active in learning, and can understand concepts by solving a problem, developing thinking skills to collect data, defining problems, and providing flexibility to search for solutions of a problem [7].

Thus, it can be concluded that CPS is a learning model that focuses on teaching and problem-solving of skills that do creatively. CPS is a dynamic learning model, which makes students become more skilled in learning science. With the CPS learning model, students can choose and develop their ideas and thoughts [8].

The CPS model is a learning model that is centered on problem-solving skills and followed by reinforcement with creativity. CPS is a learning model that does a focus on teaching and problem-solving skills are followed by reinforcement of skills [9]. CPS is methodological framework designed for assist problem solvers with using creativity to achieve goals, overcome obstacles and increase the likelihood of enhancing creative performance [10].

The advantages of the CPS learning model is more emphasis on the cognitive and affective aspects of students. Through CPS students are given the opportunity to understand the concepts by solving a problem, students become active in learning and can develop thinking skills and ability to solve problems. In the self-contained students' mental strength drives the learning. The driving force is derived from a variety of sources that make students enthusiastic about learning. Active participation in the learning process take a variety of forms of activities, physical activities are easily observed through psychic activities that are difficult to observe [11].

Learning outcomes is an important part of learning. Defines the learning outcomes of students is essentially a "change in behavior as a result of learning, in a wider sense include the areas of cognitive, affective, and psychomotor" [12]. Based on the opinion above, it can be concluded that the results of learning are the success rate of students in learning subject matter and new attitudes as a result of training or experience.

## II. METHOD

This research used the Quantitative approach with experimental research type. The type of experiment used is quasi-experiment. The design used is Randomized control group only design [13]. This research was conducted at SD / MI cluster III Padang Utara which

held at the beginning of even semester, 2017/2018 academic year in January - March 2018. The object of the study was the students of grade VI SD / MI. The data collection techniques were; 1) students' sheet of learning activity, 2) Testing, Observation Sheet for Assessment of Affective and Psychomotor aspects. Data analysis techniques were students' activity analysis, learning outcome analysis, and hypothesis testing.

## III. RESULT AND DISCUSSION

### Requirements test analysis

TABLE 1. NORMALITY TEST

Class	Learning Outcome		
	Fcount	F table	Conclusion
Experiment	0,105	0,161	Normal
Control	0,135	0,161	Normal

Based on the table above, it can be seen that the overall learning outcomes of students in the experimental class have Fcount = 0.1052 and the control class of F = 0.1348, at significant level  $\alpha = 0.05$ , while F table = 0.161, because of  $F < F \text{ table}$  then this means that the experimental class and control class have normal distribution.

TABLE 2. HOMOGENITY TEST

Class	N	S <sup>2</sup>	F count	F table	description
Experiment	30	33,40	1,453	1,84	Homogeneity
Control	30	22,97			

Based on the table above it can be seen that the results of calculations with F test obtained the Fcount = 1.453 with the numerator =  $30 - 1 = 29$  and the denominator  $30 - 1 = 29$  at the real level 0.05, then obtained Ftable = 1.84, this has a homogeneous variance.

### Hypothesis Testing

#### 1. The Effect of Creative Problem Solving Learning Models on Learning Activities

At the significance level  $\alpha = 0.05$  with  $(dk = n_1 + n_2 - 2) = (30 + 30 - 2) = 58$ . Then obtained t table = 1.67 After analyzing the data, it was obtained that t count = 12.30 and ttable = 1.67, then  $t \text{ count} > t \text{ table}$ . This means that H0 is rejected and H1 is accepted. It can be concluded that the Creative Problem Solving learning model (CPS) significantly influences students' learning activities.

#### 2. The Effect of Creative Problem Solving models on students' learning outcomes.

At the significance level  $\alpha = 0.05$  with  $(dk = n_1 + n_2 - 2) = (30 + 30 - 2) = 58$ , then  $t_{table} = 1.67$  is obtained. After analyzing the data, it is obtained that  $t_{count} = 9.92$  and  $t_{table} = 1.67$ , then  $t_{count} > t_{table}$ . This means that  $H_0$  is rejected and  $H_1$  is accepted. This means that the Creative Problem Solving learning model has a significant effect on students' learning outcomes.

## Discussion

### 1. Discussion of Students' Activities

After doing the research on students' learning activities, and then performed the data analysis and  $t = 12.30$   $t_{table} = 1.67$ , then  $t > t_{table}$ . This means that  $H_0$  is rejected and  $H_1$  accepted, it can be concluded that the learning model Creative Problem Solving (CPS) significantly influence students' learning activities. The average number of students who did asking questions activity that are relevant to the material being studied in the experimental class is 51%, whereas in the control group is 31%. The activities of students in asking questions that were relevant to the experimental class have better criteria than the control class. In the experimental class, the students seemed to be trying to understand the material about electricity, so much asking questions before a group discussion. In a discussion among friends, students also ought to ask the right questions to the material in the discussion session.

### 2. Discussion of Students' learning outcome

Based on the result of hypothesis test by using  $t$  test, it is gotten that  $t_{count} = 9.92$  and  $t_{table}$  on the level of real  $\alpha = 0.05$  with  $(dk = n_1 + n_2 - 2) = (30 + 30 - 2) = 58$  is 1.67, then  $t_{count} > t_{table}$ . This means that  $H_0$  is rejected and  $H_1$  accepted. It can be concluded that there are significant differences between the learning outcomes of students who are taught by the teaching model Creative Problem Solving (CPS) to the learning outcomes of students taught by conventional models. The study of Sixth-grade science learning outcomes in MIN 3 Padang showed that students who are taught with the Creative Problem Solving model, the overall educational outcomes and activities are higher than students who taught by conventional models. Therefore, the Creative Problem Solving learning model has an effect on the activity and learning outcomes. It is gotten from the results of tests of hypotheses that have been studied.

## IV. CONCLUSION

Based on the results of research and discussion that has been presented, it could be concluded that there is the effect of Creative Problem Solving learning model on the activities of students in learning science in sixth-grade elementary school. From the research that has been done, it is gained that an average number of students who perform experiments in-class activity was higher than in the control group.

Then, there is also the effect of Creative Problem Solving learning model to the learning outcomes of students in learning science in sixth-grade elementary

school. From the study, it is gained that an average of student learning outcomes in the classroom experiment that uses a model of Creative Problem Solving is higher than those in the control class that uses the conventional model.

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