

Influence of the Creative Problem Solving Model on Studentes Creative Thinking

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Abstract. *This study aimed to examine the effect of the Creative Problem Solving model on the creative thinking abilities of fourth grade elementary school students. This research type was quasi-experimental research with a quantitative approach. The sample used in this study was students in class IV SDN Kateguhan 01 as an experimental class and SDN Pojok 02 as a control class. The instrument used was a test inventory with a checklist type. The results obtained were analyzed using one way ANOVA using SPSS program assistance. The results obtained in this study indicated that there was a positive and significant effect of the Creative Problem Solving model on the creative thinking of fourth grade elementary school students. The test results using one way ANOVA show the value of F_{count} was 24.710 and p 0.000 was smaller 0.05.*

1. Introduction

Education is an important component that is needed in human development at gaining knowledge and experience as a provision of life in society. Knowledge and experience can be obtained through learning activities in schools. Learning activities need to be designed as well as possible to help student development. This design can be in the form of subject matter, objectives to be achieved, learning models that attract the attention of students, assessment, evaluation, students, and teachers. All of those must be interconnected and supportive so that learning activities can be achieved according to the design that has been created.

An important component in learning is learning objectives that are directed at cognitive, affective, and psychomotor aspects. The 2013 curriculum used today also facilitates developing these three aspects. This curriculum does not discuss material separately as the previous curriculum, but it is designed using themes. Each level has a different theme. The lower classes have four themes and the upper classes have nine themes and sub-themes. The fourth grade elementary school sub-theme consists of several subjects namely mathematics, Indonesian, Civics, Natural Sciences, Social Sciences, and SBdP (*Seni Budaya dan Prakarya/ Cultural Arts and Crafts*) which are interrelated. The theme in this study was the theme of four "Various Occupations" sub-theme 2 "Occupations around Me".

Learning activities using the 2013 curriculum are not only teacher centered, but students are required to be more active, critical and creative. The use of innovative learning models greatly helps students to develop abilities in cognitive, affective, and psychomotor aspects. Cognitive aspects are the main aspects to be achieved. One of them is the ability of students' creative thinking. Creative thinking is the ability to create new ideas by seeing existing ideas and problems to be solved. Sternberg (1996: 3) describes creativity as a topic that is broad in scope and is important for individuals and community groups in solving tasks or problems. In line with this opinion, Worthington (2005: 1) states that student creativity

is based on student curiosity, then expands students' ability to understand the material and conduct experiments by using imagination in developing their creative ideas.

In fact, the learning activities that are currently underway still use the old learning style of teacher centered. The teacher occasionally invites students to discuss. But the activities are still going one way. Children's creativity in delivering material is also not yet visible.

The problem is known by conducting observations at SDN Tawang Sari District, Sukoharjo. The results of these observations indicate that children's creativity in understanding and conveying material has not been seen yet. Only a few students who dare to ask questions and answer questions raised by the teacher. The teachers' method in their teaching also still look conventional even though occasionally they have inserted a learning model with cooperation or discussion. It shows that the students' creative thinking ability is not well developed. One model that can be used in learning activities is the *Problem based Learning* model.

Problem Based Learning Model is a learning model that emphasizes the ability to think and problem solving. Levin (2001: 125) explains that PBL is a model that provides opportunities for students to develop the ability to identify and analyze problems that exist in the surrounding environment. In line with this opinion Baden and Major (2004: 11) explain that the PBL model is a model with a metacognitive approach to develop students' skills in solving problems using certain strategies. Warsono and Hariyanto (2013: 152) explain that PBL models have advantages among them that students are accustomed to solving existing problems in the surrounding environment, fostering cooperative and social attitudes through group discussions, establishing two-way communication between students and teachers, and problem solving is done by the method experiment.

The characteristics of Grade IV Elementary School students are very diverse and development in creative thinking abilities is needed. The use of problem based learning models aims to design learning activities with discussion with groups to solve existing problems in the environment creatively and environmentally friendly. Based on the statement, the research is designed to determine the effect of PBL models on students' creative thinking.

2. Research Method

The implementation of this research used quantitative approach to quasi-experimental type. The research design used in this research was nonequivalent control group design. Quasi experiment is a type of research to determine the effect (cause and effect) that might occur, namely the independent variable with the dependent variable. The independent variable (X) used in this study was the *Creative Problem Solving* model and the dependent variable (Y) was the ability to think creatively.

The population in this study was all fourth grade students of SDN in Tawang Sari District. The technique used in this research was random sampling and the sample used in this study was SDN Kateguhan 01 as an experimental class using the *Creative Problem Solving* model and SDN Pojok 02 As a control class using conventional models in teaching. The data collection techniques used in this study was test inventories to measure students' creative thinking abilities. Tests were given before giving a pretest treatment and after a posttest treatment to determine the effect of the *Creative Problem Solving* model on students' creative thinking abilities.

Before the research was carried out, the validation test instrument was done to determine whether the instrument used was valid or not. This validity test was carried out using Alpha Cronbach. Then the reliability test was performed to determine the level of instrument confidence that would be used in this study. Reliability tests were carried out using the Kolmogorov Smirnov formula with the help of SPSS. After completing the validity and reliability tests, the instrument was taken to a space to retrieve data. The data obtained were then tested for normality and homogeneity first. Then proceed to test the hypothesis using one way ANOVA with the help of SPSS.

3. Result and Discussion

The data collection was carried out in two stages, namely before giving a treatment (pretest) and after giving a treatment (posttest). The pretest was done to find out students' initial creative thinking abilities, and posttest was done to see students' final creative thinking abilities. The research was conducted in two classes; they were the experimental class using the *Creative Problem Solving* model and the control class using the conventional model. After pretest and posttest were given, then a hypothesis test was conducted. The results of the pretest of the ability to think creatively were as follows:

Table 1. Pretest Score of Student's Creative Thinking Abilities

Class	Total	Mean
Kontrol	26	55
Eksperimen	30	59

Source: research data in 2018

From the data above, it can be seen that the pretest scores of students in the class in the experimental class with 30 students obtained an average score of 59 and the pretest results in the control class with 26 students obtained an average score of 55.

Posttest was conducted to determine the students' final creative thinking abilities using the *Creative Problem Solving* model. The posttest scores of students' creative thinking abilities are as follows:

Table 2. Score Protest of Students Creative Thinking Abilities

Class	Total	Mean
Kontrol	26	62
Eksperimen	30	73

Source: results of the 2018 study

Based on the data above, it can be seen that the posttest score of creative thinking ability in the control class with 26 students obtained an average score of 62 and the experimental class using the *Creative Problem Solving* model obtained an average score of 73 with 30 students. Then, the data is subjected to do analysis of prerequisite tests with a normality test and a homogeneity test. Normality test was carried out to determine whether the collected data was normal or not. The results of the normality test were carried out using the Kolmogorov Smirnov formula. The normality test results obtained are as follows:

Table 3. Results of the normality test

Class	Pretest	Posttest	Conclotion
Kontrol	0,579	0,642	Normal
Eksperimen	0,781	0,438	Normal

Source: 2018 research results data

The results of the normality test pretest in the control class obtained the score of *sig.* amounted to 0.579 and the posttest score in the control class was 0.642. Pretest Normality Test in the experimental class using the CPS model obtained *sig.* score of 0.801 and posttest score of 0.750. The score obtained in this study has *sig.* > 0.05, so it can be concluded that all data in the control class and the experimental class are normally distributed.

The second prerequisite test is the homogeneity test using the F or Levene test. Homogeneity test was done to test the data in the experimental class using the *Creative Problem Solving* model and the control class with the conventional model. Homogeneity test analysis results were performed using *SPSS 18.0 for windows*. The results obtained in the experimental class indicated the value of *sig.* > 0.05 and

in the control class the value of *sig.* shows > 0.05. So the data which was generated was declared as homogeneous.

The next step was to test the hypothesis using the One Way ANOVA test. The collection of decisions and drawing conclusions on the hypothesis test was carried out with a significance level of 0.05. The hypotheses in the study were as follows:

H_a : "There is an effect of the use of the *Creative Problem Solving* Model on the creative thinking of grade IV students at SDN Tawang Sari District, Sukoharjo Regency".

H_o : "There is no effect of using the *Creative Problem Solving* Model on the creative thinking of fourth grade students in SDN Tawang Sari District, Sukoharjo Regency".

The collection of decisions and drawing conclusions on the hypothesis test was carried out with a significance level of 0.05. The criteria used in drawing conclusions were if the error probability < 0.05 then the null hypothesis H_o was rejected, and if the error > 0.05 then the null hypothesis H_o was accepted. Based on the results of data analysis that has been done using one way ANOVA, the hypothesis test results are obtained as follows:

Table 4. One way ANOVA results of Creative Thinking data with Creative Problem Solving model

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1679,862	1	1679,862	24,710	,000
Within Groups	3671,121	54	67,984		
Total	5350,982	55			

One way ANOVA test results on creative thinking variables using the *Creative Problem Solving* model obtained the following results: F_{count} value of 24.710 and $p = 0.000 < 0.05$ then H_o is rejected, so it can be concluded that there is a significant influence on the use of the *Creative Problem Solving* Model towards students' creative thinking. Based on this, this hypothesis was: "There is an Effect of Using the *Creative Problem Solving* Model on Creative Thinking of Class IV Students at SDN Tawang Sari District, Sukoharjo Regency" was **accepted**.

Vidal (2010: 406) explains the understanding of the *Creative Problem Solving* Model working together in groups with the topic discussion of situation with technology-based. This model supports and facilitates students to develop creative thinking skills and participatory problem solving processes. In line with this explanation, Hajiyakhchali (2013: 550) reveals that the CPS model is a skill in various types of meta-cognitive skills. This model masters students' creative thinking and critical thinking abilities so as to produce and analyze ideas and other skills that are more complex in understanding people, aimed outcomes, and available resources.

By employing this CPS model, students looked more enthusiastic about learning activities. Students began to develop their creativity in learning. The ideas given by students began to appear than before the treatment was given. Students were able to analyze problems with each group. Proctor (2014: 3) explains that creativity is something that happens when we are able to organize our thoughts by easily directing different understanding and that it is better than the situation under consideration. In line with this opinion, Myszkowski (2015: 675) explains creative thinking is the ability to produce original and useful work.

This research would be more valid if more samples are used. But, this study conducted with a small sample using only one experimental class. The application of the *Creative Problem Solving* model has an effect on the creative thinking abilities of fourth grade elementary school students. Based on the results of research that has been done and strengthened with several theories above, it could be concluded that there was an effect of the *Creative Problem Solving* model on the creative thinking of fourth grade students of SDN in Tawang Sari District.

4. Conclusion

Learning activities using the *Creative Problem Solving* model in the experimental class and in the control class without conducting treatment gave different effects and impacts on students' creative thinking abilities. The results of the research that has been carried out was that the creative thinking ability of fourth grade of elementary school students using the *Creative Problem Solving* model was higher than the control class that did not get treatment. So, it could be concluded that the CPS model influences students' creative thinking abilities.

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