Application Of Quantum Teaching Learning Model To Improve Creative Thinking Ability Of Elementary School

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Abstract. The use of learning models to improve students' creative thinking.The objective of this research is to observe the student learning activities and the raise of students' creative thinking ability after using the quantum teaching model in 4th Graders at one of SDN Purwakarta Regency. Using the class action research model of John Eliot Darmadi in two cycles, with each cycle including four stages: planning, implementation, observation, and reflection. Observation, tests, and documentation obtained the data, with 28 students were selected as the sample. The results showed an average of 66.5 or 32% in the initial condition stage; an average of 70.2 or 57% in the pre-cycle stage; an average of 74.8 or 61% in the first cycle stage;and an average of 87.6 or 96% in the second cycle. According to the findings of the study research, there were increases of 25% in the initial condition stage to the pre-cycle, 4% in the pre-cycle stage to the first cycle, 35% in the first cycle to the second cycle, and 39% in the pre- cycle stage to the second cycle. It is concluded that the quantum teaching method can help students develop their critical thinking abilities in social studies learning.

Keywords: Learning models, Creative Thinking Ability, Quantum Teaching Model, Social Studies, student learning activities

How to Cite: Caturiasari, Jennyta, dkk. (2023). Application Of Quantum Teaching Learning Model To Improve Creative Thinking Ability Of Elementary School. *Proceeding The 5th International Conference On Elementary Education*, 5(1). 372-379.

INTRODUCTION

In essence, the implementation of education is inseparable from the learningprocess as an effort to develop potential through activities to develop creative thinking skills. This understanding is in line with Law Number 20 of 2003 concerning the National Education System which states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by himself, society, nation and state. Learning activities associated with the current 21st century which prioritize 4C (creat communication, collaboration, critical thinking and problem solving, as well as creativity and innovation), mastering information and technology is not enough to be able to compete, students must be able to develop critical thinking skills to counteracting incorrect information spread through social media. The three skills that must be possessed in the 21st century according to p21 (Partnership for 21st Century Learning), namely: life and career skills, learning and innovation skills, and information media and technology skills. Creative skills and ideas for new discoveries are needed to solve life's problems (Widodo, Husniati, Indraswati, Rahmatih, & Novitasari, 2020). According to Nana Syaodih (2011) efforts in education consist of three forms, namely guidance, teaching and training. Education functions to develop all aspects that exist in the personality of students as a whole and integrated, both in the development of cognitive, affective and psychomotor domains.

Social Sciences in terms of its objectives, namely the ability of students to think logically, analytically, systematically, creatively and critically according to Permendiknas Number 22 of 2006 which is in accordance with the requirements of the 21st century towards industry 4.0., through the objectives it is hoped that students can develop the ability to use IPS in solving problems related to everyday life (contextual). In line with the preliminary study conducted by Wardiani (2017, p.6) at Dawuan Tengah Elementary School, the low understanding of concepts possessed by students when solving questions given by the teacher is still experiencing difficulties. Besides that, the large number of students can influence learning outcomes in understanding concepts.

To improve students creative thinking skills in social studies learning, an appropriate learning model is needed, this learning model is taught using the quantum teaching learning model. The definition of Quantum teaching is as a comprehensive learning variation of all connections, interactions, and differences that maximize learning moments and focus on the interaction of the classroom environment which forms the basis of learning. Depoter & Hernacki (in Wena, 2012, p.160). This strengthens the understanding that Quantum teaching is a learning model whose learning practices maximize the interaction of teachers, students, facilities and classroom atmosphere to improve student learning outcomes.

The ability to think well and creatively can direct children to always try to create new innovations that are useful in life. This was revealed by Krulik (in Siswono, 2005, p.20) who said that understanding and planning problem solving requires adequate students' creative thinking abilities, because of this ability it is necessary to have high-level thinking (reasoning) abilities after basic and critical thinking. Students creative thinking ability has increased after the implementation of the quantum teaching model. This can be seen based on the results of the tests given before and after being given treatment. In cycle I, students' creative thinking skills began to increase as seen from the results of the pretest and posttest cycle I that students had done, although they had not achieved the expected mastery. In cycle II, students' creative thinking skills have increased and have achieved the expected indicators of success. So, this increase proves that applying the quantum teaching model in learning can improve students' creative thinking abilities.

METHOD

The research method used is Classroom Action Research (CAR). Through learning innovations that seek renewal in teaching methods and critically evaluate the strategies and methods used, Harjodipuro (in Darmadi, 2015, p.8) is in line with this understanding. Arikunto (2010, p.3) suggests that the classroom action research method is a method the teacher observes ongoing learning activities and provides an action that must be given in class.

Classroom action research is problem-solving learning carried out by the teacher in the classroom which aims to improve quality and produce good learning and improve student learning outcomes. In his research, Suharjono (2019, p.124) explained that the purpose of Classroom Action Research is an effort made to improve the quality of learning and the efforts made must be in the form of actions that are better than the usual activities. PTK does not focus on instructional input (syllabus or materials) and instructional output (learning outcomes), but on the instructional or learning process that takes place in the classroom. The difference between CAR and other types of research is that PTK begins with a desire to improve, while other research begins with the researcher's curiosity. It is not enough to do this research just once, but it requires a repeated process (cycle) to achieve a research objective.

Research Design

A study must apply a research design. In this study, classroom action research was used with the research design proposed by John Elliot which has four basic stages that must be implemented, namely planning, implementation (action), observation (observation), and reflection (reflection). In accordance with the flow of Classroom Action Research above, the cycle can be explained as according to the John Elliot Darmadi Model (2015, p. 209). which explains the procedure for implementing Classroom Action Research. The following describes the four stages

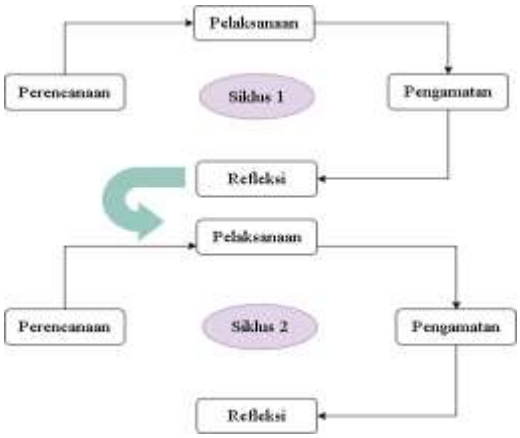

Figure 1. Model Research Design John Elliot Darmadi

In accordance with the flow of Classroom Action Research above, it can be explained that each cycle has a process in designing, implementing, observing, and reflecting which explains the procedures for implementing Classroom Action Research in each activity cycle. The place or location of the research conducted by the researcher was in one of the elementary schools in Purwakarta Regency, West Java. Place or location for research is a place used to carry out a research study in order to obtain a solution to a problem when research activities take place, Sukardi (in Sahmanita, 2019). In this study, the subjects consisted of fourth grade students at an elementary school in Purwakarta Regency, West Java Province, for the 2021/2022 school year with a total of 28 students consisting of 14 male students and 14 female students.

Data collection technique

The data collection technique used in this study was in the form of a test to find out aspects of knowledge (cognitive), observation, and documentation to find out aspects of attitude (affective) and psychomotor in social studies learning. Research aimed at finding out how the implementation of the quantum teaching model is carried out using research instruments to obtain research data. The research instrument used is a test instrument. In addition, data collection was also carried out in the form of observation, tests and documentation

Qualitative Data Analysis

Data collection in this study was carried out by collecting data from the results of observation sheets and documentation of the learning process from the beginning to the end of the study. Observation data of student and teacher learning activities can be calculated using the following formula:

Table 1. Table activity index

Indeks Keaktifan (%)	Kategori
0-25	Rendah
25-50	Kurang
51-75	Sedang
76-100	Tinggi

$$\text{Presentase aktivitas siswa} = \frac{\textbf{Jumlah skor x 100}}{\textbf{Total skor}}$$

Observation results are measured using a scale that has been determined with the following criteria:

Score 4 = Very Good
Score 3 = Fairly Good
Score 2 = Good
Score 1 = Poor

Quantitative data Analysis

Quantitative data analysis was obtained through the results of the test questions. The results of students' mathematical problem-solving ability tests consist of initial ability tests, pretest (before being given action), and posttest (after being given action) which will then be given a score.

$$\text{Score} = \frac{\textbf{Maximum skore x 100}}{\textbf{Total skore}}$$

(Sudjana, 2005)

RESULTS

Based on research on students' creative thinking abilities in social studies learning before being given action it can be said to be still relatively low. According to Putra and Irwan (2012, p.23) that creative thinking is a thought process that produces a wide and varied range of possible ideas and ways. This is proven based on the results of students' initial ability tests before being given action by applying the quantum teaching model. Most of them still get scores below the minimum completeness student criteria (KKM) that have been required. To see an overview of the comparison of students who have completed with students who have not completed their initial abilities, it can be seen from the following diagram.

Figure 2. Student Initial Ability Completeness Diagram

Based on the diagram of completeness of students' initial abilities in Table 4.2, it shows that only about 32% or about 9 students were declared complete, while 68% or 19 students were still declared incomplete because the scores obtained were still below the minimum completeness criteria (KKM) that had been required namely 75. The average score of students on the initial problem-solving ability test is 66.5.

Student Activities and Teacher Activities

The increase in student and teacher activity can be seen from the results of observations. According to Darmadi (2015, p. 34) observation or observation is a data collection technique by observing every event that takes place and recording it with an observation tool about the things to be observed or researched. Observation is one way to help researchers to find out about existing developments and observe the learning process in ongoing learning.

Implementation of learning by applying the quantum teaching model is inseparable from

the role of the teacher. According to Depoter, Hernacki (Wena, 2012, p. 160) the quantum teaching learning model can improve teacher skills in learning development, design and management. The teacher plays a role in developing learning and influencing the continuity of student activities in the learning process by applying the qauntum teaching model. Therefore, with improvements in each cycle, it can affect student learning activities so that they experience an increase. The characteristics of the teacher in the learning process by applying the qauntum teaching model are able to facilitate students in developing every aspect so that student activities in the learning process become more active. The increase in teacher activity in the implementation of the learning process using the qauntum teaching model for each cycle can be seen in the recapitulation of the observations of teacher activity in the following figure.

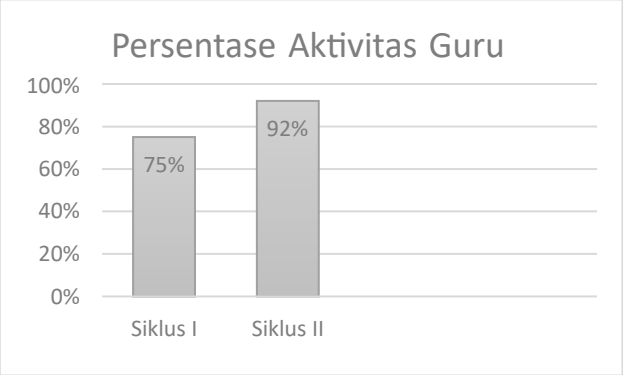

Figure 3. Teacher Activity Percentage Recapitulation Diagram

Based on the recapitulation of teacher activities, it can be seen that there is an improvement in the implementation of learning based on the percentage of teacher activity in carrying out learning with the quantum teaching model which is getting better each cycle. Regarding the increase in teacher activity, based on the results of the recapitulation of observations that have been carried out by applying the quantum teaching model, it shows that there is an improvement in learning which causes an increase in student learning activity.

The application of the quantum teaching model can help students think creatively so that it is easier to learn social studies. In the implementation of corrective actions, student activities seem to be more active in completing LKS. This is evidenced by the results of the percentage of student observations in which each cycle has increased in a better direction. Based on the results of student observation recapitulation, it can be concluded that the percentage of student activity observations experienced a significant increase after applying the quantum teaching model. The following is a diagram of the percentage increase in student activity for each cycle.

Figure 4. Student Activity Percentage Recapitulation Diagram

Based on the results of the percentage of student activity, it can be seen that student activity has increased in each cycle. The percentage of student activity in cycle I was 66.6% in the sufficient category, this was because students were still unable to understand the problems given by the teacher, students were also still unable to understand pictures of economic activity,

and students also still looked passive both at materials and during group discussions. After making improvements in cycle II, the percentage of student activity increased to 87.5%. In cycle II all students look more active in learning. The percentage of student activity in cycle II is categorized as very good.

Students' Creative Thinking Ability

Researchers use the quantum teaching model to improve students' creative thinking abilities. According to Sudarma (2013, pp. 34-35) that having thinking skills, or skilled thinking skills, can build democratic individual personalities. Based on research students' creative thinking skills experienced a significant increase. This proves that learning activities with the correct quantum teaching model will be able to assist students in developing and improving students' creative thinking abilities in social studies learning. Improving students' creative thinking skills from initial conditions to cycle II is described as follows.

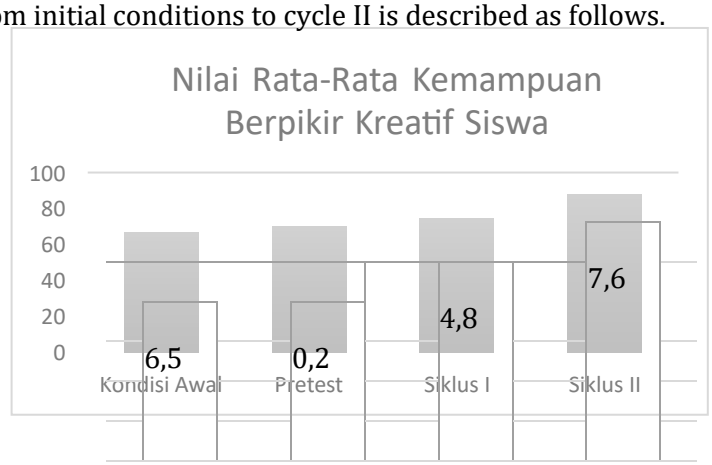

Figure 5. Student Average Score Recapitulation Diagram

Based on Figure 4.5, it can be seen that the average score obtained by students has increased. In the initial conditions the average value of students was 66.5 then in cycle I the average value obtained by students increased to 74.4 and in cycle II the average value of students increased to 87.6. This shows that there has been an increase in students' creative thinking abilities after the implementation of the quantum teaching model in grade IV students at one of the public elementary schools in Purwakarta Regency.

With the increase in the classical average results, the student learning completeness also increases in the direction set. The following is an overview of improving the completeness of student learning outcomes for each cycle, which can be seen in the following diagram.

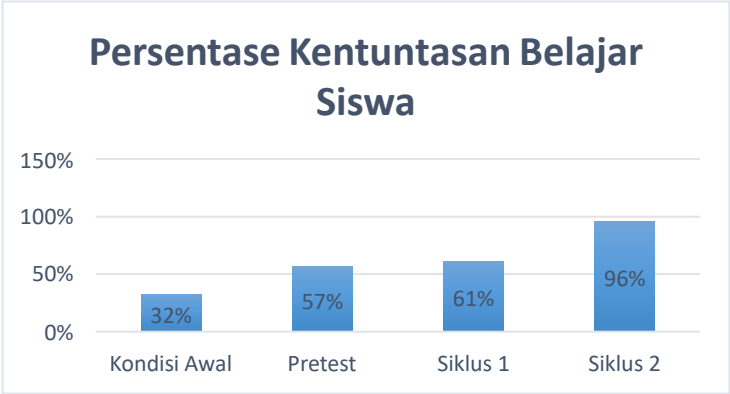

Figure 6. Percentage Recapitulation Diagram of Student Learning Completeness

Based on Figure 6, student learning completeness has gradually increased. According to Trianto (2011, p.241) students can be said to have completed their learning if their learning mastery is . In the initial conditions, only 9 students declared complete, then in the first cycle it increased to 17 students and then in the second cycle it increased to 27 students. This increase occurred in line with the improvements made in each cycle based on the reflection results in the previous cycle.

Student learning activities in cycle II were 87.5% in the very good category and the average value of students' creative thinking skills in cycle II was 87.6 with a completeness percentage of 96%. The results of this study have achieved a predetermined success indicator, namely the minimum completeness criteria (KKM) required ≥ 75. This means that students have succeeded in increasing their creative thinking skills so that the quantity of learning is satisfactory. Thus, classroom action research by applying the quantum teaching model to improve the ability to think creatively in grade IV students at one of the public elementary schools in Purwakarta district was declared successful.

CONCLUSION

Based on the results of research that has been carried out on social studies learning about the diversity of economic activity in Indonesian society with the quantum teaching learning model to improve students' creative thinking at one of the public elementary schools in Purwakarta district, it can be written as follows: Applying the quantum teaching model in learning the teacher's activities have increased from cycle I to cycle II. This shows that the application of the quantum teaching model can improve teacher performance activities in social studies learning in elementary schools. Applying the quantum teaching model in learning activities, students experience an increase from cycle I to cycle II. In cycle I, it can be seen that most of the students are still not active in learning. However, in cycle II, student activity in the learning process began to increase, as seen from the results of observations made during learning. In cycle I activities were still in the moderate category and in cycle II student activities students experienced an increase in the high category. Students' creative thinking ability has increased after the implementation of the quantum teaching model. This can be seen based on the results of the tests given before and after being given treatment. In cycle I, students' creative thinking skills began to increase as seen from the results of the pretest and posttest cycle I that students had done, although they had not achieved the expected mastery. In cycle II, students' creative thinking skills have increased and have achieved the expected indicators of success. So, this increase proves that applying the quantum teaching model in learning can improve students' creative thinking abilities.

ACKNOWLEDGMENTS

Thank you to the UPI affirmation research donor, also to one of the elementary schools in Purwakarta which was the location of the research, as well as grade IV students and accompanying teachers during the research.

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