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The Effect Of Quantum Teaching Learning Model To Enhance Students' Conceptual Understanding on Characteristic Material Concept

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Abstract

This research aims to investigate effect of quantum teaching learning model to enhance students' conceptual understanding on characteristic material concept. This study method was experiment with quasy experiment. Subject this research was fifth grade elementary school. Result of this study found significant score 0,000 < 0,05. It is mean that hypothesis of research was accepted. It can be concluded Quantum Teaching learning model can improve students' conceptual understanding.

Keywords: *Quantum Teaching* Learning Model*,* Conceptual Understanding

1. INTRODUCTION

Good education is education that not only prepares students for a profession or position, but also education can solve the problems they face in everyday life. Law number 20 of 2003 (concerning the national education system) in Sanjaya (2007) states that education is a conscious and planned element to realize the learning atmosphere and the learning process of students actively developing their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by himself, society, nation and state.

The learning process to succeed well requires the hard work of all parties from students, teachers, parents, environment and government. Teachers are expected to choose a method that is good and right so that the learning process can run effectively and succeed well. One of the efforts to improve students' conceptual understanding on science is viewed from the aspect of the process, so a learning model is needed towards a better direction, namely learning that includes a process of positive interaction between teachers and students. The teacher should choose a learning model that is in accordance with the subject matter and characteristics of students in order to be able to make students actively participate in learning.

One of the main problems in learning in education in schools is the low ability of students to comprehend learning material due to the

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inappropriate use of conventional learning models. In a more substantive sense, that the learning process still gives teacher dominance and does not allow students to develop independently through discovery and thought processes (Trianto, 2007). In the teaching and learning process, the teacher has the task to encourage, guide, and provide learning facilities for students to achieve goals. The teacher has the responsibility to see everything that happens in the classroom to help the development process of students (Slameto, 2010: 97).

Science learning is still using conventional methods, namely the teacher only explains the material in a conceptual manner by giving practice questions and assignments, as well as a teacher-centered learning process. This is due to the fact that the recommended social sciences subject matter is quite a lot, while the available time is still lacking and learning support media is still very simple. So that the teacher cannot modify the learning process. The learning process with conventional methods has been done by the science teacher for a long time, so the learning has become what is usually done by the teacher.

Therefore, the teacher explains and submits more quickly so that the subject matter can be entirely given to students in accordance with the time allocation provided. This learning is felt to be less effective because students are not given the opportunity to be active and develop their knowledge obtained from outside. In addition to this kind of learning, students memorize more words without understanding the meaning contained therein. So that students only have knowledge by memorizing and being passive recipients of knowledge, where students tend to wait for the teacher's presentation rather than find and find the information or knowledge themselves they need.

A science is one of the main subjects in the education curriculum in Indonesia, including at the elementary school. According to Sutrisno and Kresnadi (2007: 1-19) Sciences is a human endeavor in understanding the universe through proper observation of the target, and using the right procedure, and explained by valid reasoning so that a correct conclusion is produced. In this case, teachers, especially those who teach science in elementary schools, are expected to know and understand the nature of science learning, so that in science learning teachers have no difficulty in designing and implementing learning.

The use of the right learning model is expected to increase students' motivation and understanding of the subject matter. One of the right learning models to enable students to learn optimally and develop creativity is a Quantum teaching learning model. Quantum Teaching learning model is an ideal learning model, because it emphasizes collaboration between students and teachers to achieve common goals. This learning model is also a learning model that seeks to create an effective learning environment by using elements that exist in students and their learning environment through interactions that occur in the classroom, allowing

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students to learn optimally, which in turn can improve understanding student learning.

Quantum Teaching lessons follows the procedure in the following order: (1) growing student interest, (2) giving direct experience to students prior to presentation, (3) delivering material with an easy strategy, (4) demonstrations by students, (5) repetition by students to show that they really know, (6) respect for every effort in the form of praise, encouragement, or pat (Deporter: 2002). In fact, Quantum teaching learning models have not been widely applied in the education process in Indonesia. In addition to the new model which is relatively new and has not been widely known by the education community in Indonesia, most teachers prefer to teach with conventional methods, namely teacher centered instruction. The teacher acts as the only source of learning, presents lessons with lecture methods, exercises questions or drill, and very little or even without supporting media (Nur Cahyono, 2005: 8).

Implementing Quantum Teaching framework, science learning on material objects and their properties will take place better, because students will gain an understanding of a number of concepts and develop and train attitudes, values, morals, and skills based on the concepts they already have. Learning with the Quantum Teaching learning model as described briefly above is expected to accelerate the improvement of learning outcomes. Therefore the learning model needs to be responded positively, in the sense of being applied. Thus the learning process becomes effective and the learning objectives are achieved optimally (Lazim, 2018).

This research aims to investigate effect of quantum teaching learning model to enhance students' conceptual understanding on characteristic material concept.

2. METHOD

This research was conducted in fifth class elementary school. This research is a research using quasy experiment method. This experimental research method belongs to the quantitative research group. With the design of "pretest-posttest control group design" this study was conducted on two classes (a) the control group and (b) the experimental group (Sugiyono, 2012: 112). Both groups were treated not the same, the control group with learning from the teacher with conventional learning, while the experimental group learned using the Quantum teaching learning model. (Yudi, Setiawan, 2015).

Tabel 1 Design of research

Class	*Pre-test*	Treatment	*Post-test*
A	O	-	O
B	O	X	O

Keterangan:
A : control class
B : experiment class
O : Pretest and Posttest
X : Quantum teaching learning model

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3. RESULT AND DISCUSSION

The research aims to improve student learning outcomes through the application of Quantum teaching models in fifth grade on characteristic material concept. After the two classes received different treatment, namely Quantum Teaching and conventional learning, the class was given a final test in the form of posttest from the last results obtained by the average control class pre test is 53.6364 and the experimental class is 79.7727.

This can be seen from table 1 the comparison of the control class and the experimental class as follows:

Tabel. 2 Comparison of The Control Class and The Experimental

No	Pretest	Control class	Experiment class
1	Average	58.6364	55.0000
2	Maximal	80.00	85.00
3	Minimum	20.00	.00
No	**Posttest**	**Control class**	**Experiment class**
1	Average	53.6364	79.7727
2	Maximal	85.00	100.00
3	Minimum	35.00	55.00

Based on Table 2. above shows that experimental class learning outcomes are greater than learning outcomes can be said that after students learn with the Quantum teaching model student learning outcomes increase. According to Bobby De Porter (2014: 127-136) Increased student learning outcomes caused by Quantum teaching models have a design framework called TANDUR, which is useful for creating AMBAK and fostering children's interest starting from the teacher asking a question and inviting children to do a observation. A natural meaning is useful to provide experience to students and take advantage of students' curiosity and the teacher's efforts to bring into the child. N means name that is useful to provide keywords that are easy for children to remember and names that children have agreed with their group mates. D means demonstration that is useful to give children the opportunity to repeat and eliminate doubts. U means repeat which is useful for repeating things that are not understood by children. R means celebrating that is useful to respect effort, perseverance, and success of every effort that has been done by students and the celebration can be by giving a star, applause, praise, surprise and so on.

So Quantum teaching makes children more motivated to learn and eager when the teacher gives learning in the class of the two learning activities discussed above. It can be understood that in learning with the Quantum teaching model students get a more profound and enjoyable learning experience so that they get better learning outcomes than with conventional learning. Can be seen from table 3 as follows

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Tabel 3. Paired Samples Statistics

		Mean	N	Std. Deviation
Pair 1	Kontrol	53.6364	22	13.46794
	Eks	79.7727	22	15.38995

Table 4. Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Kontrol & Eks	22	-.220	.326

Table 5. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Kontrol – Eks	-26.13636	22.56904	4.81174	-36.14291	-16.12981	-5.432	21	.000

So based on the results of research that has been carried out a significance value of 0.000 <0.05 states that if the hypothesis in this study is accepted and it can be concluded there are differences in the Quantum Teaching model of the science learning outcomes of the fifth grade students of SDN 003 Pelintung with conventional learning models. This is also in line with prasetyani, et al. (2012) where applying Quantum teaching learning models is better than applying conventional learning models.

4. CONCLUSION AND RECOMENDATION

Based on the results of the study and discussion of Quantum teaching learning models affect the learning outcomes of science class V students SDN 003 pelintung medang kampai district, this can be seen from the results of research that has been carried out with a significance value of 0.000 <0.05 states if the hypothesis in this study is accepted and it can be

concluded that there are differences in the Quantum Teaching model of the science learning outcomes of the fifth grade students of SDN 003 Pelintung with conventional learning models.

Researchers want to submit some suggestions. As for the suggestions in question are as follows:

1. Using Quantum teaching models in science learning students will have a positive impact when learning.
2. It is expected that the class teachers will more often modify the Quantum teaching learning model in order to provide new colors and improve student learning outcomes.
5. To Researchers Furthermore, this research can be used as preliminary data in conducting further research on the use of Quantum teaching models in a wider scope.

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