



The Effect of Research Based Learning Model and Creative Thinking Ability on Students Learning Outcomes

Nursofah¹, Ratna Komala², Rusdi²

¹Vocational High School Bina Nusa Bekasi, Indonesia

²Biology Education of Mathematic and Natural Science Faculty, State University of Jakarta, Indonesia
e-mail: n.sofah@gmail.com

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ABSTRACT

Models of learning and creative thinking ability are important factors that must be considered in improving student learning outcomes. The purpose of research (1) Investigate the effect of research based learning toward student learning result (2) Investigate the effect creative thinking ability to the student learning result (3) Investigate the interaction the research based learning model and the creative thinking ability to student learning outcomes environmental pollution material. The research subject were 60 student of class XI Syariah Banking and Office Administration of SMK Bina Nusa Bekasi. The method used in this research is experimental research method with the treatment factorial design 2x2. samples had taken simple random sampling. Analysis of data used normality tes, homogeneity tes and two way Anova, research results at the level of significance ($\alpha = 0.05$) shows that (1) there is significant influence of research based learning result (2) there is significant influence of creative students thinking ability on learning outcomes environmental pollution material. 3) there is interaction between research based learning and creative thinking ability to student learning outcomes environmental pollution material.

Keywords: Creative Thinking Ability, Learning Outcomes, Research Based Learning

INTRODUCTION

Creating quality learning is one of the goals of education, where in learning students are expected to do something that can not be done before learning so that affect the learning outcomes. The low learning outcomes themselves are influenced by many factors, one of which is the learning model, the facilities that support the learning process and the level of students' creative thinking ability. Hafsah (2015) states that the model of learning is one of the determinants of the success of learning. In addition, according to Yani (2014) and Slavin (2011) that a teacher not only gives understanding but must make students competent and creative to build their own knowledge. So that the learning model used should be varied, able to develop students' creative thinking skills that will ultimately affect the learning outcomes and be able to

develop the mandate contained in the curriculum, one appropriate model is a research-based learning model.

Research-based learning model (RBL) Lizelwati (2014) and Gravin (Endriani, 2014) is a process of learning and building their own knowledge by allowing students to train their abilities through a series of activities observation and analysis, while Srikoon, et al., (2014) revealed that in the process of learning combines four aspects of understanding that is to formulate problems, analyze, outcome and communicate it.

Steps in research-based learning according to Arifin and PUPBR (2010), Chrystis (2015) are 1) stage of exposure, 2) experience stage, 3) stage of information convey (capstone). The advantages and benefits of a research-based learning model according to Hoskins and Mitchell (2015), Chamdani, et al., (2015) that can increase learning motivation to be more

active, have learning independence, high curiosity, critical, creative so as to improve learning outcomes.

Another factor that influences learning outcomes is the ability to think creatively, which is in line with what was stated by Magfiroh, et al., (2016) that one of the important factors in learning is the ability to think creatively. The ability of creative thinking according to Anwar (2012), Ersoy & Baser (2014) is a way or idea to produce something, while the ability to think creatively according to Hursen, et al., (2013) is the ability to solve a problem whose capacity in each person is different in using mind and imagination to produce something new. Teachers in the learning process should be able to explore the creative thinking ability of students and teachers need to know that in each student has the capacity of different ability to think, but back to the ability of teachers, because according to Viktorovna (2015) explained that only creative teachers who can educate someone to be creative.

According to Munandar (2012) and Budiman (2012) that there are four of creative thinking ability: 1) fluency is the ability to generate many ideas or ideas, 2) flexibility is the ability to express various solutions or problems 3) originality is the ability to spark a new idea related to giving a unique and unique response that is different from that of others, 4) elaboration is the ability to describe something in more detail.

The learning model used in conveying the material is still conventional, according to Luzyawati (2016) and Setiogohadi (2014) that in the students' learning are still passive and wait for instruction from the teacher. Amalia (2015) states that the ability to think creatively is one of the demands of kurtilas. While viewed from the learning process teachers are still less to hone the creative thinking skills of students. Suaedin (2015) that the low ability of creative thinking is seen when students do the task or repeat. Students

only give the same answer as what is delivered by the teacher, just give one answer there is no alternative answer, the answer given is not developed.

From those various problems it is necessary to create innovative learning model that is able to motivate students to learn actively and think creatively in improving learning outcomes, especially environmental pollution materials that can provide meaningful learning experiences, therefore researchers are very interested in conducting research-based research model of learning and ability creative thinking towards learning outcomes on Vocational High School students on environmental pollution material.

METHOD

The research method used is experiment with independent variable of research model based on research and creative thinking ability and dependent variable is student learning result. While the dependent variable is the result of learning with 2 x 2 factorial design. This research was conducted in Bina Nusa Vocational High School in Bekasi 2016/2017. Subjects in this study were students of class XI Syariah Banking and Office Administration SMK Bina Nusa Bekasi. Sampling technique that used was simple random sampling using Mc Clave formula.

Table 1. 2x2 Factorial Design

Creative Thinking (B)	Learning Model (A)	
	Research Based Learning (RBL) (A1)Experiment	Group Investigation (GI) (A2) Control
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

Date collection techniques are: creative thinking ability test with problem description each made according to competence and indicator aim to see the ability of creative thinking high and low, while test result of learning with problem of choice of double which each made according to competence and indicator of

learning. The instrument used has been validated expertly and has been tested. Technique of data analysis with normality test, homogeneity test.

Research-based learning research procedure consists of three main stages, each stage of learning must sharpen, develop four aspects of creative thinking ability (fluency, flexibility, authenticity, detail). The following stages are: (1) introduction stage where the teacher explains about environmental pollution and research activities to be done, the students divide the group in each group with different research topics, the students identify the topic to be discussed and discuss how the procedure to do research. (2) the stage of student experience to discuss again related research activities to be done, students do research activities with the group in accordance with the results of discussions that have been conducted, every research activity undertaken must be documented (3) stage of information delivery where each group to make reports related to the results research has been done, each group share information related to the research topic that has been done.

RESULT AND DISCUSSION

The description analysis data consist of: mean, median, modus, varians, and standart deviation. Analyze data processing description using SPSS 20 program. Summary of the description data results analysis as in the table below.

The First Hypothesis

The results of the first hypothesis testing reject H_0 , then receive H_1 . This is proved by the average learning pollution enviromental of students who use research based learning model is higher than students who use the investigation group method. Based on test result in table Anava at significance level $\alpha = 0.05$ obtained ($p = 0.04$) and $F_{hitung} 4.30 > F_{tabel} 4.20$ thus there

is very significant difference to result of learning material of pollution enviromental with research based learning model and cooperative learning model inverstigation group.

Based on the analysis of test that the learning model influences the learning outcomes, in accordance with Trisnasih's opinion (2013) in his research that research-based learning model has an effect on improving student learning outcomes, which is also in line with Tangi (2016), Nurfatima (2015), Scahapper & Mayson (2010) that research-based learning models can improve learning outcomes and provide new experiences as they enable students to be more active, gather information, process and implement them. The research-based learning model is better than the investigative group model because in the learning process more emphasis on meaningfulness in the learning process by involving students in research activities (Umar, 2011).

The Second Hypothesis

The result of the second hypothesis testing rejects H_0 , then receives H_1 . This is proved by the average learning outcomes of pollution enviromental in students who had high creative thinking ability was better than students who had low performance.

The ability of creative thinking also affect the learning outcomes, it can be seen from the significance of $\alpha = 0.05$ obtained ($p = 0.00$) and $F_{hitung} 8.05 > F_{tabel} 4.20$ there was significant difference to result of student learning with high creative thinking ability performance with result of student learning with low creative thinking ability performance.

Based on the analysis, students who have high creative thinking ability who learn with research-based learning model get higher learning outcomes in compare students who study with group investigation model, whereas students who have low creative thinking ability who

learn with group investigation better in comparison with students who study with research-based learning model.

This can happen because students who have high creative thinking skills tend to have high curiosity, prefer learning that requires knowledge of facts in the field, see a problem from various possibilities, generate many ideas or ways to solve a problem, so it is appropriate if implementing this research-based learning model in accordance with research Salimi (2017) that active learning-based learning able to train and explore the ability of students through the stages of research.

While students who have low creative thinking skills tend to prefer tasks, practical exercises without analysis or looking for information not in detail and do not require knowledge of facts in the field, just seeing or solving problems in one way, not interested in generating many ideas, so the model group investigation results will be better if applied to students who have low creative thinking skills. In line with research conducted by Eva & Kusri (2015), Surya (2015) that students who have high creative thinking ability of learning outcomes obtained better than student learning outcomes that have low creative thinking ability, while Etizarmely (2015) that students who have low creative thinking ability to achieve less than optimal learning outcomes.

The Third Hypothesis

The result of testing the third hypothesis rejects H_0 , then receives H_1 . Based on the test results in the table Anava obtained results at the level of significance $\alpha = 0.05$ obtained ($p = 0.00$) and $F_{hitung} 33.57 > F_{tabel} 4.20$ thus there is interaction between research-based learning model and the ability of creative thinking to the learning outcomes.

The ability of creative thinking is needed in the learning process and should

be developed in each student, this is in accordance with research conducted by Kusriyanto & Siagian (2013) which states that the model of learning and ability Creative thinking has an effect on learning outcomes

The analysis of hypothesis test that there is interaction of learning model and thinking ability to learning result obtained by student. This study is in accordance with research conducted by Abdurrozzak (2015) that there is interaction between learning model and creative thinking ability can improve learning outcomes.

Karim (2016) also reveals that the visible picture in the learning process emphasizes more on memorization and seeks a correct answer to the questions given, so that when viewed as a whole the ability of creative thinking of students is still quite low because few teachers understand the importance of ability think creatively in each student. According to Karmana (2013) a teacher should understand that with the ability to think creatively can train students to become independent learners and have good metacognitive awareness.

CONCLUSION

Research learning requires high motivation, so the teacher should be able to provide motivation and encouragement to the students for the results of research conducted in accordance with the objectives of learning. The ability of creative thinking is very influential on learning outcomes so that teachers should develop students' creative thinking skills.

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