

The Influence of Problem Based Learning Models combined with Flashcard Media on Creative Thinking Skills of Students

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Abstract: This study aims to determine the application of the problem-based learning model combined with flashcard media has an effect on students' creative thinking skills. The method used in this research is a quasi-experimental method. This research was conducted in two Madrasah Aliyah, Banda Aceh City, Aceh, Indonesia. The research was conducted in the even semester of the 2019/2020 Academic Year. The research sample was taken by purposive sampling as many as 126 students, namely the experimental group 63 and the control group 63. The parameters measured in the study were students' creative thinking skills. Creative thinking skills data were analyzed using quantitative descriptive by converting ordinal data into intervals through interval successive method (ISM) and anacova test. The results showed that there was an effect of students' creative thinking skills using a problem-based learning model combined with flashcard media. The conclusion of this study is that the application of the problem-based learning model combined with flashcard media has an effect on students' creative thinking skills on Environmental Pollution material in MAN 1 and MAN 2 Banda Aceh City.

Keywords: Problem Based Learning; Flashcard Media; Creative Thinking Skills

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Introduction

The development of 21st century education requires thinking skills which include logical, analytical, critical, and creative thinking skills. These skills are important for students to connect concepts and materials so that they are able to understand and solve problems in class (Beers, 2011). Creative thinking skills are one of the basic human needs, namely the need for self-realization (self-actualization) and is the highest need for humans. Basically, everyone is born in the world with creative potential. Creative thinking skills can be identified and nurtured through the right education (Munandar, 2009).

According to Hong & Milgram, (2010) individuals have convergent thinking which is done with one correct solution to a problem but can be solved by divergent thinking which can produce many solutions smoothly, original, unique or new which is called creative. Creative thinking will bring up original ideas and ideas in one's

thinking related to what is being identified (Moma, 2015). But the fact is that students are not used to learning that develops creative thinking. If learning does not pay attention to the development of creative thinking of students in learning at school, students can have difficulty in solving everyday problems. Based on Jellen and Klaus (1987) in Syukriah (2019) explained their research that the level of creative thinking skills of Indonesian children was the last of the 8 countries that were sampled.

Based on the results of observations made in the odd semester of 2019/2020 on the learning process at MAN 1 and MAN 2 Banda Aceh City, problems were found in the learning process, namely: first, students rarely asked questions and also expressed opinions about the material being taught. Both students tend to be passive in the learning process, third students have not been able to conclude a problem and clarify further problems, then students are only able to answer questions given by the teacher by quoting from books

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without adding opinions and further clarifying the problem.

This kind of teaching and learning process causes high-level thinking skills such as critical thinking skills and creative thinking skills to not develop. In fact, according to Setiadarma (2003) in Syukriah (2019), to achieve good learning achievement, one of the things that students must have been creative thinking skills. Creative thinking skills are not only creating completely new objects, but also in terms of combining previously existing ideas to be different with new ideas. To find out how the creative thinking skills of students, it is necessary to conduct an assessment, namely decision making using the information obtained (Adnyawati, 2011).

Based on the results of interviews conducted in the odd semester of 2019/2020 to teachers in the field of biology studies at MAN 1 and MAN 2 Banda Aceh, information was obtained that one of the materials that requires creative thinking skills is environmental pollution. This environmental pollution material is a material that has a very broad discussion and requires analysis of a contextual problem, causing students to experience difficulties in studying the material and resulting in failure in the learning process. Based on the final evaluation given by the teacher, it was found that many students did not pass the minimum completeness criteria, namely 75 or about 84% of the total students who did not complete.

Efforts that can be made in improving students' creative thinking skills are by using the Problem Based Learning (PBL) learning model. The PBL model is a learning model that uses real-world problems as a context for students to learn about creative thinking skills and problem-solving skills, as well as to acquire knowledge and concepts that are essential to the subject. The application of the PBL model will promote students to have motivation, confidence in learning and be able to improve the ability to solve more complex problems (Caesar, et al., 2016; Nilson, 2016; Sern, et al., 2015).

The PBL model directs to have freedom and responsibility in learning, students are given the freedom and responsibility to increase their knowledge by looking for learning resources such as libraries and the internet (English and Anastasia, 2013). PBL has a significant impact on creative traits such as being fluent, flexible, and original in providing solutions based on a problem and advancing scientific knowledge (Siew et al., 2015).

Several studies on learning using learning models to improve students' higher order thinking skills have been conducted (Febri, et al., 2018; Luciana, et al., 2016; Rosidah, 2018). The application of the PBL learning model affects cognitive learning outcomes (Ismayawati & Purwoko, 2016); Evendi et al (2021), the PBL model can improve student learning outcomes from the first cycle to the second cycle; and can improve students' metacognitive skills (Ramdoniati, et al., 2019). Research (Lubis, et al., 2019) shows that there is an increase in

student learning outcomes through problem-based learning models; Malmia, et al., (2019) also said that there was an increase in learning outcomes before using problem-based learning, pretest 58.80 and posttest 89.30 after using problem-based learning. Husna (2013) in his research also said that PBL model learning helps students improve learning outcomes because students are familiarized with problems.

In the learning process, the PBL model will be combined with Flashcard learning media, namely graphic media that is practical and applicable. Flashcard media is an effective learning card that has two sides with one side containing images, text, or symbols and the other side in the form of definitions, picture descriptions, answers, or descriptions that help remind or direct students to something related to the picture. on the card (Dina, 2011).

The results of a study on the application of a learning model that was combined with Flashcard media (Wijayanti, et al., 2015; Yunin & Wardan, 2014) stated that the Group Investigation (GI) model using flashcard media can improve learning activities and participants' cognitive abilities. Students, Listiyani, et al., (2021) also said that flashcard media can improve the ability of elementary school students.

Flashcard media helps students develop creative thinking skills that are combined using the PBL model. Therefore, researchers want to conduct research on the PBL model combined with Flashcard media, to answer questions about the effect of the PBL model combined with Flashcard media on students' creative thinking skills.

Method

This research was conducted in MAN 1 and MAN 2 Banda Aceh City. The time of the research was carried out in the even semester of the 2019/2020 academic year in class X IPA. The approach used is quantitative. This type of research is quasi-experimental and uses applied methods to determine differences that arise from a treatment on experimental variables. The treatment of both the experimental group and the control group was to test the effect of the treatment used in learning.

The population in this study were all students of class X IPA MAN 1 and MAN 2 Banda Aceh City, totaling 228 students. The sample in this study amounted to 131 students. The researcher determines the class of the research sample using purposive sampling. The taking of the experimental class and the control class is determined by looking at the standard deviation of the results of the homogeneous pretest of students (the ability of homogeneous students).

The instrument for collecting data on students' creative thinking skills is in the form of observation sheets by observing projects made by students using four indicators, namely fluency, flexibility, originality, and elaboration), (Guilford in Munandar, 1992). Previously, the observation sheet had been validated by

two validators. The technique of collecting data on students' creative thinking skills is in the form of observation sheets during the learning process, then the data is analyzed using quantitative descriptive by converting ordinal data into intervals through the interval successive method (ISM) (Hays, 1976), then the average value is calculated.

Result and Discussion

Data from the research results of students' creative thinking skills. To see the difference in the average creative thinking skills of students in the experimental class and control class, it can be seen in Figure 1.

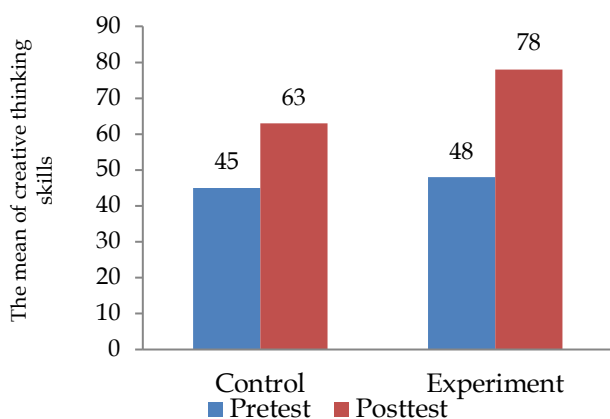


Figure 1. Average Score of Students' Creative Thinking Skills

The results of students' creative thinking skills increased and were better in the experimental class because they applied the PBL learning model combined with flashcard media. PBL is a learning model that encourages students to find problem solving and stimulates students to think when solving contextual problems (Marian, 2014). PBL gives students a lot of experience in interpreting problems, so students need to get used to solving problems by following the PBL learning syntax, because it can develop metacognitive abilities and cultivate conscientious, critical and skilled nature in making decisions, this is in accordance with the opinion of Hargrove and Nietfeld (2015) that creative thinking skills encourage the development of metacognitive skills.

The increasing creative thinking skills of students in the experimental class is caused by the implementation of learning in the classroom. It is known that PBL is not designed to help teachers explain concepts in detail to students, but PBL is developed to assist students in developing thinking skills, problem solving, and intellectual skills. learn as an adult role through being actively involved in real or simulated experiences. This is in line with Putra's opinion which states that the benefits of PBL problem-based learning are that students can develop thinking skills, problem solving, and intellectual abilities (Putra, & Rizema, 2012).

The PBL model combined with flashcard media can be used to train students actively in developing aspects of creative thinking skills, which were observed using the indicator aspects of the Guilford model (Munandar, 1992). The indicator aspects of creative thinking skills in Guilford's model consist of fluency, flexibility, originality, and elaboration. The following is a comparison of students' creative thinking skills before and after learning using the PBL model combined with flash card media. The following is the acquisition of student posttest data per aspect of the experimental and control groups, which can be seen in Figure 2.

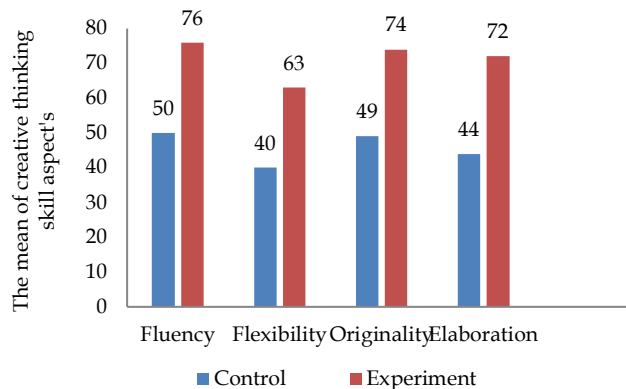


Figure 2. Average Score of Students' Creative Thinking Skills Per-Aspect

The indicator of fluency aspect (thinking smoothly) is that students are able to answer with a number of answers, besides that student are fluent in expressing ideas quickly. In the fluency aspect, the assessment is not only based on results alone, but also the assessment of the process when students solve a problem given by the teacher. The percentage score of the fluency aspect before the learning action using the problem-based learning model combined with flashcard media was 50% to 76% so that the increase was 26%. Efforts to develop the teacher's fluency aspect should encourage students to issue other answers as an alternative to developing flexibility. If flexibility is not developed, the originality aspect will not appear. The way that teachers do to develop fluency is by asking questions (Fauzia et al., 2010).

The flexibility aspect (flexible thinking) is a person's ability to generate ideas consisting of different categories or the ability to look at things (objects, problems) from various points of view (Munandar, 2009). Students are able to analyze and solve a problem based on their creative ideas, besides that student are able to categorize an object or problem according to their daily life. The percentage increase before the action was taken by 40% increased to 63% so that the increase was 23%. This is supported by research by Mariati (2006) which explains that to develop creative thinking skills, the questions asked by the teacher must be divergent questions. The opinion is the same as Sumarno's research (2010) that divergent (open) questions will give students the

opportunity to give the correct answer from one and the other so that it encourages students to think flexibly or flexibly.

The elaboration aspect (detailed thinking) is the ability to propose various problem approaches (Munandar, 2009). The percentage of elaboration increased by 49% to 74% resulting in an increase of 25%. If implemented properly, elaboration can be a means for learners to communicate their work in detail and detail (Filsaime, 2008). Thinking detailed and details in the learning process has been trained, namely, learners solve contextual problems through the PBL model so as to help learners be more active in learning because learners will think and use the ability to find the final result. The ability of learners in solving many solutions to problems. In problem-solving creative thinking skills have a positive effect on improving mindset, character, and creative problem solving (Febriana, et al., 2017; Prabowo & Sidi, 2010).

Aspects of originality (original thinking) is the ability to issue ideas or ideas that are unique, and unusual, for example those that are different from those in books or different from the opinions of others. The development of the originality aspect is closely related to the fluency and flexibility aspects. Originality percentage increased by 44% to 72% so that the increase was 28%. If fluency and flexibility are developed maximally in question-and-answer activities or discussions, it is likely that the teacher will develop originality, because originality will emerge if the teacher can develop aspects of fluency and flexibility (Fauziah, et al., 2010).

Conclusion

The conclusion in this study is that the PBL learning model combined with flashcard media has an effect on students' creative thinking skills, because the learning model involves students in solving problems related to everyday life and encourages creative thinking.

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