ICEE-2

Literature Study of the Influence of Project-Based Learning (PjBL) Models on Creative Thinking Ability of Students

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Abstract. The purpose of this literature study is to find out whether creative thinking ability can be influenced by the Project Based Learning (PjBL) model, given that this model is one of the leading models in increasing creative thinking abilities. This model can also encourage the ability of students to solve problems, ideas and new products. In everyday life, a person cannot be separated from the activities of thinking. One of the activities of thinking needed in life is creative thinking. The development of the ability to think creatively can be done through school education, which is one of them in the process of learning and learning. The method used is a literature study method of several references that discuss the effect of this model on students' creative thinking abilities, the results of the literature study found that the Project Based Learning (PjBL) model has an influence on increasing the ability to think creatively in various subjects and various Elementary school, Junior and Senior High school.

Keywords: Creative Thinking Ability, Project Based Learning Model

INTRODUCTION ~ Humans are creatures that need to be educated because awareness of human values is not carried from birth. Therefore, humans need the education to achieve human values. In everyday life, humans cannot be separated from the activities of thinking. One of the activities of thinking needed in life is creative thinking. The development of the ability to think creatively can be done through education in schools, one of which is in the process of learning and learning. According to Bloom Human values are not only engaged in cognitive and psychomotor but also in their realisation with full awareness and responsibility must reach the affective field or with teaching alone is not enough for someone to act immorally. For this reason, education is needed which encompasses values, knowledge, skills, emotions and spirituality (Sadulloh et al.; 2017, p.60).

Today, to face the challenges of the increasingly competitive industry era 4.0, it is deemed necessary to make efforts to prepare quality human resources who have superior competitiveness in facing all forms of future challenges. To fulfil all of that, the effort to create social engineering related to improving the quality of education is a logical relevance. Whether we realise it or not, education has a strategic role in forming a basic understanding in determining the direction of engineering. That is following the statement of John Dewey (Sagala, 2003. p. 3) that education is the process of forming fundamental abilities, both concerning the power of thought or intellectual power, as well as emotional power or feelings that are directed to human nature and each other. Educational goals, in general, provide an environment

that allows the environment to develop their talents and abilities optimally.

The ability to think creatively is one of the cognitive abilities to improve skills in solving a new problem, idea, or product. According to Afidah et al. (2012, p.2) that creative thinking is also an important thing and is very necessary for students to deal with life's problems in the future. The reason for the importance of creativity is developed in children according to Munandar (Rosdiana et al., 2016, p.232) First, creativity functions as self-referral which is one of the necessities of human life. Secondly, the ability to think creatively is still considered lacking attention in school even though through creative thinking someone will be able to see various ways of solving problems. Third, creative thinking is not only beneficial but also gives satisfaction to someone. Fourth, creativity enables one to improve the quality of life. Therefore, when students are not equipped with the ability to think creatively it is feared they cannot compete with the development of the age to come.

METHOD

This article was written using the literature study method by examining articles related to the project-based learning model (PjBL) and the ability to think creatively. The results of this literature review will be used as a reference in analysing the effect of project-based learning (PjBL) model on students' creative thinking abilities in Indonesia.

RESULT AND DISCUSSION

a. Creative Thinking Skills

School is one place where students gain knowledge, develop their talents and skills, and a place to express bright ideas as part of the creative thinking process. Creative thinking is crucial to be developed so that students can be useful for themselves and also others. Ruseffendi, (Choridah, 2013, p.198) states that creative people are not only good for themselves but also useful for others. To make students think creatively it is not easy to need relentless effort and hard work from educators. The ability to think creatively needs to be trained from an early age through habituation consistently. In line with Nasution, (Rohim et al., 2012, p.2) that the ability to think needs to be developed early because it is expected to be equipped in dealing with problems in daily life. The ability to think also as a means to achieve educational goals is that students can solve high-level problems. Creative thinking is one of the stages of high-level thinking that is needed in people's lives, and humans are always faced with problems, so creativity is needed to solve these problems (Rohim et al., 2012, p.2). Then according to Solso, (Siswono, 2004, p. 76) explains that creativity is defined as a cognitive activity that produces a new way or something in looking at a problem or situation. In this case creativity emphasises aspects of the process and product, so creativity itself is seen as an

ability and cognitive activity of individuals that produce a new way or something in looking at a problem or situation.

b. Project-Based Learning Model (PjBL)

According to Hosnan (2014, p. 319) stated that the Project-Based Learning Model (PjBL) is a learning model that uses projects/activities as media. This learning model uses problem media as a first step in gathering and integrating new knowledge based on experience in creativity. As according to Baron (Hosnan, 2014, p. 320) states that the Project-Based Learning Model (PjBL) is an approach to learning in a constructive way to deepening learning with a research-based approach to problems and questions that are weighted, real and relevant to their lives. In line with what Dewey said, (Tascı, 2015) that the Project-Based Learning Model (PjBL) has become an educational approach that is attached more and more information because of the excellence of student-centred education in recent years. The basis of this approach is closely related to the theory of constructivism.

Theoretically and conceptually, Project-Based Learning is supported by activity theory as proposed by Hung and Wong (Wena, 2014, p. 148), that says the basic structure of an activity consists of (a) The objectives to be achieved, (b) the subject that is located in context, (c) a society in which work is carried out by means of, (d) tools, and (e) work rules and division of labour. Thus, the activities prioritise students to be active during the learning process. In addition to activity theory, there are constructivist learning theories pioneered by Piaget, Vygotsky and John Dewey. Constructivist learning theory is a theory that has had a significant influence on the development of project-based learning models. The constructivist theory views that students can construct their knowledge of the understanding they have. The steps of the Project-Based Learning (PjBL) learning model according to Hosnan (2014, p. 325) there are six steps in implementing the learning model are:

1) Determination of the project
2) Designing project steps
3) Develop a project implementation schedule
4) Carry out tasks with facility and monitoring guidelines
5) Prepare reports and achievements/publications on project results
6) Evaluate the project outcome process

c. Creative Thinking Skills influenced by PjBL Model

Many studies have revealed that in learning that uses the Project Based Learning (PjBL) model, in general, will significantly affect the ability of creative thinking students during learning takes place, especially in training students to always think creatively in achieving specific projects or goals that have been set. Among the research

conducted by Purbalaksmi et al., (2013) entitled: The effect of project-based learning models on the ability to think creatively and the results of learning fine arts. The research aims to identify differences in creative thinking abilities and learning outcomes between students who study with project-based learning and students who learn with conventional learning models. The research objects are all VIII class of SMP Dwijendra Denpasar. The results showed that there were differences in the ability to think creatively and visual art learning outcomes between students who took project-based learning and students who learned with conventional learning models. The average ability of creative thinking groups of students who follow the project-based learning model is higher than the average group of students who follow conventional learning models.

The second study conducted by Rohana, (2016) entitled: Efforts to improve the ability to think creatively and mastery of students' concepts in environmental pollution material. The purpose of this study is the application of the PBL model to improve the ability to think creatively and to master students' concepts in food and health material. The sample in this study were all fifth-grade students in the school, totalling 70 students consisting of two classes, namely the VA class as the experimental class and the VB class as the control class. The results of the first study, there is an increase in the ability of students in mastering concepts that get project-based learning is significantly higher than students who get conventional learning. Second, there is an increase in the ability to think creative who get project-based learning significantly higher than the participants who get conventional learning.

The third study was conducted by Awaliyah, (2017) entitled: Project-based learning to improve creative thinking skills and scientific attitudes of elementary school students on natural events material. The research aims to find out the effect of the PjBL model on the ability to think creatively and scientific attitude. The results of his first research, the increase in creative thinking of elementary school students who use project-based learning is significantly higher than expository learning because the project-based learning model facilitates the growth and development of all aspects of students. Second, the scientific attitude of elementary school students who use the PjBL model is significantly higher than the expository learning model. Third, project-based learning is student-centred learning. Project-based learning involves physical and physical activity of students to make students full of practical activities.

The fourth study conducted by Rahmazatullaili et al., (2017) entitled: The ability to think creatively and problem-solving students through the application of project-based learning models. The research

aims to determine the ability of women to think creatively and solve problems. The sample in this study was VIII2 junior high school students who were given learning by the PjBL model. Learning is done by applying the PjBL model to statistical material for five meetings. The results of the research can show that there is a positive correlation between increasing the ability to think creatively with increasing problem-solving abilities. Both abilities have a positive influence on the improvement of the other abilities because the activities in learning through problems that are packaged in the form of project work provide exciting learning experiences and at the same time enhance the ability to think creatively that encourages students' ability to solve problems. Third, the ability to think creatively has a positive influence on the ability to solve problems.

The fifth study conducted by Nazhifa, Y (2018), entitled: The effect of the application of the project-based learning (PjBL) model on the creative thinking abilities of students. The study was conducted to determine the effect of the PjBL model on the creative thinking ability of MAN 1 Bukittinggi students in class XI IPS. The results of the first study, the PjBL model can have a positive impact on students and teachers. Students' responses to PjBL as a whole can increase student motivation and most importantly be able to improve

CONCLUSION

From the results of the analysis of the article previously explained, the Project-Based Learning Model has been used by researchers as a learning model that can enhance various abilities, especially the ability to think creatively. The ability to think creatively can be improved not only from one subject, but from various subjects such as Mathematics, Natural Sciences, and Social Sciences from various levels of school (elementary, middle and high school). Therefore, the Project-Based Learning model is one of the learning models that have the potential to dig deeper and improve students' creative thinking abilities.

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