

## EFFORTS TO IMPROVE STUDENT LEARNING CREATIVITY IN PHYSICS LEARNING USING PROJECT- BASED LEARNING MODELS

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### ABSTRACT

*This study aims to find out what are the efforts to increase creativity in physics learning by using a project-based learning model. This study uses a descriptive method with a qualitative approach and uses data collection techniques in the form of field studies and literature studies. Based on observations on physics learning at SMA Negeri 5 Batanghari, especially class X Science, it was analyzed by comparing the results of the initial study and literature study so that the results and conclusions of the study showed that the Project Based Learning model could improve student learning outcomes, creativity.*

**Keywords:** *Creativity, Physics Learning, Project Based Learning*

### INTRODUCTION

The world of education is currently required to be able to equip students with skills. The skills in question are students' ability to think critically and solve problems, innovative creativity, as well as communication and collaboration skills. Learning is an activity carried out by the teacher in such a way that student behavior changes for the better (Titu, 2015). Physics is an important learning that must be taught to students at the education level, especially high school education (Supardi, et al, 2012).

The definition of a learning model by Suryani & Agung (2012) is a transedental part describing logical steps when integrating practicing skills in order to obtain goals and is useful for teacher reference when starting, conducting learning activities. So that the learning model is a container for applying an approach, and learning activities. The project-based learning model is a way of learning that utilizes project activities for project-based purposes that focus on gathering information and utilizing it to manifest useful things for the activity of a person or for others (Kosasih, 2014).

According to the Ministry of Education and Culture (2014) the steps of Project Based Learning in general are:

a. Determination of the fundamental question

Problems are presented in the form of basic, important questions and can then motivate students to be directly involved in learning.

b. Project planning

Planning is done collaboratively between teachers and students. Planning is made according to the competency standards that students must achieve and includes important concepts in the subject matter.

c. Develop a schedule

Teachers and students develop a project schedule. The schedule contains the steps of making a project which includes: making a *time line*, determining *deadlines*, carrying out monitoring, assessment, evaluation.

d. Monitoring

Monitoring is done by facilitating students in working on the project in each process.

e. Testing results

Outcome testing is carried out to help teachers measure the achievement of competency standards. Assessment is carried out authentically and teachers need to vary the types of assessment used.

f. Evaluation

Evaluation is carried out to provide opportunities for students to reflect both individually and in groups. Students are expected to be able to share their experiences while completing the project.

Creativity is the ability to develop new ideas and new ways of solving problems in finding these opportunities (Suryana, 2013).

According to Slameto (2015), the definition of creativity is also always related to the acquisition of objects, for example, the discovery of creating new objects along with utilizing existing objects. Creativity is a potential that every child needs to have, there are so many problems and challenges in life that require active adaptation, creativity and the ability to find imaginative problems efficiently and effectively (Fitriah in Hasanah, 2020). Creativity is a person's personality, therefore encouraging someone to be able to take action is always motivated by a teacher (Sunarto, 2018). Creativity can develop if there is no restraint, meaning that students are given freedom both in thinking and in acting.

Indicators of creativity according to Munandar (2005), namely, raising issues, being diligent while completing tasks, expressing arguments, giving many ideas about a problem, considerable curiosity, submitting answers, having preferences when solving problems. As for the indicators according to Sopan (2015), there are 4 indicators of student creativity, namely Fluency or the ability to express many ideas. Flexibility, is the ability to suggest various solutions or approaches to problems. Originality, is the ability to come up with ideas in ways that are original, not clichéd. Elaboration, is the ability to describe something in detail.

The inhibition of student creativity is not only caused by a learning system that only improves student learning outcomes, but there are several other factors that can inhibit student creativity in learning, namely students who are lazy to participate in learning,

Based on these problems, it is necessary to make improvements in classroom learning by implementing *Project Based Learning*. Project-based learning is an innovative approach to learning that teaches many important strategies for success in the 21st century (Bell, 2010). Through PjBL projects, students are given the opportunity to increase their creativity in developing media in conveying their ideas. Evans in (Kawuryan, 2014) explains creativity is the ability to find new relationships, see a subject from a new perspective, and form new combinations of two or more concepts that already exist in the mind. In line with this opinion, in this study, creativity is interpreted as a product of student

thinking in explaining the concept of physics learning strategies.

The problem studied in this research is how to improve students' learning creativity in physics learning using project-based learning model. In addition, this research is also useful for students to be more active, creative and able to develop students' abilities in the application of learning models optimally.

## **METHODS**

This research uses a descriptive method with a qualitative approach. As according to Sugiono (2009) descriptive method is a method that describes and describes an object under study through data and samples that have been collected without analyzing and making conclusions that apply to the public. In this qualitative research using field studies, according to Darmalaksana (2020) explains that the field study research process has two stages, namely field studies and literature studies, where researchers conduct literature studies first then field research by conducting interviews and documentation, then after getting the results from the field study, it will be compared with the results of the literature study with a descriptive type.

### **Population and Sample**

According to Suharsimi (2006) population is the whole object of research or all data that is of concern in a scope. In this study, the research population is all students in class X IPA SMA Negeri 5 Batanghari in the 2021/2022 school year consisting of two classes. Meanwhile, the sample is part of the population that can represent the population (Wiranto, 1972). In this study, researchers took samples using *purposive sampling*. According to Sudjana (2009), *purposive sampling* is a sampling process based on considerations from research. The samples in this study were five students from class X IPA1 and five students from class X IPA2.

### **Data collection techniques**

The data collection technique in this research is by conducting observations, interviews and documentation studies. Observation is an activity of observation (data collection) to review the extent to which the effects of action can reach the target (Arikunto, 2006). Interviews were conducted to complement the data and efforts to obtain accurate data and the right data sources. The results of the interview are in the form of writing. In this research, the author interviewed physics teachers at SMA Negeri 5 Batanghari to find out how the level of student creativity in the class. Documentation is used to support interview results in the form of writing and images. Documentation is done to strengthen research analysis related to physics learning in class.

### **Data Analysis Technique**

In this study, the data analysis technique was carried out by comparing the results of teacher interviews with the literature.

## **RESULT & DISCUSSION**

So far, teachers have not been able to explore students' creativity in the learning process. During the implementation of learning, researchers observed students in presenting the results of the assignment. Based on the results of interviews with SMA Negeri 5 Batanghari teachers. Researchers found that student creativity is still relatively low, there are still many students who do not want to express their opinions in front of the class, students do not dare to try, and are shy to ask questions. Therefore, it is necessary to increase learning creativity so that student learning outcomes increase. One of the things that needs to be improved is to increase student creativity towards the material so that students will think creatively and really to get satisfactory learning outcomes and the need for innovation in learning, namely by using the right learning model that requires students to ask questions, express opinions and dare to try.

This is in accordance with the statement (Mulyadi, 2015) which states that in *project-based learning*, there are activities to design and create projects so that students become active in discussing and presenting *project* results. In addition, (Altintas *et al.*, 2014) added that giving poster projects is an alternative method in learning to increase student motivation and creativity in processing the information received. This is in line with the findings in the field where through these assignments students look more motivated in learning and independent when designing experiments and more creatively pouring ideas / ideas about learning physics more precisely on the material of quantities and measurements. According to (Larmer and Mergendoller Jr., 2010) *project based learning* provides a learning approach that involves students to be more active and good project assignments must have clear and meaningful learning objectives for students.

## CONCLUSION

Based on the results of the research conducted, it can be concluded that the Project Based Learning learning model can increase student creativity in learning and have an influence on improving learning outcomes. The suggestion in this study is that teachers should use the right learning model when explaining the material. The use of project-based learning model can train students to think actively and creatively in the learning process.

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