



Development of STEM-Based PjBL Model Science Learning Tools to Train Middle School Students' Creativity Through Flood Detection Alarm Project Taks

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DOI : <https://doi.org/10.46245/ijorer.v3i2.209>

Sections Info

Article history:

Submitted: February 22, 2022

Final Revised: March 4, 2022

Accepted: March 10, 2022

Published: March 31, 2022

Keywords:

Creativity

Learning Tools

PjBL Models

STEM



ABSTRACT

The purpose of the research is to develop a STEM-based PjBL model of learning tools to train students' creativity through the Flood Detection Alarm project task. The research development design is a 4D model (Define, Design, Develop and Disseminate). Methods of collecting research data using validation, questionnaires, observation, assessment, and documentation. The validity of the learning device has an average score above the value of 3 (valid). The practicality of learning devices is in the very good category, obstacles that occur during learning can be resolved with several solutions so that learning can run smoothly as expected. The effectiveness of the learning tools is effective in terms of the creativity of the students, the average score is 87.6% (very creative) and the students' responses are the average score is 94% (positive). The conclusion that can be underlined in the results of this study is the development of science learning tools with the PjBL model with a STEM approach that is suitable for training students' creativity in making Flood Detection Alarm products on Dynamic Electricity material.

INTRODUCTION

The Ministry of Education and Culture of the Republic of Indonesia issued circular letter number 15 of 2020 concerning Implementation Guidelines during the emergency spread of Covid-19. The circular stated the objectives of implementing Learning From Home, including ensuring that students receive educational services during the pandemic with meaningful learning activities and adding experience and life skills education for students, without having to complete all curriculum achievements. Along with this, the Minister of Education, Culture, Research and Technology Nadiem Makarim (2022) said that the Prototype Curriculum is based on the Project Based Learning model. Learning the Project Based Learning learning model is more fun, and focuses on essential and relevant competencies in everyday life, so that educators are more independent in designing the learning process.

Project Based Learning (PjBL) is a learning model that involves students in project work to solve real problems through a series of processes from designing, working on products, to compiling reports with a predetermined time allocation (Ministry of Education and Culture of the Republic of Indonesia, 2017). In the research conducted by Tambunan (2016) about the implementation of PjBL can affect the creative attitude of students. Sari (2017) also conducted research on PjBL having an influence on students' creative thinking abilities and activities. Baidowi (2015) in his research found that students are motivated to compete to produce the best products. This is a breath of fresh air for educators to develop learning tools with Project Based Learning models to train students' creativity through meaningful learning activities, so that students have life

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