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Validity And Practicality of The Scientific Creativity Project-Based Learning (SCPjBL) Model to Increase The Scientific Creativity of Physics Education Undergraduate Students

Maimon Sumo[1,2*], Budi Jatmiko[1], Zainul Arifin Imam Supardi[1], Sueharto[3]
[1] State University of Surabaya, Surabaya, Indonesia
[2] Universitas Islam Madura, Madura, Indonesia
[3] University of Szeged, Szeget, Hungary

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ABSTRACT

Objective: Describe the validity and practicality of the SCPjBL model in terms of development needs, up-to-date knowledge, and implementation of learning and student activities. **Method:** The method in this study is a development method that has been modified and applied in universities in 2024. The sample in this study was 180 people from two different universities. Data were collected based on the validation results and observation of the implementation of the SCPjBL model. The assessment instrument uses a validation sheet that is assessed by three validators who are experts in their respective fields. The instruments used for the implementation of the model are the lesson plan and student worksheet implementation observation sheet. The observation sheet was filled in by four observers who were divided into two observers who were tasked with observing the implementation of the SCPjBL model phase and two others who observed student activities. **Results:** The results of the observations were then analyzed quantitatively. A study in the form of validation results from three validators obtained an average score of 3.92 with an average validity percentage of 98% with a very valid category. The results of the practicality of the SCPjBL model and its supporting devices obtained a score of 3.56, with an average percentage of implementation reaching 91%. **Novelty:** This research emphasizes solving physics problems by taking two approaches simultaneously. It is done by exploring students' initial knowledge as an initial check for solving complex problems presented to students in the form of scientific phenomena

INTRODUCTION

Along with the development of information technology, that changes a person's perspective in living life, such as accessing information so quickly, processing information accurately, and transferring information efficiently in various lines of life, including the world of education (Wibowo, 2023a). To prepare someone who is able to adapt to advances in science and technology in the era of the Industrial Revolution 4.0, an education system is needed that prepares an educator to quickly adapt to these advances (Andres & Rosalinda, 2023). A person who easily adapts to advances in science and information technology has critical thinking skills in problem-solving and creative thinking in innovation, collaboration, and communication well (Rosidin et al., 2019).

One of the 21st-century skills is creativity and innovation. One of the factors that encourages someone to innovate is having adequate knowledge, because the ideas that emerge must be adjusted to the basis of knowledge, theoretically and empirically (Santyasa et al., 2020). Scientific knowledge can be developed by studying material that contains concepts, facts, and laws (Cheli et al., 2023). With this scientific knowledge, students can analyze and evaluate the findings obtained during scientific investigations. Scientific knowledge can be obtained through

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