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Scientific Literacy Improvement Using Socio-Scientific Issues Learning

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ABSTRACT

Objective: This study aimed to describe the improvement of scientific literacy after learning based on Socio-scientific Issues using the Problem-Based Learning model. **Method:** This study was analyzed quantitatively descriptively using N-Gain to determine the student's scientific literacy improvement. Using a one-group pre-posttest design, 29 undergraduate students of the science education department from a university in Indonesia participated in this pre-experimental study. The data was collected using an observation sheet of learning implementation and scientific literacy tests given before and after the learning. **Finding:** The results of this study showed that students' scientific literacy was improved after participating in learning based on Socio-scientific Issues using the Problem-Based Learning model. The scientific literacy was improved from (category low) in the pretest to (category medium) in the posttest, and the average N-gain score was 0,64 (medium category). Improving scientific literacy is also supported by the Socio-scientific Issues of learning using the Problem-Based Learning model implemented very well. **Novelty:** This study's novelty was to describe each indicator of scientific literacy of the undergraduate students that was improved by using Socio-Scientific Issues in Problem-Based Learning. Hopefully, this study will be helpful for further research and give a solution for science teachers to improve students' scientific literacy.

INTRODUCTION

Learning activities are one of the most essential needs in 2022. The quality of students has experienced a decline in education due to the COVID-19 pandemic that has hit the whole world. Our activities have been minimal for almost two years, causing no optimal implementation of various areas of our lives, one of which is education. Learning previously carried out face-to-face must be adapted to distance learning with minimal interaction. Students experience lost learning when studying from home due to the COVID-19 pandemic (Engzell et al., 2021). The decline in students' awareness of social and environmental issues has also arisen due to the COVID-19 pandemic, so the education needed at this time is education that maximizes exploration activities on social issues.

This exploration provides a broader space for students to recognize, understand, and explore actual and factual issues, likewise with science learning, where learning is expected to develop student competencies to understand scientific issues in everyday life. This aligns with scientific literacy's aspects or components (Angelina, 2019). Scientific literacy is the ability of each individual to understand and apply knowledge in solving problems related to science and technology in everyday life (OECD, 2018). This ranking is a hard blow to Indonesian education, which awakens students and institutions to build scientific literacy maturity in learning activities as capital to face future global challenges. Science learning must be oriented towards scientific literacy and make scientific literacy and the development of scientific literacy one of the outputs

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