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Page 67-80

The Hypothetic OMIRE Learning Model to Improve The Scientific Literacy of Prospective Science Teachers

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ABSTRACT

Objective: Prospective science teachers must have good scientific literacy skills as critical agents in developing future generations' scientific literacy. However, the scientific literacy skills of prospective science teachers in Indonesia still need to improve. This research tries to formulate the OMIRE learning model to increase the scientific literacy of prospective science teachers. **Method:** The method used is a literature study with a qualitative research type. **Results:** The hypothetical OMIRE learning model synthesizes inquiry-based learning models and culture-based learning models to develop the scientific literacy of prospective science teachers. This model is based on several learning theories, including constructivism, Piaget's cognitive development theory, Vygotsky's social constructivist theory, Ausuble's meaningful learning, Bruner's discovery learning, Novak's concept map (mind map), information processing theory, collateral learning theory, boundary crossing metaphor culture, and scientific reconstruction. The hypothetical OMIRE learning model consists of five phases: Observation (O), Mind Mapping (M), Investigation (I), Reconstruction (R), and Evaluation (E). **Novelty:** The hypothetical OMIRE learning model can develop the scientific literacy of prospective science teachers. Further research needs to be conducted to test the validity, practicality, and effectiveness of the OMIRE learning model in improving the scientific literacy of prospective science teachers.

INTRODUCTION

Various complex problems that negatively impact the rapid development of science and technology in this era of globalization require people to master several life skills. Scientific literacy is one of the 21st-century skills identified by the World Economic Forum (2015) as critically needed for survival. Scientific literacy is more focused on applying knowledge and skills in various situations to make decisions and solve problems in everyday life (Husamah et al., 2022; Sholahuddin et al., 2021). OECD (2019) defines scientific literacy as a skill possessed by reflective citizens to engage in issues and ideas related to science. Although there is no universally accepted definition of scientific literacy (Wang et al., 2024), in essence, scientific literacy refers more to what scientific knowledge people must master to live more effectively and responsibly. A person's level of scientific literacy is indicated by their ability to (a) explain phenomena scientifically, (b) evaluate and design scientific investigations, and interpret data and evidence scientifically (OECD, 2019).

It is very important to master scientific literacy (Pahrudin et al., 2019; Ploj Virtič, 2022). Someone who masters scientific literacy well will have a more significant opportunity to adapt (Adnan et al., 2021), be more effective in making personal decisions (Ploj Virtič, 2022), and be able to solve problems in everyday life

6. 328-Article 67-80 Putri Sarini.doc

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