International Journal of Society Reviews (INJOSER) e-ISSN: 3030-802X
Vol. 3 No. 1, November 2025, pages: 181~191

META ANALYSIS: THE EFFECTIVENESS OF USING ETHNOSCIENCE-BASED SCIENCE MODULES IN IMPROVING STUDENTS' SCIENTIFIC LITERACY

Putu Mentari Armayanti *
mentari@student.undiksha.ac.id
Pendidikan IPA, Universitas Pendidikan Ganesha, Singaraja, Indonesia

I Wayan Redhana
wayan.redhana@undiksha.ac.id
Pendidikan IPA, Universitas Pendidikan Ganesha, Singaraja, Indonesia

I Nyoman Tika
nyoman.tika@undiksha.ac.id
Pendidikan IPA, Universitas Pendidikan Ganesha, Singaraja, Indonesia

I Wayan Subagia
wayan.suja@undiksha.ac.id

I Wayan Suja
wayan.suja@undiksha.ac.id
Pendidikan IPA, Universitas Pendidikan Ganesha, Singaraja, Indonesia

Abstract

This study aims to analyze the effectiveness of science modules based on ethnoscience in improving students' scientific literacy through a meta-analysis approach. Scientific literacy is a key 21st-century competency that encompasses conceptual understanding, critical thinking skills, and the ability to relate science to real-life contexts. However, various studies have shown that the level of scientific literacy among Indonesian students remains low, indicating the need for more contextual and meaningful learning approaches. Ethnoscience, as an integration of science and local culture, is seen as a promising approach to bridge the gap between science content and students' social realities. This study analyzed eight articles published between 2016 and 2025, selected based on their focus on the effectiveness of ethnoscience-based science modules in enhancing students' scientific literacy in Indonesia. Pretest and posttest data from each study were analyzed using descriptive statistics and effect size calculation through Cohen's d. The results showed that the average scientific literacy score increased from 44.65% (pretest) to 81.79% (posttest), with an average gain of 37.14%. The Cohen's d value of 2.865 indicates a very large effect size. These findings demonstrate that ethnoscience-based modules consistently improve students' scientific literacy and help reduce disparities in academic achievement. The study recommends the development of culturally relevant science modules and teacher training programs to ensure effective implementation in diverse educational contexts.