

ABSTRAK

Revita, Nasya Regi. 2026. *Pengaruh Problem Based Learning Berbasis Socio-Scientific Issues terhadap Literasi Sains dan Hasil Belajar Kognitif Biologi Siswa*. Skripsi, Program Studi Pendidikan Biologi, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Muhammadiyah Jember.

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Kata Kunci: Problem Based Learning, Socio-Scientific Issues, literasi sains, hasil belajar kognitif

Pembelajaran biologi pada abad ke-21 menuntut siswa memiliki kemampuan literasi sains dan hasil belajar kognitif yang memadai agar mampu berpikir kritis serta mengambil keputusan berbasis bukti ilmiah dalam menghadapi berbagai isu sosial yang berkaitan dengan sains. Namun, praktik pembelajaran di sekolah masih cenderung berpusat pada guru sehingga keterlibatan siswa dalam menganalisis isu-isu kontekstual belum berkembang secara optimal. Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran *Problem Based Learning* (PBL) berbasis *Socio-Scientific Issues* (SSI) terhadap kemampuan literasi sains dan hasil belajar kognitif biologi siswa.

Jenis penelitian ini adalah quasi eksperimen dengan desain Nonequivalent Control Group Design. Penelitian melibatkan kelas eksperimen yang diberikan perlakuan model PBL berbasis SSI dan kelas kontrol yang menggunakan pembelajaran PBL. Instrumen penelitian berupa tes literasi sains dan tes hasil belajar kognitif dalam bentuk pretest dan posttest, serta lembar observasi keterlaksanaan pembelajaran. Analisis data dilakukan menggunakan uji Analysis of Covariance (ANCOVA) dengan skor pretest sebagai kovariat untuk mengontrol kemampuan awal siswa.

Berdasarkan hasil penelitian diperoleh bahwa model pembelajaran PBL berbasis SSI berpengaruh signifikan terhadap kemampuan literasi sains dan hasil belajar kognitif siswa pada taraf signifikansi 0,05. Hasil uji lanjut menunjukkan adanya perbedaan rerata terkoreksi antara kelas eksperimen dan kelas kontrol. Dengan demikian, model PBL berbasis SSI dapat dijadikan sebagai alternatif pembelajaran yang efektif untuk meningkatkan kemampuan literasi sains dan hasil

belajar kognitif biologi siswa melalui pembelajaran yang kontekstual, aktif, dan berpusat pada siswa.



ABSTRACT

Revita, Nasya Regi. 2026. *The Effect of Problem Based Learning on Socio-Scientific Issues on Students' Scientific Literacy and Cognitive Learning Outcomes*. Thesis, Biology Education Study Program, Faculty of Teacher Training and Education, Universitas Muhammadiyah Jember.
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Biology learning in the 21st century requires students to possess adequate scientific literacy and cognitive learning outcomes in order to think critically and make evidence-based decisions when dealing with science-related social issues. However, classroom practices tend to remain teacher-centered, meaning student engagement in analyzing contextual issues has not yet been optimally developed. This study aims to determine the impact of a Socio-Scientific Issues (SSI) based Problem Based Learning (PBL) model on students scientific literacy and cognitive learning outcomes in biology.

This study employs a quasi-experimental design, specifically the Nonequivalent Control Group Design. It involves an experimental class receiving instruction based on the SSI-integrated PBL model and a control class undergoing conventional instruction. The research instruments consist of a scientific literacy test and a cognitive learning outcome test-administered as both pretests and posttests-as well as an observation sheet to monitor the implementation of instruction. Data analysis was conducted using the Analysis of Covariance (ANCOVA) test, with pretest scores serving as the covariate to control for students' initial abilities.

The research findings indicate that the SSI-based PBL learning model has a significant effect on students' scientific literacy skills and cognitive learning outcomes at a significance level of 0.05. Follow-up analysis revealed a difference in adjusted mean scores between the experimental and control classes. Thus, the SSI-based PBL model serves as an effective alternative for enhancing students scientific literacy and cognitive biology learning outcomes through contextual, active, and student-centered instruction.