ABSTRAK

PENINGKATAN KEMAMPUAN LITERASI SAINS SISWA SD FATIMA ROWOSENENG KELAS IV PADA MATERI PERUBAHAN ENERGI DENGAN *VIRTUAL LAB*

Yohanes David Christiandika
Universitas Sanata Dharma
2025

Kemampuan literasi sains menjadi aspek penting dalam menghadapi tantangan abad ke-21, terutama dalam pembelajaran Ilmu Pengetahuan Alam (IPA) di sekolah dasar. Namun, rendahnya skor Indonesia pada asesmen internasional seperti PISA menunjukkan bahwa literasi sains peserta didik masih perlu ditingkatkan. Berdasarkan observasi di SD Fatima Rowoseneng, ditemukan bahwa keterbatasan fasilitas laboratorium dan dominasi metode ceramah menghambat pengembangan literasi sains peserta didik. Penelitian ini bertujuan untuk meningkatkan kemampuan literasi sains peserta didik kelas IV pada materi perubahan energi melalui penggunaan media *virtual lab PhET Colorado*. Penelitian ini menggunakan Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam dua siklus. Subjek penelitian adalah 10 peserta didik kelas IV SD Fatima Rowoseneng. Pengumpulan data dilakukan melalui observasi, wawancara, serta *pretest* dan *posttest* untuk mengukur kemampuan literasi sains.

Hasil penelitian menunjukkan bahwa adanya peningkatan skor rata-rata kemampuan literasi sains peserta didik, yaitu dari 55,83 (kategori rendah) pada kondisi awal, menjadi 60,83 (kategori sedang) pada siklus pertama, dan meningkat secara signifikan menjadi 79,17 (kategori tinggi) pada siklus kedua. Peserta didik menjadi lebih aktif dalam mengamati, menganalisis, dan menyimpulkan informasi ilmiah. Media ini juga membantu visualisasi konsep abstrak dan memberikan pengalaman belajar interaktif. Dengan demikian, *virtual lab PhET* merupakan solusi efektif untuk pembelajaran IPA dan literasi sains di sekolah dasar.

Kata Kunci: Literasi Sains, *Virtual Lab, PhET Colorado*, IPA, Perubahan Energi

ABSTRACT

IMPROVEMENT OF STUDENT SAINS LITERACY ABILITIES OF FATIMA ROWOSENENG GRADE IV STUDENTS ON THE MATTER OF ENERGY CHANGE WITH VIRTUAL LAB

Yohanes David Christiandika
Sanata Dharma University
2025

Science literacy is an important aspect in facing the challenges of the 21st century, especially in learning science in elementary schools. However, Indonesia's low score on international assessments such as PISA shows that students' science literacy still needs to be improved. Based on observations at Fatima Rowoseneng Elementary School, it was found that limited laboratory facilities and the dominance of the lecture method hindered the development of students' science literacy. This study aims to improve the science literacy skills of fourth grade students on energy change material through the use of PhET Colorado virtual lab media. This study used a Classroom Action Research (PTK) approach which was carried out in two cycles. The research subjects were 10 fourth grade students of Fatima Rowoseneng Elementary School. Data collection was done through observation, interview, and pretest and posttest to measure science literacy skills.

The results showed that there was an increase in the average score of students' science literacy skills, from 55.83 (low category) in the initial condition, to 60.83 (medium category) in the first cycle, and increased significantly to 79.17 (high category) in the second cycle. Learners become more active in observing, analyzing, and concluding scientific information. This media also helps visualize abstract concepts and provides an interactive learning experience. Thus, PhET virtual lab is an effective solution to improve the quality of science learning and science literacy in elementary schools.

Keywords: *Science Literacy, Virtual Lab, PhET Colorado, Science, Energy Changes*