

ABSTRAK

Alvira Thalia Budi Yuniar. 2026. *Efektivitas Penerapan Model Problem Based Learning Berbantuan Media PhET Simulation terhadap Prestasi Belajar Matematika Siswa Kelas IV Sekolah Dasar*. Skripsi. Program Studi Pendidikan Guru Sekolah Dasar, FKIP, Universitas PGRI Madiun. Pembimbing (I) Dr. Candra Dewi, M.Pd., Pembimbing (II) Eka Nofri Ari Yanto, S.Pd., M.Pd.

Penelitian ini bertujuan untuk mengetahui efektivitas penerapan model *Problem Based Learning* berbantuan media *PhET Simulation* terhadap prestasi belajar Matematika siswa kelas IV sekolah dasar. Penelitian menggunakan pendekatan kuantitatif dengan metode *pre-eksperimen* melalui desain *one-group pre-test post-test*. Sampel penelitian berjumlah 21 siswa kelas IV SDN Jatirejo yang ditentukan menggunakan teknik sampling jenuh. Instrumen penelitian berupa tes prestasi belajar Matematika berbentuk pilihan ganda sebanyak 25 soal dengan 20 soal valid dan reliabel (*Cronbach's Alpha* = 0,714). Analisis data dilakukan melalui uji normalitas *Shapiro-Wilk* dan uji *paired samples t-test*. Hasil penelitian menunjukkan bahwa rata-rata nilai siswa meningkat dari 60 pada *pre-test* menjadi 86 pada *post-test*. Hasil uji normalitas menunjukkan data berdistribusi normal, sedangkan hasil uji *paired samples t-test* memperoleh nilai signifikansi sebesar 0,000 ($<0,05$). Temuan tersebut membuktikan bahwa penerapan model *Problem Based Learning* berbantuan media *PhET Simulation* efektif dalam meningkatkan prestasi belajar Matematika siswa kelas IV sekolah dasar.

Kata Kunci: *Problem Based Learning, PhET Simulation, Prestasi Belajar, Matematika, Sekolah Dasar*

ABSTRACT

Alvira Thalia Budi Yuniar, 2026. *The Effectiveness of Implementing the Problem-Based Learning Model Assisted by PhET Simulation Media on the Mathematics Learning Achievement of Fourth-Grade Elementary School Students*. Thesis. Elementary School Teacher Education Study Program, Faculty of Teacher Training and Education, PGRI University Madiun. Advisor Dr. Candra Dewi, M.Pd., Co-Advisor Eka Nofri Ari Yanto, S.Pd., M.Pd.

This study aimed to determine the effectiveness of implementing the Problem-Based Learning model assisted by PhET Simulation media on the mathematics learning achievement of fourth-grade elementary school students. The study employed a quantitative approach using a pre-experimental method with a one-group pre-test/post-test design. The sample consisted of 21 fourth-grade students from SDN Jatirejo, selected using a saturated sampling technique. The research instrument was a multiple-choice mathematics achievement test comprising 25 items, of which 20 were found to be valid and reliable (Cronbach's Alpha = 0.714). Data analysis was conducted using the Shapiro-Wilk normality test and the paired samples t-test. The results showed that the students' average score increased from 60 on the pre-test to 86 on the post-test. The normality test indicated a normal distribution of data, while the paired samples t-test yielded a significance value of 0.000 (<0.05). These findings demonstrate that the implementation of the Problem-Based Learning model assisted by PhET Simulation media is effective in improving the mathematics learning achievement of fourth-grade elementary school students.

Keywords: Problem Based Learning, PhET Simulation, Academic Achievement, Mathematics, Elementary School.