

Rani Febriani, 2025. Penerapan Model Inkuiri Terbimbing Berbantuan *PhET Simulation* Untuk Meningkatkan Hasil Belajar Peserta Didik. Skripsi. Program Studi Pendidikan IPA, Fakultas Ilmu Pendidikan. Universitas Trunojoyo Madura. Pembimbing : Mochammad Ahied.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui peningkatan hasil belajar peserta didik melalui penerapan model Inkuiri Terbimbing berbantuan *PhET Simulation* pada materi getaran, gelombang, dan cahaya di kelas VIII SMP. Metode penelitian yang digunakan adalah quasi eksperimen dengan desain *nonequivalent control group design*, yang dilaksanakan di MTs Al-Hidayah Jengkebuan, Kabupaten Bangkalan, pada tahun ajaran 2024/2025. Teknik pengumpulan data dilakukan melalui tes hasil belajar, dengan analisis uji hipotesis menggunakan *uji Mann-Whitney*, serta pengukuran peningkatan hasil belajar menggunakan *uji N-Gain Score*. Hasil penelitian menunjukkan bahwa nilai rata-rata di kelas eksperimen meningkat pada *pretest* 9,63 menjadi 82,87 pada *posttest*, sedangkan di kelas kontrol meningkat dari *pretest* 5,92 menjadi 49,07 pada *posttest*. Berdasarkan uji *N-Gain*, rata-rata skor di kelas eksperimen sebesar 0,81 termasuk dalam kategori tinggi, sementara di kelas kontrol sebesar 0,46 termasuk dalam kategori sedang. Selain itu, hasil angket respons siswa terhadap penerapan model Inkuiri Terbimbing berbantuan *PhET Simulation* berada pada kategori sangat baik. Dapat disimpulkan bahwa penerapan model Inkuiri Terbimbing berbantuan *PhET Simulation* pada materi getaran, gelombang, dan cahaya mampu meningkatkan hasil belajar peserta didik secara signifikan.

Kata Kunci: hasil belajar, *PhET Simulation*, Inkuiri Terbimbing, getaran gelombang dan cahaya.

Rani Febriani, 2025. *Implementation of Guided Inquiry Model Assisted by PhET Simulation to Improve Student Learning Outcomes*. Thesis. Science Education Study Program, Faculty of Education. Trunojoyo University, Madura. Supervisor : Mochammad Ahied.

ABSTRACT

This study aims to determine the improvement in student learning outcomes through the application of a guided inquiry model assisted by PhET Simulation on the subject matter of vibrations, waves, and light in eighth grade junior high school. The research method used was a quasi-experimental design with a nonequivalent control group design, conducted at MTs Al-Hidayah Jengkebuan, Bangkalan Regency, during the 2024/2025 academic year. Data collection techniques were conducted through learning achievement tests, with hypothesis testing analysis using the Mann-Whitney test, and measurement of learning achievement improvement using the N-Gain Score test. The research results showed that the average score in the experimental class increased from a pretest score of 9.63 to 82.87 on the posttest, while in the control class, it increased from a pretest score of 5.92 to 49.07 on the posttest. Based on the N-Gain test, the average score in the experimental class was 0.81, which falls into the high category, while in the control class it was 0.46, which falls into the moderate category. Additionally, the results of the student response questionnaire regarding the implementation of the Guided Inquiry Model assisted by PhET Simulation were in the very good category. It can be concluded that the implementation of the Guided Inquiry Model assisted by PhET Simulation on the topic of vibrations, waves, and light was able to significantly increase student learning activity and academic achievement.

Keywords: *learning outcomes, PhET Simulation, Guided Inquiry, vibrations of waves and light.*