

ABSTRAK

FANITA: Pengaruh Model Pembelajaran Inkuiri Terbimbing Berbantuan *PhET Simulation* Terhadap Keterampilan Proses Sains Siswa. Program Studi Pendidikan Fisika FKIP Universitas Malikussaleh, 2026.

Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran Inkuiri Terbimbing berbantuan *PhET Simulation* terhadap keterampilan proses sains siswa pada pembelajaran fisika di MAS Ulumuddin. Penelitian dilatarbelakangi oleh proses pembelajaran fisika yang masih berpusat pada guru, keterbatasan kegiatan praktikum, serta keterampilan proses sains siswa yang belum berkembang secara optimal

Penelitian ini menggunakan pendekatan kuantitatif dengan metode *quasi experiment* dan desain *Nonequivalent Control Group Design*. Populasi penelitian terdiri atas 137 siswa kelas XI, dengan sampel sebanyak 42 siswa yang dipilih menggunakan teknik purposive sampling, yaitu kelas XI-E sebagai kelas kontrol dan XI-D sebagai kelas eksperimen. Data penelitian diperoleh melalui tes dan observasi. Instrumen tes berupa 20 soal pilihan ganda yang mengukur sepuluh indikator keterampilan proses sains, sedangkan instrumen nontes berupa lembar observasi keterampilan proses sains.

Hasil penelitian menunjukkan bahwa rata-rata *posttest* keterampilan proses sains siswa pada kelas eksperimen sebesar 82,61, sedangkan kelas kontrol sebesar 74,76. Hasil uji *Independent Samples t-test* memperoleh nilai Sig. (2-tailed) sebesar $0,031 < 0,05$, sehingga H_0 ditolak dan H_a diterima. Dengan demikian, terdapat pengaruh yang signifikan dari penerapan model pembelajaran Inkuiri Terbimbing berbantuan *PhET Simulation* terhadap keterampilan proses sains siswa.

Kata Kunci: Inkuiri Terbimbing, *PhET Simulation*, keterampilan proses sains, pembelajaran fisika.

ABSTRACT

FANITA: The Effect of Guided Inquiry Learning Model Assisted by PhET Simulation on Students' Science Process Skills. Physics Education Study Program, Faculty of Teacher Training and Education, Universitas Malikussaleh, 2026.

This study aimed to determine the effect of the Guided Inquiry learning model assisted by PhET Simulation on students' science process skills in physics learning at MAS Ulumuddin. The study was motivated by the teacher-centered physics learning process, limited practical activities, and students' science process skills that had not yet developed optimally.

This study employed a quantitative approach using a quasi-experimental method with a Nonequivalent Control Group Design. The population consisted of 137 eleventh-grade students, with a sample of 42 students selected using purposive sampling. Class XI-E was assigned as the control class, while class XI-D was assigned as the experimental class. Data were collected through tests and observations. The test instrument consisted of 20 multiple-choice questions measuring ten indicators of science process skills, while the non-test instrument consisted of an observation sheet for students' science process skills.

The results showed that the mean posttest score of students' science process skills in the experimental class was 82.61, while the control class obtained a mean score of 74.76. The results of the Independent Samples t-test showed a Sig. (2-tailed) value of $0.031 < 0.05$, indicating that H_0 was rejected and H_a was accepted. Therefore, the application of the Guided Inquiry learning model assisted by PhET Simulation had a significant effect on students' science process skills.

Keywords: Guided Inquiry, PhET Simulation, science process skills, physics learning.