

Febrina Qorirul Aini Fahmi. 2025. *Penerapan Model Self Directed Learning berbantuan Phet Simulation Untuk Meningkatkan Keterampilan Berpikir Kritis*. Skripsi, Program Studi Pendidikan IPA, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Trunojoyo Madura. Pembimbing: Try Hartiningsih.

ABSTRAK

Penelitian yang dilakukan bertujuan untuk mengetahui peningkatan kemampuan berpikir kritis peserta didik menggunakan model *Self Directed Learning* berbantuan *Phet Simulation* pada materi ekologi dan keanekaragaman hayati. Penelitian dilaksanakan pada semester genap tahun ajaran 2024/2025. Penelitian dilakukan di SMP Negeri 5 Bangkalan. Populasi penelitian yaitu semua kelas VII dengan sampel penelitian kelas VII-C dan VII-A dengan menggunakan teknik *purposive sampling*. Metode penelitian yang digunakan *quasi experimental design* dengan desain *pretest posttest control group design*. Uji hipotesis menggunakan *Uji Independent sample t-test* dan analisis peningkatan kemampuan berpikir kritis dengan uji *N-Gain Score*. Hasil penelitian yang dilakukan: 1) terdapat perbedaan kemampuan berpikir kritis kelas eksperimen dan kelas kontrol pada materi ekologi dengan nilai uji hipotesis $0,000 < 0,05$ sehingga terima H_1 2) kelas eksperimen mengalami peningkatan skor *N-Gain* sebesar kelas eksperimen 0.66 dengan kriteria sedang dan pada kelas kontrol 0,28 kriteria rendah, 3) keterlaksanaan pembelajaran berada pada kategori sangat baik dengan rata-rata keseluruhan 87%. Simpulan pada penelitian ini model *self directed learning* berbantuan *Phet Simulation* dapat meningkatkan keterampilan berpikir kritis peserta didik.

Kata kunci: Berpikir kritis, Keterampilan, *Phet Simulation*, *Self Directed Learning*.

Febrina Qorirul Aini Fahmi. 2025. *Implementation of Self Directed Learning Model assisted by Phet Simulation to Improve Critical Thinking Skills*. Thesis, Science Education Study Program, Faculty of Teacher Training and Education, University of Trunojoyo Madura. Advisor: Try Hartiningsih.

ABSTRACT

The research conducted aims to determine the improvement of students' critical thinking skills using the Self Directed Learning model assisted by Phet Simulation on ecology and biodiversity material. The research was conducted in the even semester of the 2024/2025 academic year. The research was conducted at SMP Negeri 5 Bangkalan. The research population was all grade VII with research samples of grade VII-C and VII-A using purposive sampling techniques. The research method used was a quasi-experimental design with a pretest posttest control group design. Hypothesis testing using the Independent sample t-test and analysis of the improvement of critical thinking skills with the N-Gain Score test. The results of the research conducted: 1) there is a difference in the critical thinking skills of the experimental class and the control class on ecology material with a hypothesis test value of $0.000 < 0.05$ so that H1 is accepted 2) the experimental class experienced an increase in the N-Gain score of 0.66 in the experimental class with moderate criteria and in the control class 0.28 low criteria, 3) the implementation of learning is in the very good category with an overall average of 87%. The conclusion of this study is that the self-directed learning model assisted by Phet Simulation can improve students' critical thinking skills.

Keywords: *Critical Thinking, Phet Simulation, Self Directed Learning, Skills.*