

ABSTRAK

Retno Wulandari. NIM. 4203151038 (2024). Pengaruh Model *Discovery Learning* Menggunakan *Phet Simulation* Terhadap Motivasi Dan Hasil Belajar Siswa Smp Kelas VIII Pada Materi Cahaya Dan Alat Optik.

Penelitian ini bertujuan untuk mengetahui pengaruh model *Discovery Learning* menggunakan *PhET Simulation* terhadap motivasi dan hasil belajar siswa. Jenis penelitian *Quasi Eksperimen* dengan desain *Two Group Pretest-Posttest Control Design*. Populasi dalam penelitian yaitu kelas VIII dengan jumlah 181 siswa. sampel penelitian terdiri dari dua kelas yang diperoleh berdasarkan teknik *cluster random sampling*, yaitu kelas VIII-6 sebagai kelompok kontrol dan kelas VIII-5 sebagai kelompok eksperimen. Instrumen penelitian yang digunakan yaitu angket motivasi belajar sebanyak 20 pernyataan dan tes hasil belajar sebanyak 20 soal pilihan berganda. Uji hipotesis hasil belajar menggunakan *independent sample t-test* dan analisis motivasi menggunakan persentase. Nilai pretes hasil belajar kelas kontrol dengan rata-rata 27,321 dan kelas eksperimen 29,194. Nilai motivasi belajar sebelum perlakuan kelas kontrol dengan rata-rata 59,250% dan kelas eksperimen 61,645%. Nilai postes hasil belajar kelas kontrol dengan rata-rata 48,036 dan kelas eksperimen 66,129. Nilai motivasi setelah perlakuan kelas kontrol dengan rata-rata 68,964% dan kelas eksperimen 78,032%. Uji hipotesis dua pihak $t_{hitung} < t_{tabel}$ ($0,236 < 2,002$) maka H_0 ditolak H_a diterima, menunjukkan kemampuan awal siswa sama. Uji hipotesis satu pihak $t_{hitung} > t_{tabel}$ ($2,652 > 1,672$) maka H_0 ditolak H_a diterima, menunjukkan model *Discovery Learning* menggunakan *PhET Simulation* berpengaruh terhadap hasil belajar siswa. Perhitungan korelasi $r_{hitung} > r_{tabel}$ ($0,442 > 0,355$). Maka H_0 ditolak dan H_a diterima, menunjukkan terdapat korelasi antara motivasi belajar dan hasil belajar siswa pada penggunaan model *Discovery Learning* menggunakan *PhET Simulation* pada materi cahaya dan alat optik di kelas VIII SMP Swasta Pahlawan Nasional Medan.

Kata Kunci : *Discovery Learning*, *PhET Simulation*, Motivasi Belajar, Hasil Belajar, Cahaya dan Alat Optik



ABSTRACT

Muthia Embun Khairafah. NIM. 4203151022 (2024). The Effect of the Discovery Learning Model Using Phet Simulation on the Motivation and Learning Outcomes of Class VIII Middle School Students on Light and Optical Instruments

This study aims to determine the effect of the Discovery Learning model using PhET Simulation on student motivation and learning outcomes. The type of research is Quasi Experiment with Two Group Pretest-Posttest Control Design. The population in the study was class VIII with 181 students. The research sample consisted of two classes obtained based on cluster random sampling techniques, namely class VIII-6 as the control group and class VIII-5 as the experimental group. The research instruments used were a learning motivation questionnaire consisting of 20 statements and a learning outcome test consisting of 20 multiple choice questions. The learning outcome hypothesis test used an independent sample t-test and motivation analysis used a percentage. The pretest value of the control class learning outcomes with an average of 27.321 and the experimental class 29.194. The learning motivation value before the control class treatment with an average of 59.250% and the experimental class 61.645%. The posttest value of the control class learning outcomes with an average of 48.036 and the experimental class 66.129. The motivation value after the control class treatment with an average of 68.964% and the experimental class 78.032%. Two-tailed hypothesis test $t_{count} < t_{table}$ ($0.236 < 2.002$) then H_0 is rejected H_a is accepted, indicating the initial abilities of students are the same. One-tailed hypothesis test $t_{count} > t_{table}$ ($2.652 > 1.672$) then H_0 is rejected H_a is accepted, indicating the Discovery Learning model using PhET Simulation has an effect on student learning outcomes. Correlation calculation $r_{count} > r_{table}$ ($0.442 > 0.355$). Then H_0 is rejected and H_a is accepted, indicating that there is a correlation between learning motivation and student learning outcomes in the use of the Discovery Learning model using PhET Simulation on the material of light and optical instruments in class VIII of SMP Swasta Pahlawan Nasional Medan.

Keywords: *Discovery Learning, PhET Simulation, Learning Motivation, Learning Outcomes, Light and Optical Devices*