

ABSTRAK

Ummiatul Habibah, NIM 4181121017. Penerapan Model Pembelajaran *Discovery Learning* Berbantuan Simulasi Phet Pada Materi Usaha Dan Energi Di Kelas X SMAS Istiqlal Deli Tua

Penelitian ini bertujuan untuk mengetahui perbedaan akibat pengaruh model pembelajaran *discovery learning* berbantuan simulasi PhET pada materi usaha dan energi di kelas X SMAS Istiqlal Delitua. Penelitian ini termasuk jenis penelitian termasuk quasi eksperimen dengan desain two-group *pretest* dan *post-test*, populasi penelitian ini adalah semua kelas X SMA swasta Istiqlal Deli Tua. Sampel yang digunakan adalah *cluster random sampling*, yang terdiri dari kelas kontrol dan kelas eksperimen. Kelas kontrol diterapkan model pembelajaran konvensional dan kelas eksperimen diterapkan model pembelajaran *discovery learning* berbantuan simulasi PhET, dengan jumlah siswa tiap kelas adalah 30 siswa. Instrumen yang digunakan yaitu tes hasil belajar dan lembar observasi. Tes hasil belajar terdiri dari 15 soal pilihan ganda yang terlebih dahulu di validkan oleh validator. Data awal penelitian diperoleh rata-rata *pre-test* kelas eksperimen adalah 50,22 dan nilai rata-rata *pre-test* kelas kontrol adalah 48,00. Hal ini menunjukkan bahwa kemampuan awal kedua kelas sama. Kemudian diberikan perlakuan yang berbeda, yaitu kelas eksperimen menggunakan model pembelajaran *discovery learning* berbantuan simulasi PhET dan kelas kontrol menggunakan model pembelajaran konvensional. Pada akhir materi diberikan *posttest* sehingga diperoleh rata-rata di kelas eksperimen 83,11 dan rata-rata kelas kontrol 68,22. Dari data tersebut diperoleh $t_{hitung} < t_{tabel}$ ($6,90 < 1,67$). Hal ini berarti H_0 ditolak dan H_a diterima. Hasil penelitian menyatakan bahwa terdapat pengaruh dari model pembelajaran *discovery learning* berbantuan simulasi PhET pada materi usaha dan energi terhadap hasil belajar siswa.

Kata Kunci : Model *Discovery Learning*, Simulasi PhET, Model Konvensional, Hasil Belajar.

ABSTRACT

Ummiatul Habibah, NIM 4181121017. Application of Learning Model *Discovery Learning* Assisted by Phet Simulation on Business and Energy Materials in Class X SMAS Istiqlal Deli Tua

This study aims to determine the differences due to the influence of model discovery learning assisted by a PhET simulation on work and energy material in class X SMAS Istiqlal Deli Tua. This research is a type of research including quasi-experimental with a two-group pretest and posttest design, the population of this study is all class X SMA Istiqlal Delitua private school. The sample used is cluster random sampling, which consists of a control class and an experiment class. The control class applied the conventional learning model and the experiment class applied the PhET simulation-assisted discovery learning model, with the number of students in each class being 30 students. The instruments used are learning achievement tests and observation sheets. The learning outcomes test consists of 15 multiple choice questions which are first validated by the validator. Preliminary research data obtained that the average pre-test for the experiment class was 50.22 and the average pretest for the control class was 48.00. This shows that the initial abilities of the two classes are the same. Then given a different treatment, namely the experiment class using the discovery learning model assisted by PhET simulations and the control class using a conventional learning model. At the end of the material is given a post-test so that the average in the experiment class is 83.11 and the average in the control class is 68.22. From these data obtained $t_{\text{count}} < t_{\text{table}}$ ($6.90 < 1.67$). This means that H_0 is rejected and H_a is accepted. The results of the study stated that there was an influence from the discovery learning model assisted by PhET simulations on the material of effort and energy on student learning outcomes.

Keywords : Discovery Learning Models, PhET Simulations, Conventional Models, Learning Outcomes.