

## ABSTRAK

### **Puti Salzabilla. 4183321032. Pengaruh Model *Problem Based Learning* Berbantuan Media PhET Terhadap Hasil Belajar Siswa Pada Materi Usaha dan Energi**

Penelitian ini bertujuan untuk mengetahui hasil belajar siswa yang diajarkan dengan model *problem based learning* berbantuan media PhET dan konvensional, mengetahui aktivitas belajar siswa menggunakan model *problem based learning* berbantuan media PhET serta mengetahui pengaruh pembelajaran *problem based learning* berbantuan media PhET terhadap hasil belajar siswa. Jenis penelitian yang dilakukan adalah *quasi eksperimen*. Populasi penelitian adalah seluruh siswa kelas X MIA Semester II yang terdiri dari 2 kelas. Pengambilan sampel dilakukan dengan cara *class random sampling*. Kelas X MIA 1 sebagai kelas eksperimen dengan menggunakan model *problem based learning* berbantuan media PhET dan kelas X MIA 2 sebagai kelas kontrol dengan menggunakan pembelajaran konvensional. Instrumen yang digunakan untuk mengetahui hasil belajar siswa adalah soal-soal tes hasil belajar berjumlah 10 soal dalam bentuk pilihan berganda.

Hasil data untuk kelas eksperimen yang diajarkan menggunakan model *problem based learning* berbantuan media PhET dan kelas kontrol menggunakan pembelajaran konvensional masing-masing diperoleh nilai rata-rata *pretest* yaitu 34,00 dan 31,43. Rata-rata *posttest* kelas eksperimen dan kelas kontrol masing-masing diperoleh 83,14 dan 57,14. Kedua kelas berdistribusi normal dan memiliki variasi yang homogen. Hasil uji  $t_{hitung}$  adalah 7,850 sedangkan  $t_{tabel}$  adalah 1,669 pada taraf nyata 0,05 artinya  $H_a$  diterima dan  $H_0$  ditolak dimana  $t_{hitung} > t_{tabel}$  ( $7,850 > 1,669$ ). Nilai rata-rata aktivitas belajar siswa selama pembelajaran berlangsung sebesar 71,95 tergolong aktif dan mengalami peningkatan setiap pertemuan. Sehingga diperoleh kesimpulan adanya pengaruh model *problem based learning* berbantuan media PhET terhadap hasil belajar siswa pada materi usaha dan energi

**Kata kunci:** Model *Problem Based Learning*, Media PhET, Hasil Belajar, Aktivitas Belajar, Usaha dan Energi

## ABSTRACT

### **Puti Salzabilla. 4183321032. The Effect of Problem Based Learning Model Assisted by Media Phet on Student Learning Outcomes on Work and Energy Materials**

This study aims to determine student learning outcomes taught with PhET and conventional problem based learning models, to determine student learning activities using problem based learning models assisted by PhET media and to determine the effect of PhET assisted problem based learning on student learning outcomes. The type of research conducted is quasi-experimental. The research population was all students of class X MIA Semester II which consisted of 2 classes. Sampling was done by class random sampling. Class X MIA 1 as an experimental class using a problem based learning model assisted by PhET media and class X MIA 2 as a control class using conventional learning. The instruments used to determine student learning outcomes are test questions of learning outcomes totaling 10 questions in the form of multiple choice.

The results of the data for the experimental class taught using a problem based learning model assisted by PhET media and the control class using conventional learning each obtained an average pretest score of 34.00 and 31.43. The average posttest for the experimental class and the control class were 83.14 and 57.14, respectively. Both classes are normally distributed and have homogeneous variations. The result of the  $t_{\text{count}}$  test is 7.850 while the  $t_{\text{table}}$  is 1.669 at a significance level of 0.05 meaning  $H_a$  is accepted and  $H_0$  is rejected where  $t_{\text{count}} > t_{\text{table}}$  ( $7.850 > 1.669$ ). The average value of student learning activities during learning takes place is 71.95 classified as active and has increased every meeting. So that it can be concluded that there is an effect of the problem based learning model assisted by PhET media on student learning outcomes on work and energy materials.

**Keywords:** Problem Based Learning Model, PhET Media, Learning Outcomes, Learning Activities, Work and Energy