ABSTRAK

Mona, NIM. 4182151009. Pengaruh Model Pembelajaran *Problem Based Learning* (PBL) Berbantuan PhET-Colorado terhadap Hasil Belajar dan Pemecahan Masalah Siswa Materi Listrik Dinamis di SMP.

Penelitian ini bertujuan untuk mengetahui pengaruh penerapan model pembelajaran *problem based learning* (PBL) berbantuan PhET-Colorado terhadap hasil belajar dan pemecahan masalah siswa SMP kelas IX pada materi Listrik Dinamis. Penelitian ini dilakukan dengan metode *quasi* eksperimen dengan desain pretes-postes di salah satu SMP Negeri di Medan. Teknik pengambilan sampel menggunakan *purposive sampling.* Sampel penelitian ini terdiri dari dua kelas masing-masing terdiri dari 32 orang siswa, kelas IX-J adalah kelas eksperimen yang menerapkan model *problem based learning* (PBL) berbantuan PhET-Colorado dan kelas IX-D adalah kelas kontrol yang menerapkan pembelajaran konvensional. Instrumen penelitian yang digunakan adalah tes pilihan ganda dengan 4 pilihan jawaban untuk mengukur hasil belajar kognitif dan tes uraian untuk tes pemecahan masalah siswa pada materi listrik dinamis. Data rata-rata pretes dan postes hasil belajar pada kelas eksperimen adalah 49,37 dan 80,31, sedangkan pada kelas kontrol masing-masing 51,09 dan 66,40. Data rata-rata pretes dan postes pemecahan masalah siswa pada kelas eksperimen adalah 35,31 dan 72,12, sedangkan pada kelas kontrol masing-masing 36 dan 66,40. Data dianalisis dengan menggunakan uji *Manova (multivariate analysis of variance).* Berdasarkan uji hipotesis terdapat perbedaan hasil belajar dan pemecahan masalah secara signifikan dengan penerapan model *Problem Based Learning* (PBL) berbantuan PhET-Colorado pada materi IPA di SMP, sehingga terdapat pengaruh model *Problem Based Learning* (PBL) berbantuan PhET-Colorado terhadap hasil belajar dan pemecahan masalah siswa. Persentase peningkatan N-gain hasil belajar pada kelas eksperimen adalah 62,09 dengan kategori sedang dan kelas kontrol adalah 30,48 dengan kategori sedang, dan pemecahan masalah pada kelas eksperimen 56,90 dengan kategori sedang dan kelas kontrol adalah 22 dengan kategori rendah.

Kata Kunci : PBL, PhET-Colorado, Hasil Belajar, Pemecahan Masalah

ABSTRAK

Mona, NIM. 4182151009. The Effect Of Phet-Colorado Assisted Problem Based Learning Learning Model On Learning Outcomes And Problem Solving Dynamic Electrical Materials In Junior High Schools.

This study aims to determine the effect of applying the PhET-Colorado-assisted problem based learning (PBL) learning model on the learning outcomes and problem solving of junior high school students in class IX on Dynamic Electricity. This research was conducted using a quasi-experimental method with a pretest-posttest design in one of the public junior high schools in Medan. The sampling technique used was purposive sampling. The sample of this study consisted of two classes each consisting of 32 students, class IX-J was an experimental class that applied the PhET-Colorado-assisted problem based learning (PBL) model and class IX-A was a control class that applied conventional learning. The research instrument used was a multiple choice test with 4 answer choices to measure cognitive learning outcomes and a description test for students' problem solving tests on dynamic electricity material. The average pretest and posttest data on learning outcomes in the experimental class were 49.37 and 80.31, while those in the control class were 51.09 and 66.40, respectively. The average pretest and posttest data on student problem solving in the experimental class were 35.31 and 72.12, while in the control class they were 36 and 66.40, respectively. Data were analyzed using the manova test *(multivariate analysis of variance)*. Based on the hypothesis test, there are significant differences in learning outcomes and problem solving with the application of the PhET-Colorado-assisted Problem Based Learning (PBL) model on science material in junior high schools, so that there is an effect of the PhET-Colorado-assisted Problem Based Learning (PBL) model on learning outcomes and solving student problems. The percentage increase in N-gain learning outcomes in the experimental class was 62.09 in the medium category and the control class was 30.48 with the medium category, and problem solving in the experimental class was 56.90 with the medium category and the control class was 22 with the low category.

Keywords: *PBL, PhET-Colorado, Learning outcomes, Problem Solving*