

ABSTRAK

Robi Awaludin. 2023. **PENGARUH MODEL *PROBLEM BASED LEARNING* TERINTEGRASI *SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS* (PBL-STEM) TERHADAP KETERAMPILAN BERPIKIR KRITIS SISWA SMA PADA MATERI USAHA DAN ENERGI**

Penelitian ini dilatarbelakangi oleh rendahnya keterampilan berpikir kritis siswa dalam materi usaha dan energi serta kurangnya inovasi dalam pembelajaran Fisika. Untuk mengatasi permasalahan tersebut, peneliti menerapkan model *Problem Based Learning* terintegrasi *Science, Technology, Engineering, and Mathematics* (PBL-STEM). Tujuan penelitian ini adalah untuk mengetahui pengaruh model *Problem Based Learning* terintegrasi *Science, Technology, Engineering, and Mathematics* (PBL-STEM) terhadap keterampilan berpikir kritis siswa. Metode penelitian yang digunakan adalah metode penelitian semu (*Quasy Eksperimental*) dengan menggunakan desain *nonequivalen control group design*. Populasi penelitian ini adalah seluruh kelas X SMA Negeri 4 Tasikmalaya yang terdiri dari 11 kelas dengan jumlah siswa sebanyak 394 siswa. Pengambilan sampel dalam penelitian ini diambil dengan menggunakan teknik *purposive sampling* sebanyak 2 kelas masing-masing berjumlah 35 orang. Untuk mengukur keterampilan berpikir kritis siswa dilakukan tes sebelum perlakuan (*pretest*) dan setelah diberi perlakuan (*posttest*) berbentuk uraian berjumlah 10 soal pada materi usaha dan energi. Teknik analisis data yang digunakan adalah uji prasyarat (uji normalitas, uji homogenitas), dan uji hipotesis (uji t,) dengan kriteria pengujian pada taraf signifikansi ($\alpha = 0,05$). Hasil pengujian hipotesis dengan uji t menunjukkan bahwa nilai $t_{hitung} \geq 1,67$ yang berarti H_0 ditolak dan H_a diterima, nilai t_{hitung} yang diperoleh adalah 3,35. Maka dapat disimpulkan bahwa model *Problem Based Learning* terintegrasi STEM (PBL-STEM) berpengaruh terhadap keterampilan berpikir kritis pada materi usaha dan energi di kelas X SMA Negeri 4 Tasikmalaya tahun ajaran 2023/2024.

Kata kunci: model *Problem Based Learning* terintegrasi STEM, keterampilan berpikir kritis, usaha dan energi.

ABSTRACT

Robi awaludin.2023 **THE EFFECT OF THE INTEGRATED PROBLEM BASED LEARNING MODEL OF SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (PBL-STEM) ON THE CRITICAL THINKING SKILLS OF HIGH SCHOOL STUDENTS ON WORK AND ENERGY MATERIALS**

This research was motivated by students' low critical thinking skills in works and energy materials and lack of innovation in learning Physics. To overcome these problems, researchers apply the integrated Problem Based Learning model of Science, Technology, Engineering, and Mathematics (PBL-STEM). The purpose of this study was to determine the effect of the integrated Problem Based Learning model of Science, Technology, Engineering, and Mathematics (PBL-STEM) on students' critical thinking skills. The research method used is a pseudo-research method (Experimental Quasy) using a nonequivalent control group design. The population of this study was the entire class X of SMA Negeri 4 Tasikmalaya consisting of 11 classes with a total of 394 students. Sampling in this study was taken using purposive sampling techniques as many as 2 classes. To measure students' critical thinking skills, tests were carried out before treatment (pretest) and after being given treatment (posttest) in the form of a description of 10 questions on works and energy material. The data analysis techniques used are prerequisite tests (normality tests, homogeneity tests), and hypothesis tests (t tests, Wilcoxon tests) with test criteria at the level of significance ($\alpha = 0.05$). The results of testing the hypothesis with the t test show that the value of, $t\text{-count} \geq 1.67$ which means, H_0 . rejected and, H_a . accepted, value, $t\text{-calculate}$. The one obtained is 3.35. So it can be concluded that the STEM integrated problem-based learning model (PBL-STEM) affects critical thinking skills in work and energy materials in grade X of SMA Negeri 4 Tasikmalaya for the 2023/2024 school year

Keywords: STEM integrated problem-based learning model, critical thinking skills, work and energy.