

## ABSTRAK

### PENGARUH MODEL *PROBLEM-BASED LEARNING* TERINTEGRASI STEM (*SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS*) BERBANTU E-LKPD TERHADAP KEMAMPUAN BERPIKIR KRITIS SISWA KELAS X PADA MATERI EKOSISTEM

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Penelitian ini bertujuan untuk mengetahui pengaruh model *Problem-Based Learning* terintegrasi STEM (*Science, Technology, Engineering, and Mathematics*) berbantu e-LKPD terhadap kemampuan berpikir kritis siswa pada materi ekosistem di SMA Negeri 1 Kota Gajah. Riset ini menggunakan jenis penelitian semu (*Quasy Experimental*) dengan desain *Pretest-Posttest Non Equivalen Control Group*. Subjek pada penelitian ini, yaitu peserta didik kelas X yang berjumlah 72 siswa diambil dari populasi berjumlah 432 siswa menggunakan teknik *purposive sampling*. Teknik pengumpulan data kuantitatif pada kemampuan berpikir kritis siswa berupa tes uraian dan data kualitatif berupa angket tanggapan peserta didik. Hasil penelitian ini menunjukkan bahwa penggunaan model PBL terintegrasi STEM berbantu e-LKPD berpengaruh signifikan terhadap kemampuan berpikir kritis siswa berdasarkan uji *Independent Sample T-test* dengan nilai *Sig.(2-tailed)*  $0,00 < 0,05$  dan nilai *effect size* 0,89 dengan kriteria besar. Kelas eksperimen memperoleh rata-rata *N-gain* kemampuan berpikir kritis 0,64 dengan kriteria sedang, lebih tinggi dibandingkan dengan kelas kontrol yang memperoleh *N-gain* 0,28 dengan kriteria rendah. Berdasarkan perolehan hasil angket tanggapan peserta didik diperoleh persentase 86,46% termasuk kriteria sangat tinggi. Dengan demikian, terdapat pengaruh yang signifikan dari penggunaan model PBL terintegrasi STEM berbantu e-LKPD terhadap kemampuan berpikir kritis siswa.

**Kata Kunci:** Berpikir Kritis, e-LKPD, *Problem-Based Learning*, STEM (*Science, Technology, Engineering, and Mathematics*)

## **ABSTRACT**

### ***THE EFFECT OF PROBLEM-BASED LEARNING MODEL INTEGRATED STEM (SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS) ASSISTED BY E-WORKSHEET ON THE CRITICAL THINKING ABILITY OF GRADE X STUDENTS ON THE TOPIC OF ECOSYSTEM***

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*This study aims to determine the effect of the STEM-integrated (Science, Technology, Engineering, and Mathematics) Problem-Based Learning (PBL) model assisted by e-LKPD on students' critical thinking skills in ecosystem material at SMA Negeri 1 Kota Gajah. This research employed a quasi-experimental design using a pretest-posttest non-equivalent control group design. The subjects of this study were 72 tenth-grade students selected from a population of 432 students using purposive sampling technique. The data collection techniques consisted of quantitative data in the form of essay tests to measure students' critical thinking skills and qualitative data in the form of student response questionnaires. The results showed that the use of the STEM-integrated PBL model assisted by e-LKPD had a significant effect on students' critical thinking skills, as indicated by the Independent Sample T-test with a Sig. (2-tailed) value of  $0.00 < 0.05$  and an effect size of 0.89, which falls into the large category. The experimental class obtained an average N-gain score of 0.64 (moderate category), which was higher than the control class with an N-gain of 0.28 (low category). Based on the results of the student response questionnaire, a percentage of 86.46% was obtained, which is categorized as very high. Therefore, it can be concluded that there is a significant effect of the STEM-integrated PBL model assisted by e-LKPD on students' critical thinking skills.*

**Keywords:** *Critical Thinking, e-Worksheet, Problem-Based Learning, STEM (Science, Technology, Engineering, and Mathematics)*