

## ABSTRAK

### PENGARUH PEMBELAJARAN STEM TERHADAP LITERASI SAINS DAN KEMAMPUAN BERPIKIR KRITIS SISWA SMA

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Penelitian ini bertujuan untuk mengetahui kemampuan literasi sains siswa dan pengaruh kemampuan berpikir kritis terhadap kemampuan literasi sains siswa yang mengalami pembelajaran konvensional dan pembelajaran dengan LKPD berbasis STEM. Penelitian ini dilaksanakan di SMA Stella Duce 2 Yogyakarta dengan menggunakan metode campuran (*mixed methods*) melalui pendekatan *explanatory sequential*. Tahap kuantitatif menggunakan desain *quasi experiment* dengan bentuk *non-equivalent control group design*. Subjek penelitian terdiri atas dua kelas, yaitu kelas XA sebagai kelas eksperimen yang memperoleh pembelajaran STEM menggunakan LKPD berbasis STEM dan kelas XB sebagai kelas kontrol yang memperoleh pembelajaran konvensional. Pengumpulan data dilakukan melalui angket motivasi dan semangat belajar, tes literasi sains dan kemampuan berpikir kritis, observasi, serta wawancara. Data kuantitatif dianalisis menggunakan *uji Mann-Whitney*, *Independent Sample t-test*, *Paired Sample t-test*, dan regresi linear sederhana. Hasil penelitian menunjukkan bahwa literasi sains pada kedua kelas mengalami peningkatan setelah pembelajaran, meskipun peningkatan pada kelas kontrol lebih tinggi dibandingkan kelas eksperimen. Kemampuan berpikir kritis berpengaruh positif dan signifikan terhadap kemampuan literasi sains siswa pada kedua kelas. Temuan kualitatif menunjukkan pembelajaran LKPD berbasis STEM mampu menciptakan pembelajaran yang lebih aktif, kolaboratif, kontekstual, dan bermakna.

**Kata kunci:** LKPD berbasis STEM, Literasi sains, Kemampuan Berpikir Kritis.

**ABSTRACT**

***THE EFFECT OF STEM-BASED LEARNING ON SENIOR HIGH SCHOOL STUDENTS' SCIENTIFIC LITERACY AND CRITICAL THINKING SKILLS***

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*This study aims to determine students' science literacy skills and the influence of critical thinking skills on the science literacy skills of students who undergo conventional instruction and instruction using STEM-based worksheets. This study was conducted at Stella Duce 2 High School in Yogyakarta using a mixed-methods approach through an explanatory sequential design. The quantitative phase employed a quasi-experimental design in the form of a non-equivalent control group design. The research subjects consisted of two classes: Class XA, the experimental class that received STEM instruction using STEM-based worksheets, and Class XB, the control class that received conventional instruction. Data collection was conducted through questionnaires on motivation and enthusiasm for learning, tests of science literacy and critical thinking skills, observations, and interviews. The quantitative data were analyzed using the Mann-Whitney test, independent sample t-test, paired sample t-test, and simple linear regression. The results of the study showed that science literacy in both classes improved after instruction, although the improvement in the control class was greater than that in the experimental class. Critical thinking skills had a positive and significant effect on students' science literacy in both classes. The qualitative findings indicate that STEM-based worksheet-based learning was able to create a more active, collaborative, contextual, and meaningful learning experience.*

**Keywords:** *STEM-based LKPD, Scientific literacy, critical thinking skills.*