

ABSTRAK

PENGARUH *PROJECT BASED LEARNING* TERHADAP KEMAMPUAN BERPIKIR KRITIS DAN BERKOLABORASI PESERTA DIDIK PADA MATERI BIOTEKNOLOGI

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Penelitian ini bertujuan untuk mengetahui pengaruh penerapan pembelajaran PjBL terhadap kemampuan berpikir kritis dan kemampuan kolaborasi peserta didik pada materi bioteknologi. Penelitian dilaksanakan pada semester genap di SMAS Immanuel Bandar Lampung. Jenis penelitian yang digunakan adalah kuasi eksperimental dengan desain penelitian *pretest-posttest non-equivalent control group*. Sampel penelitian pada peserta didik kelas X.1 sebanyak 22 peserta didik sebagai kelas kontrol dan X.2 sebanyak 22 peserta didik sebagai kelas eksperimen dengan teknik pengambilan sampel *purposive sampling*. Pada kelas eksperimen menggunakan pembelajaran PjBL, sedangkan pada kelas kontrol menggunakan metode diskusi kelompok. Data kemampuan berpikir kritis didapatkan melalui penilaian *pretest-posttest* yang dianalisis menggunakan uji *Independent Sample T-test*. Hasil penelitian menunjukkan bahwa pada taraf signifikansi 0,005 didapatkan nilai *Sig. (2-tailed)* $0,001 < 0,005$ maka H_1 diterima. Kemudian hasil uji pengaruh (*effect size*) sebesar 1,07 dengan kriteria “Tinggi” yang dapat diartikan bahwa pembelajaran PjBL berpengaruh dalam meningkatkan kemampuan berpikir kritis. Sedangkan data kemampuan kolaborasi diperoleh dari hasil perhitungan lembar observasi peserta didik. Hasil perhitungan data kemampuan kolaborasi peserta didik pada kelas eksperimen lebih tinggi dengan presentase nilai 80% dengan kriteria “Sangat baik” dibandingkan dengan kelas kontrol dengan presentase sebesar 59% dengan kategori “Cukup baik”. Dengan demikian dapat disimpulkan bahwa pembelajaran PjBL berpengaruh signifikan terhadap kemampuan berpikir kritis dan kolaborasi peserta didik pada materi bioteknologi.

Kata kunci: Bioteknologi, Kemampuan Berpikir Kritis, Kolaborasi, PjBL

ABSTRAK

THE EFFECT OF PROJECT-BASED LEARNING ON STUDENTS' CRITICAL THINKING AND COLLABORATION SKILLS IN BIOTECHNOLOGY

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This study aims to examine the impact of implementing Project-Based Learning (PjBL) on students' critical thinking and collaboration skills in the context of biotechnology. The research was conducted during the even semester at SMAS Immanuel Bandar Lampung. A quasi-experimental design was employed, utilizing a pretest-posttest non-equivalent control group approach. The sample consisted of 44 students, with 22 students from class X.1 serving as the control group and 22 students from class X.2 as the experimental group, selected through purposive sampling. The experimental group was taught using the PjBL approach, while the control group received instruction through the group discussion method. Data on critical thinking skills were collected via pretest and posttest assessments and analyzed using the Independent Sample T-test. The results indicated that at a significance level of 0.005, the Sig. (2-tailed) value was 0.001, which is less than 0.005; therefore, the alternative hypothesis (H_1) was accepted. The calculated effect size was 1.07, categorized as "High," suggesting that PjBL had a substantial effect on enhancing students' critical thinking skills. Collaboration skills data were obtained through student observation sheets. The experimental group demonstrated higher levels of collaboration, with a score of 80% categorized as "Very Good," compared to the control group, which scored 59% and was categorized as "Fairly Good." Based on these findings, it can be concluded that the implementation of PjBL significantly influences students' critical thinking and collaboration skills in biotechnology.

Keywords: Biotechnology, Critical Thinking Skills, Collaboration, PjBL