

ABSTRAK

PENGARUH MODEL *PROJECT-BASED LEARNING* (PJBL) TERINTEGRASI STEM TERHADAP KETERAMPILAN *COMPUTATIONAL THINKING* (CT) PESERTA DIDIK SMP

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Penelitian ini bertujuan untuk mengetahui pengaruh model *Project-Based Learning* (PjBL) terintegrasi STEM terhadap keterampilan *Computational Thinking* peserta didik. Penelitian dilaksanakan pada semester genap di SMP Negeri 26 Bandar Lampung tahun ajaran 2025/2026. Desain penelitian yang digunakan adalah quasi eksperimen dengan bentuk *pretest-posttest non-equivalent control group design*. Populasi dalam penelitian ini adalah peserta didik kelas VII SMP Negeri 26 Bandar Lampung tahun ajaran 2025/2026. Sampel penelitian ini diambil menggunakan teknik *purposive sampling* karena setiap kelas memiliki tingkat kemampuan akademik yang beragam (heterogen). Kelas VII-2 ditetapkan sebagai kelas eksperimen yang menerapkan model *Project Based Learning* (PjBL) terintegrasi STEM, sedangkan kelas VII-3 sebagai kelas kontrol yang menerapkan model *Discovery Learning*, masing-masing kelas berjumlah 32 peserta didik. Jenis data yang dikumpulkan yaitu data kuantitatif berupa skor keterampilan *computational thinking*, dan skor tanggapan peserta didik. Teknik pengumpulan data dilakukan melalui tes esai dan angket. Hasil penelitian menunjukkan bahwa keterampilan *computational thinking* pada kelas eksperimen lebih tinggi, dengan skor rata-rata *N-gain* sebesar 0,39 (kategori sedang), dibandingkan dengan kelas kontrol yang memiliki rata-rata *N-gain* sebesar 0,21 (kategori rendah). Hasil uji *Independent Sample t-Test* dan diperoleh nilai (Sig. 2-tailed) $0,001 < 0,05$, sehingga H_0 ditolak dan H_1 diterima, dengan nilai *effect size* (Cohen's $d = 1,131$) kategori besar. Tanggapan peserta didik baik dengan hasil deskriptif dengan persentase 82,33% . Hal ini menunjukkan bahwa model *Project Based Learning* (PjBL) terintegrasi pendekatan STEM berpengaruh signifikan dalam meningkatkan keterampilan *computational thinking* peserta didik dan dapat digunakan sebagai alternatif model pembelajaran untuk melatih kemampuan *computational thinking*.

Kata kunci: *Computational Thinking*, Interaksi Antar Makhluk Hidup Dan Lingkungannya, PjBL Terintegrasi STEM

ABSTRACT

THE EFFECT OF PROJECT-BASED LEARNING (PjBL) MODEL INTEGRATED WITH STEM ON STUDENTS' COMPUTATIONAL THINKING (CT) SKILLS IN JUNIOR HIGH SCHOOL

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This study aims to determine the effect of the STEM-integrated Project-Based Learning (PjBL) model on students' computational thinking abilities. The research was conducted in the even semester at SMP Negeri 26 Bandar Lampung in the 2025/2026 academic year. The research design used was a quasi-experimental design in the form of a pretest-posttest non-equivalent control group design. The population of this study consisted of seventh-grade students of SMP Negeri 26 Bandar Lampung in the 2025/2026 academic year. The sample was selected using a purposive sampling technique, based on the consideration that each class had varying (heterogeneous) academic abilities. Class VII-2 was designated as the experimental class implementing the STEM-integrated Project-Based Learning (PjBL) model, while class VII-3 was designated as the control class implementing the Discovery Learning model, with each class consisting of 32 students. The type of data collected was quantitative data in the form of computational thinking skills scores and students' response scores. Data collection techniques included essay tests and questionnaires. The results showed that the computational thinking skills of students in the experimental class was higher, with an average N-gain score of 0.39 (moderate category), compared to the control class with an average N-gain score of 0.21 (low category). The results of the Independent Samples t-test showed a significance value (Sig. 2-tailed) of $0.001 < 0.05$, indicating that H_0 was rejected and H_1 was accepted, with an effect size (Cohen's $d = 1.131$) categorized as large. Students' responses were positive, with a descriptive percentage of 82.33%. This indicates that the STEM-integrated Project-Based Learning (PjBL) model has a significant effect on improving students' computational thinking skills and can be used as an alternative learning model to develop computational thinking skills.

Keywords: Computational Thinking, Interaction between Living Organisms and Their Environment, PjBL Integrated with STEM