

ABSTRAK

Nainggolan, Ramean Chrisnawaty. 2026. Pengaruh penerapan model *Project Based Learning* terhadap keterampilan berpikir kritis siswa kelas XI SMA Negeri 2 Tanjungpinang pada Materi Sistem Ekskresi. Skripsi. Program, Studi Pendidikan Biologi, Jurusan Pendidikan Matematika dan Ilmu Pengetahuan Alam, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Maritim Raja Ali Haji. Pembimbing I: Dr. Trisna Amelia, S.Pd., M.Pd., Pembimbing II: Elfa Oprasmani S.Pd., M.Pd.

Kata Kunci: Model *project based learning*, keterampilan berpikir kritis, pembelajaran biologi, sistem ekskresi.

Keterampilan berpikir kritis merupakan salah satu kompetensi penting yang perlu dimiliki siswa dalam pembelajaran abad ke-21. Namun, kemampuan berpikir kritis siswa masih perlu ditingkatkan sehingga diperlukan model pembelajaran yang dapat melibatkan siswa secara aktif dalam proses pembelajaran. Penelitian ini bertujuan untuk mengetahui pengaruh penerapan model *Project Based Learning* terhadap keterampilan berpikir kritis siswa kelas XI SMA Negeri 2 Tanjungpinang pada materi sistem ekskresi. Penelitian ini menggunakan metode *quasi experiment* dengan pendekatan kuantitatif dan desain *pre-test and post-test control group design*. Teknik pengambilan sampel menggunakan *cluster random sampling* sehingga diperoleh kelas eksperimen dan kelas kontrol sebagai sampel penelitian. Instrumen penelitian berupa tes uraian keterampilan berpikir kritis yang telah diuji Teknik analisis data yang dilakukan menggunakan uji statistik non-parametrik dengan menggunakan rumus *Mann-Whitney U-Test*. Hasil uji hipotesis memperoleh nilai signifikansi sebesar $0,007 < 0,05$, sehingga H_0 ditolak dan H_a diterima. Berdasarkan hasil penelitian dapat disimpulkan bahwa penerapan model *Project Based Learning* berpengaruh signifikan terhadap keterampilan berpikir kritis siswa kelas XI SMA Negeri 2 Tanjungpinang pada materi sistem ekskresi.

ABSTRACT

Nainggolan, Ramean Chrisnawaty. 2026. The Effect of Implementing the Project-Based Learning Model on the Critical Thinking Skills of 11th-Grade Students at SMA Negeri 2 Tanjungpinang in the Topic of the Excretory System. Thesis. Biology Education Program, Department of Mathematics and Natural Sciences Education, Faculty of Teacher Training and Education, University of Maritim Raja Ali Haji. Advisor I: Dr. Trisna Amelia, S.Pd., M.Pd., Co Advisor II: Elfa Oprasmani S.Pd., M.Pd.

Keywords: Project based learning model, critical thinking skills, biology education, excretory system.

Critical thinking skills are one of the key competencies that students need to possess in 21st-century learning. However, students' critical thinking abilities still need to be improved, necessitating a learning model that can actively engage students in the learning process. This study aims to determine the effect of implementing the Project-Based Learning model on the critical thinking skills of 11th-grade students at SMA Negeri 2 Tanjungpinang regarding the topic of the excretory system. This study employed a quasi-experimental method with a quantitative approach and a pre-test and post-test control group design. Cluster random sampling was used to select the experimental and control classes as the study samples. The research instrument consisted of a critical thinking skills essay test that had been validated. Data analysis was conducted using a non-parametric statistical test, specifically the Mann-Whitney U-Test. The hypothesis test yielded a significance value of $0.007 < 0.05$, so H_0 was rejected and H_1 was accepted. Based on the research results, it can be concluded that the application of the Project-Based Learning model has a significant effect on the critical thinking skills of 11th-grade students at SMA Negeri 2 Tanjungpinang regarding the excretory system material.