ABSTRACT

ANIS SRI RAHAYU. 2025. *The Effect of Artificial Intelligence (AI)-Assisted Inquiry Learning on Students' Science Process Skills and Cognitive Learning Outcomes in Environmental Change Material (An Experimental Study in Grade X of SMA Negeri 1 Singaparna, Academic Year 2024/2025*). Department of Biology Education, Faculty of Teacher Training and Education, Siliwangi University, Tasikmalaya.

This research seeks to assess the impact of inquiry learning supported by Artificial Intelligence (AI) on students' science process skills and cognitive learning results regarding environmental changes in tenth-grade students at SMA Negeri 1 Singaparna. The study utilized a quasi-experimental approach featuring a control group design that included matching and only a posttest. The population included all grade twelve students from SMA Negeri 1 Singaparna, which amounted to 12 classes. Samples were chosen through purposive sampling, comprising two classes: the experimental class (X-6) with 38 students, utilizing Inquiry learning supported by AI, and the control class (X-5) with 38 students, using Inquiry learning without AI support. The research tools consisted of a test on science process skills with 12 essay questions and a cognitive learning outcomes assessment featuring 30 validated multiple-choice questions. The independent sample t-test was conducted on the data using SPSS software. The findings showed a notable distinction between the experimental group and the control group. The experimental class had an average science process skills score of 28.2, while the control class scored 24.3. The experimental class had an average cognitive learning outcome score of 24.1, while the control class had a score of 20.4. Consequently, Inquiry learning enhanced by Artificial Intelligence benefits students' science process abilities and cognitive learning results, indicating it as a more efficient teaching approach for environmental change subjects.

Keywords: Inquiry learning, Artificial Intelligence, Science Process Skills, Cognitive Learning Outcomes, Environmental Change