# The Development of Argument-Driven Inquiry-based Blended Learning Model to Improve Students' Scientific Argumentation, Critical Thinking and Metacognition Skills

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ABSTRACT

The era of globalization has an impact on various areas of life. This era requires every individual to master 21st century skills. However, the skills of prospective biology students need to be improved, especially argumentation abilities, critical thinking skills and metacognition. To improve these three aspects, it is necessary to apply innovative learning models that facilitate the development of these three aspects. One of the recommended models is the Argument-Driven Inquiry (ADI) model. The demands of 21st century learning which are closely related to the use of technology have an influence on the use of ADI implementation in learning. The implementation of this model needs to be accompanied by the application of blended-learning based learning.

This research aims to develop an Argument-Driven Inquiry-Based Blended Learning model to improve students' scientific argumentation, critical thinking, and metacognition skills. This research was carried out using development research. The research was carried out at the Biology Education Study Program, Faculty of Mathematics and Natural Sciences, Yogyakarta State University. The research carried out is a type of research and development. The research design used is ADDIE which consists of 5 stages, namely analysis, design, development, implementation, and evaluation. In this research, the development of Argument-Driven Inquiry-based Blended Learning was carried out by carrying out three stages, namely analysis, design, and development. The research succeeded in developing an Argument-Driven Inquiry-based Blended Learning model with the following syntax: 1) task orientation, 2) discussion for data collection, 3) preparation of tentative arguments, 4) argumentation session, 5) writing of results and discussion, 6) double- blind review of the report, 7) review and revision of the report, and 8) reflection, where from the stages of writing results and discussion to reflection, it is carried out online. Based on the validation results, the Argument-Driven Inquiry-based Blended Learning learning model was categorized as valid by the validator.

Kata Kunci: *argument-driven inquiry, blended-learning, argumentation, critical thinking skills, metacognition*