

DEVELOPING OF INNOVATIVE LEARNING DEVICES BASED ON E-LEARNING TO EXTEND PHYSICS LEARNING ACCESS AND IMPROVE THE 21st CENTURY-ABILITY OF THE STUDENT

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ABSTRACT

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At least there are two fundamental education problems in Indonesia faced in the future that are related to classical problem i.e. the quality and quantity. The first is related to how students overcome life problems in the 21th century which is more difficult and complex, while the second is related to how expanding the chance of all Indonesia citizens with many constrains such as social-economy limited, locations limited, facilities limited etc. can access education in autodidac and independent learning, but the quality is appropriate with KKNI standards. This research aims to explore of innovative models of learning based on e-learning specifically about learning devices development in order to solve the two problems above. The research is R & D and the steps are need assessment, design products and instruments, develop products and instruments via try-out, and products dissemination. The 21th century abilities developed are critical thinking, creative thinking, analytical thinking, science literacy, and scientific process skills. The research conducted in Jambi, NTB, and Yogyakarta region. The result shows that learning devices developed in the research that consist of problem based and guided inquiry models are feasible for learning about Newton laws and optical apparatus. The application of problem based learning devices effective in improve science literacy and analytical thinking, while the application of guided inquiry devices effective in improve science literacy, creative thinking, critical thinking, and scientific process skills.

Kata Kunci: *learning devices, innovative models, e-learning, 21th century, learning access*