

DEVELOPMENT OF E-MODULE LEARNING DEVICES PROBLEM BASED LEARNING MODEL TO IMPROVE COGNITIVE LEARNING OUTCOMES FROM EARLY ABILITY, RESPONSE TO LEARNING AND CREATIVITY

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ABSTRACT

This study aims to produce an e=PBL module learning device with WhatsApp and PhET simulation media that is suitable for use; determine the increase in student learning outcomes and describe the contribution of initial abilities, learning responses and student creativity.

The research design used is research and development (R&D) with a 4D model. This research was conducted at SMA I SEWON BANTUL and SMA Negeri 5 Yogyakarta in the 2019/2020 academic year. The research subjects for SMA I Sewon took class X and SMA 5 class XI MIA 2. The instruments developed included lesson plans, e-module PBL models, response questionnaires for students to learning, pretest and posttest questions to see the increase in student learning outcomes, and student creativity assessment response sheets. The data analysis technique applied in this study is the analysis of the average criteria for assessing the feasibility of LKPD based on student responses, gain test to see the increase in student learning outcomes, and regression test with three independent variables to describe the contribution of initial ability, response to learning and creativity on the achievement of learning outcomes. The contribution is to describe the role of the independent variable on the achievement of learning outcomes.

The results of this study indicate that the use of the module with the help of WhatsApp media and virtual practice using PhET simulation is feasible to use by meeting the very good category based on student responses and the validator's assessment. The increase in student learning outcomes at SMA I Sewon in the topic of Motion with a gain index is in the medium category, while at SMA 5 in Yogya the gain index is in the low category. Variables namely initial ability, response to learning at SMA I Sewon Bantul gave an effective contribution of 38.60% jointly, effective and relative contribution individually to SMA I Sewon Bantul respectively 28.26% and 9.34% and 72.48% and 27.52% of the learning outcomes of motion topics. Furthermore, the initial ability and creativity of students in SMA 5 Yogya gave an effective contribution of 35.98% together and individually, an effective contribution to the learning outcomes achieved by students, respectively, by 21.31% and 14.68%. and their respective relative contributions of 58.22% and 41.78%.

Kata Kunci: PBL, Whatsapp, PhET simulation, learning outcomes on the topic of motion and kinetic gas theory, learning response, creativity.