

**Development of Physics Learning Media Oriented on Simulation of Virtual Experiments To Increase Motivation, Science Literacy, and Concepts Mastery of High School Students**

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ABSTRACT

This study aims to: 1) produce physics learning media products oriented to virtual experimental simulations that are feasible to increase the motivation of high school students, 2) find out the increase in scientific literacy of high school students, and 3) find out the increase in mastery of physics concepts for high school students. Learning media that is oriented to virtual experiments is focused on several topics of physics material for high school students.

This study uses a development research design that adopts the Dick & Carey (2015) model which includes stages: 1) analysis (analyze) which contains three steps, namely: analyzing needs to identify goals (assess needs to identify goals), analyzing instructional (conduct instructional analysis) ), and analyze learners and contexts (analysis learners and contexts), 2) develop, 3) design, and 4) implement procedural steps after conducting the needs analysis stage, and the fifth stage. evaluation (evaluate) which is taken in two ways, namely formative and summative evaluation. All learning tools are validated by material experts and physics learning media. The feasibility of the product developed was analyzed with SBI (ideal standard deviation). The validity of the assessment instruments and questionnaires were analyzed by CVR and CVI. The suitability of the assessment between validators was analyzed with the Percentage of Agreement (PA) adapting Borich. The instrument is reliable if PA 75%. The subjects of this study involved students of class X SMA in the city of Yogyakarta and Sleman district. Data on increasing motivation, scientific literacy and mastery of concepts, were analyzed with standard gain.

The results showed that physics learning media oriented to virtual experiments had been produced that met the feasibility as physics learning media for students in high school, learning motivation, scientific literacy skills, and mastery of optical instrument concepts in students experienced an increase after using physics learning media that had been developed. developed. The developed media can be applied in online and offline physics learning.