

ABSTRACT

Ijayanti Pardosi, IDN 4203131029. Implementation of PhET Virtual Laboratory-Based Learning Media to Increase Learning Outcomes on The Teaching of Acid-Base.

Chemistry learning contains abstract concepts that require understanding through three levels of representation. So that innovative learning media is needed that supports the achievement of concepts learned in chemistry, especially in acid-base material. This research aims to develop and implement PhET virtual laboratory-based learning media to build student activeness in learning and improve student learning outcomes in learning the topic of Acid-Base. The use of this innovative learning media is supported by a project-based learning model. This research was conducted by research and development (RnD) with the procedures of define, design, development, and implementation. The research includes the development of PhET laboratory-based learning media, standardization of learning media, and implementation to students in class XI MIPA SMA Negeri 5 Medan, SMA Negeri 1 Habinsaran and SMA Negeri 1 Borbor in sample classes, namely Control class and Experiment Class. The feasibility of the learning media measured 87.06% with a very feasible category. The results of the media implementation can be seen in the N-gain value in the experimental class higher than the control class with a value at SMA Negeri 5 Medan 60.9%, SMA Negeri 1 Habinsaran 68.69%, and SMA Negeri 1 Borbor 67.03% with each in the effective category. So the data concluded that PhET virtual laboratory-based learning media can improve student learning outcomes on Acid-Base material.

Keywords: Development and Implementation, PhET Virtual Laboratory-Based Learning Media, Student Learning Outcomes