

***Science Learning Media for Virus Subject in Grade X of Senior High
School Using Augmented Reality Application***
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ABSTRACT

Viruses as microscopic organisms, exhibit various types, characteristics, replication processes, and roles. This topic is part of the 10th-grade Biology curriculum in high school. Currently, learning method in this topic is still conducted using conventional methods, such as oral explanations, textbooks, and YouTube videos, have limitations in providing detailed material and are hindered by the lack of electron microscope facilities. To address these issues, an Augmented Reality (AR) based educational application was developed to assist students in understanding viruses, including the tobacco mosaic virus, adenovirus, SARS-COV, and bacteriophage, through 3D models and the use of two interactive markers. This research was conducted over ten months at SMA Negeri 2 Jember and Politeknik Negeri Jember using the Multimedia Development Life Cycle (MDLC) method, involving interviews with biology teacher as resource person and validator. The results indicated that the use of AR as an alternative learning medium improved students' cognitive ability by 3.53%. Additionally, the User Acceptance Test (UAT) showed a satisfaction rate of 90.7%. The application's success was influenced by factors such as light intensity (80-110 lux), a plain background, a distance of 10-50 cm, and a 45° camera angle to get maximum results in reading markers and displaying 3D objects.

Key words: learning media, virus, augmented reality, marker interactions