

ABSTRACT

IKHWAN RAHMADINO 2025 DEVELOPMENT OF AN AUGMENTED REALITY-BASED IMMERSIVE APPLICATION TO ENHANCE LEARNING OUTCOMES ON CELL BIOLOGY MATERIAL IN SENIOR HIGH SCHOOL.

Department of Biology Education, Faculty of Teacher Training and Education, Siliwangi University

Biology learning, particularly on cell material, often faces challenges due to its complex and abstract nature, making it difficult for students to understand the concepts being taught. This study aims to develop and test the effectiveness of CellulaversAR, an Augmented Reality (AR)-based learning media designed to enhance students' understanding of cell structure and function. The research method used is Research and Development (R&D) with the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation). The study was conducted at SMA Negeri 1 Kota Tasikmalaya, with research subjects consisting of 11th-grade science students. Validation in both content and media indicated that the application falls into the "highly feasible" category, while the practicality test among users showed that the application is "highly practical." Additionally, the effectiveness test demonstrated an improvement in students' learning outcomes, with an N-gain score of 0.63 (moderate category). The effectiveness trial of the CellulaversAR application reached 93.3%, placing it in the "high" category. This application allows students to explore cell organelles from the smallest structures to the complete cell interactively. The findings of this study indicate that the use of CellulaversAR has significant effectiveness in enhancing students' understanding in learning cell material.

Keywords: *Augmented Reality; CellulaversAR; Learning Outcomes; Learning Media; Cell*