PENGEMBANGAN MEDIA PEMBELAJARAN AUGMENTED REALITY STRUKTUR DAN FUNGSI TUMBUHAN PAKU KELAS X DI SMA NEGERI 1 BANJAR

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ABSTRAK

Tumbuhan paku adalah kelompok tumbuhan yang memiliki struktur dan fungsi unik. Siswa sering kali sulit memahami materi tumbuhan paku karena karakteristiknya yang kompleks dan visualisasinya yang kurang optimal dalam pembelajaran. Rendahnya pemahaman ini disebabkan karena media pembelajaran cenderung pasif atau tak cukup inovatif. Penelitian bertujuan menghasilkan media pembelajaran *augmented reality* struktur dan fungsi tumbuhan paku kelas X di SMAN 1 Banjar, juga mengetahui respon siswa beserta pendidik atas pengembangan media. Research and Development (R&D) digunakan dengan model pengembangan *Multimedia Development Life Cycle* (MDLC). Media dikembangkan menggunakan perangkat lunak Blender 3D dan *platform* Assemblr Edu, yang menghasilkan konten AR 3D web-based sehingga mudah diakses. Hasil memperlihatkan bahwa media sangat valid dengan rerata koefisien validasi ahli isi dan media 1,00. Uji coba perorangan, kelompok kecil, dan lapangan memperlihatkan media memiliki kualifikasi "Baik" hingga "Sangat Baik". Uji respon peserta didik dan guru menunjukkan respon "Sangat Positif". Dengan demikian, media pembelajaran AR ini layak dan bisa membantu pemahaman beserta motivasi belajar siswa dalam mempelajari materi tumbuhan paku.

Kata Kunci: Tumbuhan Paku, Media Pembelajaran, *Augmented Reality*, Biologi, MDLC.

DEVELOPMENT OF AUGMENTED REALITY BASED LEARNING MEDIA ON THE STRUCTURE AND FUNCTION OF FERN PLANTS FOR GRADE X AT SMA NEGERI 1 BANJAR

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ABSTRACT

Ferns are a group of plants that have unique structures and functions. However, current observations indicate that students often face difficulties in understanding the topic of ferns due to their complex characteristics and the lack of optimal visualization in the learning process. This low level of understanding is caused by the use of passive and less innovative learning media. This study aims to develop an augmented reality-based learning media on the structure and function of ferns for Grade X students at SMA Negeri 1 Banjar and to determine students' and teachers' responses to the developed media. This research uses the Research and Development (R&D) method with the Multimedia Development Life Cycle (MDLC) model. The media was developed using Blender 3D software and the Assemblr Edu platform, resulting in web-based 3D AR content that is easily accessible to students. The results show that the developed learning media is highly valid, with an average validation coefficient of 1.00 from content and media experts. Individual, small group, and field testing showed that the media had a "Good" to "Very Good" qualification. Student and teacher responses also indicated a "Very Positive" reaction. Therefore, the AR-based learning media is considered feasible and can help improve students' understanding and learning motivation in studying the topic of ferns.

Keywords: Ferns, Learning Media, Augmented Reality, Biology, MDLC