

IMPLEMENTASI MEDIA PEMBELAJARAN BANGUN RUANG MENGUNAKAN TEKNOLOGI AUGMENTED REALITY BERBASIS ANDROID

Faizal Tanjung¹, Henny Wahyu Sulistyo², Qurrota A'yun³

Program Studi Teknik Informatika, Fakultas Teknik

Universitas Muhammadiyah Jember

Email : faizal.sid25@gmail.com

ABSTRAK

Perkembangan teknologi Augmented Reality (AR) memberikan peluang baru dalam pengembangan media pembelajaran yang lebih interaktif dan menarik. Penelitian ini bertujuan untuk mengembangkan aplikasi media pembelajaran bangun ruang berbasis Android dengan memanfaatkan teknologi Augmented Reality sebagai sarana pembelajaran matematika bagi siswa sekolah dasar. Metode pengembangan yang digunakan adalah *Multimedia Development Life Cycle* (MDLC) yang terdiri dari tahap concept, design, material collecting, assembly, testing, dan distribution. Aplikasi dikembangkan menggunakan Blender untuk pembuatan objek tiga dimensi, Unity 3D sebagai game engine, serta Vuforia SDK untuk implementasi teknologi AR. Materi yang disajikan meliputi bangun ruang kubus, balok, bola, tabung, kerucut, dan prisma dalam bentuk objek 3D interaktif. Pengujian aplikasi dilakukan menggunakan metode usability dan profisiensi fungsional (black box testing). Hasil pengujian usability yang melibatkan 41 responden terdiri dari 11 guru dan 30 siswa SDN 02 Jatiroto memperoleh nilai rata-rata sebesar 81, 71% dengan kategori "Sangat Setuju". Sementara itu, hasil pengujian profisiensi fungsional menunjukkan seluruh fungsi aplikasi berjalan dengan baik sesuai dengan kebutuhan pengguna. Berdasarkan hasil penelitian dapat disimpulkan bahwa aplikasi media pembelajaran bangun ruang berbasis Augmented Reality berhasil dikembangkan dan layak digunakan sebagai media pembelajaran yang mampu meningkatkan minat belajar serta membantu siswa memahami konsep bangun ruang secara lebih interaktif dan menyenangkan.

Kata Kunci: Augmented Reality, Media Pembelajaran, Bangun Ruang, Android, Unity 3D, Usability

IMPLEMENTATION OF SPACE SHAPE LEARNING MEDIA USING ANDROID-BASED AUQMENRED REALITY TECHNOLOGY

Faizal Tanjung¹, Henny Wahyu Sulistyo², Qurrota A'yun³

Program Studi Teknik Informatika, Fakultas Teknik

Universitas Muhammadiyah Jember

Email : faizal.sid25@gmail.com

ABSTRACT

The development of Augmented Reality (AR) technology provides new opportunities in creating more interactive and engaging learning media. This study aims to develop an Android-based geometry learning application using Augmented Reality technology as a mathematics learning medium for elementary school students. The development process employed the Multimedia Development Life Cycle (MDLC) method, which consists of concept, design, material collecting, assembly, testing, and distribution stages. The application was developed using Blender for creating three-dimensional objects, Unity 3D as the game engine, and Vuforia SDK for AR implementation. The learning materials include three-dimensional geometric shapes such as cubes, cuboids, spheres, cylinders, cones, and prisms presented as interactive 3D objects. Application testing was conducted using usability testing and functional proficiency testing (black-box testing). The usability testing involved 41 respondents consisting of 11 teachers and 30 students from SDN 02 Jatiroto and achieved an average score of 81,71%, categorized as "Strongly Agree." Meanwhile, the functional proficiency testing results showed that all application features functioned properly according to user requirements. Based on the results, it can be concluded that the Augmented Reality-based geometry learning application was successfully developed and is feasible to be used as a learning medium that can increase students' learning interest and help them understand geometric concepts in a more interactive and enjoyable way.

Keywords: *Augmented Reality, Learning Media, Geometry, Android, Unity 3D, Usability Testing.*