ABSTRAK

Pembelajaran anatomi manusia di tingkat sekolah menengah sering mengalami kesulitan dalam menyampaikan informasi mengenai organ internal yang tidak terlihat langsung. Media tradisional seperti gambar dua dimensi dan model statis kurang efektif dalam membantu pemahaman siswa. Penelitian ini bertujuan mengembangkan aplikasi pembelajaran berbasis *Augmented Reality* (AR) yang menyajikan visualisasi organ internal manusia secara tiga dimensi dan interaktif. Metode pengembangan menggunakan *Multimedia Development Life Cycle* (MDLC) yang terdiri dari enam tahap: *concept, design, material collecting, assembly, testing, dan distribution*. Aplikasi menampilkan delapan organ internal (otak, jantung, paru-paru, hati, lambung, ginjal, usus halus dan besar, serta pankreas) dalam model 3D yang dapat diakses melalui perangkat Android dengan teknologi *marker-based tracking* menggunakan *Unity* dan *Vuforia* SDK. Hasil pengujian menunjukkan aplikasi berjalan stabil pada berbagai kondisi pencahayaan, sudut pandang, dan jarak kamera, serta mendapat respon positif dari pengguna. Sebanyak 90% pengguna menyatakan aplikasi ini efektif sebagai alat bantu pembelajaran, meningkat 40% dari 50%. Dengan demikian, AR terbukti efektif sebagai media edukasi anatomi yang interaktif, menarik, dan efisien.

Kata kunci: Augmented Reality, anatomi manusia, media pembelajaran, organ internal, marker-based, Android, MDLC.

ABSTRACT

Learning human anatomy at the secondary school level often faces challenges in conveying information about internal organs that are not directly visible. Traditional learning media, such as two-dimensional images or static models, are often considered less effective in helping students understand the structure and function of these organs. This research aims to develop and implement a learning application based on Augmented Reality (AR) that provides three-dimensional and interactive visualizations of human internal organs. The development method used is the Multimedia Development Life Cycle (MDLC), which consists of six stages: concept, design, material collecting, assembly, testing, and distribution. The application features eight internal organs (brain, heart, lungs, liver, stomach, kidneys, small and large intestines, and pancreas) in 3D models that can be accessed through Android devices using marker-based tracking technology with the help of Unity and Vuforia SDK. The testing results show that the application functions well under various conditions and receives positive feedback from users. This application successfully enhances students' understanding of organ structures and functions by up to 90%, overcomes visualization difficulties, and fosters learning interest. Thus, AR has proven to be effective as an educational medium in making human anatomy learning more interactive, engaging, and efficient.

Keywords: Augmented Reality, human anatomy, learning media, internal organs, marker-based, Android, MDLC