

ABSTRAK

Pembelajaran Ilmu Pengetahuan Alam (IPA) di tingkat sekolah dasar menghadapi kendala signifikan dalam penyampaian materi yang bersifat abstrak dan kompleks. Sistem pencernaan manusia dipilih sebagai fokus penelitian karena merupakan salah satu materi IPA yang paling sulit dipahami siswa, dimana prosesnya terjadi di dalam tubuh dan tidak dapat diamati secara langsung. Target penelitian ditetapkan pada siswa kelas 5-6 SD mengingat pada jenjang ini materi sistem pencernaan manusia masuk dalam Kompetensi Dasar (KD) 3.3 Kurikulum 2013, dan secara kognitif siswa sudah mampu memahami konsep yang lebih kompleks namun masih memerlukan media pembelajaran yang menarik dan interaktif. Pemilihan kelas 5-6 SD didasarkan pada pertimbangan bahwa pada jenjang ini siswa sudah memiliki kemampuan membaca yang baik dan dapat berinteraksi dengan teknologi secara mandiri.

Penelitian ini mengembangkan game edukasi 2D "Human Digestive System" menggunakan metode Multimedia Development Life Cycle (MDLC) melalui enam tahapan: concept, design, material collecting, assembly, testing, dan distribution. Game dibangun dengan Unity Engine dan bahasa C#, menampilkan fitur permainan drag-and-drop untuk mencocokkan organ pencernaan dengan namanya dan mode kuis evaluatif sebagai alat pengukuran pemahaman siswa.

Hasil pengujian Alpha menunjukkan seluruh komponen dan fungsi game berjalan sesuai harapan dengan validitas blackbox testing yang sempurna pada semua tombol dan mekanisme permainan. Pengujian Beta melibatkan 14 responden siswa kelas 5-6 SD menggunakan kuesioner skala Likert 1-3. Aspek User Interface (UI) memperoleh skor rata-rata di atas 2.70, menunjukkan persepsi sangat positif terhadap tampilan, keterbacaan, tata letak, dan kenyamanan visual. Aspek gameplay mencapai skor rata-rata 2.75, dengan skor sempurna 3.00 untuk efektivitas game dalam mengenalkan organ pencernaan manusia. Hasil ini mengindikasikan bahwa game berhasil menciptakan pengalaman belajar yang efektif, mudah dipahami, dan menyenangkan bagi siswa dalam memahami materi sistem pencernaan manusia.

Kata Kunci : *Game* Edukasi, Sistem Pencernaan, Metode MDLC

ABSTRACT

Ilmu Pengetahuan Alam (IPA) learning at the elementary school level faces significant obstacles in delivering abstract and complex material. The human digestive system was chosen as the focus of the study because it is one of the most difficult science topics for students to understand, where the process occurs inside the body and cannot be observed directly. The research target was set at 5th-6th grade elementary school students considering that at this level the human digestive system material is included in Basic Competency (KD) 3.3 of the 2013 Curriculum, and cognitively students are already able to understand more complex concepts but still require interesting and interactive learning media. The selection of 5th-6th grade elementary school students is based on the consideration that at this level students already have good reading skills and can interact with technology independently.

This research developed a 2D educational game "Human Digestive System" using the Multimedia Development Life Cycle (MDLC) method through six stages: concept, design, material collecting, assembly, testing, and distribution. The game was built with the Unity Engine and C# language, featuring a drag-and-drop game feature to match digestive organs with their names and an evaluative quiz mode as a tool to measure student understanding.

Alpha testing results showed that all game components and functions ran as expected with perfect blackbox testing validity on all buttons and game mechanisms. Beta testing involved 14 respondents from grades 5-6 of elementary school using a 1-3 Likert scale questionnaire. The User Interface (UI) aspect obtained an average score above 2.70, indicating a very positive perception of the appearance, readability, layout, and visual comfort. The gameplay aspect achieved an average score of 2.75, with a perfect score of 3.00 for the game's effectiveness in introducing the human digestive system. These results indicate that the game successfully created an effective, easy-to-understand, and enjoyable learning experience for students in understanding the human digestive system material.

Keywords : Game Education, Digestive System, MDLC Method