

ABSTRAK

Penelitian ini bertujuan mengembangkan media animasi 3D materi bagian tubuh tumbuhan kelas IV SD Negeri Sidamukti 3 yang valid dan efektif meningkatkan pemahaman kognitif siswa. Batasan penelitian mencakup visualisasi lima bagian tubuh tumbuhan berbentuk video MP4 yang dioptimasi untuk perangkat Chromebook. Metode pengembangan yang digunakan adalah *Multimedia Development Life Cycle* (MDLC) Luther-Sutopo, dengan teknik analisis data deskriptif persentase dan *Normalized Gain* (N-Gain). Hasil validasi menunjukkan produk "Sangat Layak" menurut ahli materi (97,14%) dan "Layak" menurut ahli media (77,5%). Pada uji coba lapangan (*beta testing*) bersama 22 siswa kelas IV, mayoritas siswa (64%) mencapai peningkatan hasil belajar kategori sedang hingga tinggi dengan rata-rata N-Gain kelas sebesar 0,3985. Kesimpulannya, media animasi 3D dengan teknik *low poly modeling* dan *stylized shading* ini berhasil dikembangkan secara sistematis. Media ini terbukti layak, efektif dalam kategori sedang, serta ringan dijalankan pada Chromebook untuk membantu siswa memvisualisasikan konsep anatomi internal tumbuhan yang abstrak menjadi lebih konkret dan mudah dipahami.

Kata kunci: Animasi 3D, Media digital, Efektivitas Belajar, Pembelajaran IPAS, MDLC

ABSTRACT

This research aims to develop a 3D animation learning media on plant anatomy for fourth-grade students at SD Negeri Sidamukti 3 that is both valid and effective in improving students' cognitive understanding. The scope of this research includes the visualization of five plant parts in MP4 video format, optimized for Chromebook devices. The development method applied is the Luther-Sutopo Multimedia Development Life Cycle (MDLC), with data analysis techniques utilizing descriptive percentages for validation and the Normalized Gain (N-Gain) formula to measure effectiveness. The validation results indicate that the developed product meets highly feasible criteria, evaluated as "Highly Feasible" by the subject matter expert (97.14%) and "Feasible" by the media expert (77.5%). During the field trial (beta testing) involving 22 fourth-grade students, the majority of students (64%) achieved an increase in learning outcomes within the moderate-to-high category, with a class average N-Gain score of 0.3985. In conclusion, the design of the 3D animation media using low poly modeling and stylized shading techniques through the MDLC stages was successfully implemented. The learning media is proven to be feasible, effective in the moderate category, and lightweight when run on Chromebooks, effectively assisting students in visualizing abstract internal plant anatomy concepts into more concrete and understandable forms.

Keyword: 3D Animation, Digital Media, Learning Effectiveness, Science and Social Studies (IPAS) Learning, MDLC.