PENGEMBANGAN MULTIMEDIA INTERAKTIF BERBASIS *AUGMENTED REALITY* PADA MATERI FOTOSINTESIS UNTUK MENINGKATKAN HASIL BELAJAR IPAS PESERTA DIDIK KELAS IV SEKOLAH DASAR

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ABSTRAK

Penelitian ini bertujuan untuk mengembangkan multimedia interaktif berbasis *Augmented Reality* serta mengevaluasi validitas, kepraktisan, dan efektivitasnya dalam pembelajaran materi fotosintesis untuk meningkatkan hasil IPAS pada peserta didik kelas IV Sekolah Dasar. Pengembangan multimedia menggunakan model ADDIE (*Analysis, Design, Development, Implementation, Evaluation*). Pengumpulan data dilakukan dengan metode kuesioner untuk mengukur validitas dan kepraktisan, serta tes pilihan ganda untuk mengukur efektivitas. Data dianalisis menggunakan pendekatan deskriptif kualitatif dan kuantitatif. Validitas media dievaluasi oleh ahli media dan ahli materi IPAS. Kepraktisan media dinilai oleh guru kelas IV dan III serta 11 peserta didik kelas IV. Efektivitas produk diuji menggunakan desain *one group pretest-posttest* dengan sampel 13 peserta didik kelas IV SD. Hasil penelitian menunjukkan bahwa multimedia interaktif berbasis AR memenuhi kriteria sebagai media pembelajaran yang berkualitas, dengan rincian: (1). Validitas dari ahli media mencapai rerata 3,75 (kualifikasi valid) (2.) Validitas dari ahli materi mencapai rerata 3,80 (kualifikasi valid) (3). Kepraktisan berdasarkan penilaian guru mencapai rerata 4,00 (kualifikasi sangat praktis) (4). Kepraktisan berdasarkan penilaian peserta didik mencapai rerata 3,88 (kualifikasi sangat praktis) (5). Efektivitas dibuktikan melalui uji-t satu sampel yang menunjukkan nilai signifikansi 0,000 (lebih kecil dari taraf signifikansi (5%), mengindikasikan bahwa multimedia berbasis *Augmented Reality* efektif meningkatkan hasil belajar IPAS peserta didik. Dengan demikian, dapat disimpulkan bahwa multimedia interaktif berbasis *Augmented Reality* untuk materi fotosintesis telah terbukti valid, praktis, dan efektif dalam meningkatkan hasil belajar IPAS peserta didik kelas IV Sekolah Dasar.

Kata Kunci: Multimedia Interaktif, *Augmented Reality*, Hasil Belajar, SD

DEVELOPMENT OF AUGMENTED REALITY-BASED INTERACTIVE MULTIMEDIA ON PHOTOSYNTHESIS MATERIALS TO IMPROVE IPAS LEARNING OUTCOMES OF GRADE IV ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

This research aims to develop Augmented Reality-based interactive multimedia and evaluate its validity, practicality, and effectiveness in learning photosynthetic materials to improve IPAS results in grade IV elementary school students. Multimedia development uses the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. Data collection was carried out by questionnaire method to measure validity and practicality, as well as multiple-choice tests to measure effectiveness. Data were analyzed using qualitative and quantitative descriptive approaches. The validity of the media is evaluated by media experts and IPAS subject matter experts. The practicality of the media was assessed by teachers of grades IV and III and 11 students of grade IV. The effectiveness of the product was tested using a one group pretest-posttest design with a sample of 13 students in grade IV of elementary school. The results of the study showed that AR-based interactive multimedia met the criteria as a quality learning medium, with details: (1). The validity of the media expert reached an average of 3.75 (valid qualification) (2.) The validity of the subject matter expert reached an average of 3.80 (valid qualification) (3). Practicality based on teacher assessment reached an average of 4.00 (very practical qualification) (4). Practicality based on student assessments reached an average of 3.88 (very practical qualification) (5). The effectiveness was proven through a single-sample t-test showing a significance value of 0.000 (smaller than the significance level (5%), indicating that Augmented Reality-based multimedia is effective in improving students' social studies learning outcomes. Thus, it can be concluded that Augmented Reality-based interactive multimedia for photosynthesis materials has been proven to be valid, practical, and effective in improving the learning outcomes of IPAS students in grade IV of elementary school.

Keywords: Interactive Multimedia, Augmented Reality, Learning Outcomes, SD