

**PENGEMBANGAN BAHAN AJAR *E-BOOK* INTERAKTIF 3D
BERBANTUAN AR PADA MATA PELAJARAN IPAS UNTUK
MENINGKATKAN HASIL BELAJAR PESERTA DIDIK KELAS III SD**

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ABSTRAK

Penelitian ini bertujuan untuk mengembangkan bahan ajar *E-Book* Interaktif 3D berbantuan *Augmented Reality* (AR) pada mata pelajaran IPAS topik Metamorfosis dan Perubahan Bentuk Makhluk Hidup untuk meningkatkan hasil belajar peserta didik kelas III SD yang diuji tingkat validitas, kepraktisan, dan efektivitasnya. Penelitian ini menggunakan model pengembangan ADDIE (*Analyze, Design, Development, Implementation, and Evaluation*). Metode pengumpulan data yang digunakan meliputi kuesioner dan tes. Uji validitas dilakukan oleh ahli materi dan ahli media, sedangkan uji kepraktisan melibatkan guru dan peserta didik kelas III SD Negeri 4 Banyuning. Pengujian efektivitas media menggunakan desain *Nonequivalent Pretest-Posttest Control Group Design* yang melibatkan kelas eksperimen dan kelas kontrol. Data hasil penelitian dianalisis secara kualitatif dan kuantitatif. Hasil penelitian menunjukkan bahwa bahan ajar *E-Book* Interaktif 3D berbantuan *Augmented Reality* memperoleh skor validitas ahli materi sebesar 3,90 dan validitas ahli media sebesar 3,87 dengan kategori "Sangat Baik". Hasil uji kepraktisan menunjukkan persentase sebesar 91,25% pada penilaian guru dan 95% pada respons peserta didik dengan kategori "Sangat Praktis". Sementara itu, hasil uji efektivitas memperoleh nilai signifikansi Sig. (2-tailed) sebesar 0,000 ($p < 0,05$) yang menunjukkan bahwa penggunaan bahan ajar *E-Book* Interaktif 3D berbantuan *Augmented Reality* memberikan pengaruh yang signifikan terhadap peningkatan hasil belajar peserta didik. Dengan demikian, dapat disimpulkan bahwa bahan ajar *E-Book* Interaktif 3D berbantuan *Augmented Reality* layak, praktis, dan efektif digunakan untuk meningkatkan hasil belajar peserta didik kelas III SD pada mata pelajaran IPAS topik Metamorfosis dan Perubahan Bentuk Makhluk Hidup.

Kata Kunci : *E-Book* Interaktif 3D, *Augmented Reality*, ADDIE, Hasil Belajar, IPAS.

**DEVELOPMENT OF AN AUGMENTED REALITY-ASSISTED 3D
INTERACTIVE *E-BOOK* FOR SCIENCE (IPAS) *LEARNING* TO
IMPROVE THE *LEARNING* OUTCOMES OF THIRD-GRADE
ELEMENTARY SCHOOL STUDENTS**

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ABSTRACT

This study aimed to develop a 3D Interactive *E-Book* assisted by *Augmented Reality* (AR) for Science (IPAS) *Learning* on the topic of Metamorphosis and Changes in Living Things to improve the *Learning* outcomes of third-grade elementary school students by examining its validity, practicality, and effectiveness. The study employed the ADDIE *Development* model (*Analyze, Design, Development, Implementation, and Evaluation*). Data were collected through questionnaires and achievement tests. The validity of the *Learning* material was assessed by subject matter experts and media experts, while the practicality test involved teachers and third-grade students of SD Negeri 4 Banyuning. The effectiveness of the developed *Learning* material was evaluated using a Nonequivalent *Pretest-Posttest* Control Group *Design* involving an experimental class and a control class. The research data were *Analyzed* using qualitative and quantitative approaches. The results indicated that the developed 3D Interactive *E-Book* assisted by *Augmented Reality* achieved a material expert validity score of 3.90 and a media expert validity score of 3.87, both categorized as "Very Good". The practicality test showed a score of 91.25% from teachers and 95% from students, both categorized as "Very Practical." Furthermore, the effectiveness test produced a significance value of Sig. (2-tailed) = 0.000 ($p < 0.05$), indicating that the developed *Learning* material significantly improved students' *Learning* outcomes. Therefore, it can be concluded that the 3D Interactive *E-Book* assisted by *Augmented Reality* is valid, practical, and effective for improving the *Learning* outcomes of third-grade elementary school students in Science (IPAS), particularly on the topic of Metamorphosis and Changes in Living Thing

Keywords : 3D Interactive *E-book*, *Augmented Reality*, ADDIE, *Learning* Outcomes, Science (IPAS).