

**PENGEMBANGAN *E-MODUL* BERBASIS *FLIPBOOK* BERORIENTASI
EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) MELALUI
MATERI PERUBAHAN LINGKUNGAN PADA SISWA FASE E
DI SMAN 2 SINGARAJA**

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ABSTRAK

Penelitian ini bertujuan untuk menghasilkan rancang bangun *e-modul* berbasis *flipbook* berorientasi *Education for Sustainable Development (ESD)* pada materi perubahan lingkungan di fase E yang valid dan praktis sebagai media pembelajaran. Jenis penelitian ini adalah penelitian pengembangan, menggunakan model instruksional *ADDIE* yang terdiri atas 5 (lima) tahapan yaitu *analyze, design, development, implementation, dan evaluation*. Pada penelitian ini dilakukan uji validitas oleh masing-masing 2 (dua) ahli materi, 2 (dua) ahli media, dan 2 (dua) ahli bahasa, serta uji kepraktisan melibatkan 2 (dua) guru biologi dan kelompok besar yang terdiri atas 33 siswa kelas X. Analisis data dilakukan dengan menggunakan teknik analisis deskriptif baik secara kualitatif maupun kuantitatif. Berdasarkan hasil penelitian didapatkan bahwa, (1) rancang bangun penelitian pengembangan ini menghasilkan produk media pembelajaran digital berupa *e-modul* pada materi perubahan lingkungan, (2) validitas *e-modul* dari segi materi, media, dan bahasa mendapatkan nilai KGV 1,0 dengan kriteria sangat valid, (3) berdasarkan kepraktisan yang dinilai oleh guru diperoleh nilai sebesar 97,9% dan hasil penilaian siswa diperoleh nilai sebesar 86,7% sehingga penilaian kepraktisan termasuk ke dalam kategori sangat praktis. Berdasarkan hasil penelitian tersebut, dihasilkan rancang bangun berupa *e-modul* yang sangat valid dan sangat praktis untuk digunakan sebagai media pembelajaran pada materi perubahan lingkungan.

Kata Kunci: *E-modul, Education for Sustainable Development, ADDIE.*

**DEVELOPMENT OF A FLIPBOOK BASED E-MODULE ORIENTED
TOWARD EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)
ON ENVIRONMENTAL CHANGE MATERIAL FOR PHASE E
STUDENTS AT SMAN 2 SINGARAJA**

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ABSTRACT

This study aims to develop the design and development of a flipbook based e-module oriented toward Education for Sustainable Development (ESD) on environmental change material in Phase E that is valid and practical as a learning medium. This research employed a development research method using the ADDIE instructional model, which consists of five stages: analyze, design, development, implementation, and evaluation. The validity test involved two subject matter experts, two media experts, and two language experts, while the practicality test involved two biology teachers and a large group consisting of 33 tenth grade students. Data analysis was conducted using descriptive analysis techniques, both qualitatively and quantitatively. The results of the study indicate that, (1) the development design produced a digital learning media in the form of an e-module on environmental change material, (2) the validity of e-module in terms of content, media, and language aspects, achieved KGV a score of 1.0, categorized as very valid, (3) the practicality assessment yielded a score of 97.9% from teachers and 86.7% from students, indicating that the E-module falls into the very practical category. Based on these findings, e-module was successfully developed and is considered very valid and very practical for use as a learning medium on environmental change material.

Keywords: E-module, Education for Sustainable Development, ADDIE.