

**PENGEMBANGAN *E-BOOK* BERBASIS *PROBLEM BASED LEARNING*
PADA MATERI PERUBAHAN LINGKUNGAN DAN DAUR ULANG
LIMBAH UNTUK SISWA DI MAN KARANGASEM**

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui desain, validitas, dan kepraktisan *ebook* berbasis *problem based learning* sebagai bahan ajar materi perubahan lingkungan dan daur ulang limbah kelas X di MAN Karangasem. Jenis penelitian ini yaitu penelitian pengembangan menggunakan model pengembangan 4-D yang dimodifikasi menjadi tiga tahapan yaitu *define*, *design*, dan *develop*. Setelah *e-book* dikembangkan kemudian dilakukan penilaian dengan uji validitas oleh ahli materi dan ahli media dan uji kepraktisan dengan mengujikan pada 3 orang siswa kelas X IPA 3 dalam uji perseorangan, dan 9 orang siswa kelas X IPA 3 dalam uji kelompok kecil. Lokasi uji coba ini bertempat di MAN Karangasem. Data yang didapatkan akan dilakukan analisis secara deskriptif untuk mengetahui validitas dan kepraktisan *e-book* berbasis PBL. Hasil penelitian ini menunjukkan, (1) *E-book* berbasis PBL di desain dengan menarik dimana isi materinya disesuaikan dengan sintak-sintak PBL, terdiri dari 3 sub bab, pada masing-masing sub bab terdapat beberapa fitur yang bersifat interaktif dan sesuai dengan sintak PBL seperti *Bio-Earth News*, *Bio Let's Thinking*, *Bio MiniLab&Activity*, *Bio Anava*, *Bio Best Info* dan *Bio Funzone*, (2) validitas *e-book* berbasis PBL sebanyak 91,9% termasuk dalam kriteria sangat valid, dan (3) kepraktisan *e-book* berbasis PBL sebanyak 90,5% termasuk dalam kriteria sangat praktis. Dari hasil penelitian tersebut, disimpulkan bahwa *e-book* berbasis PBL yang dikembangkan sangat valid dan sangat praktis sebagai bahan ajar pada materi perubahan lingkungan dan daur ulang limbah kelas X di MAN Karangasem.

Kata Kunci : pengembangan, *e-book*, *problem based learning*, materi perubahan lingkungan dan daur ulang limbah

**DEVELOPMENT OF E-BOOKS BASED ON PROBLEM BASED
LEARNINGIN MATERIAL ENVIRONMENTAL CHANGE AND WASTE
RECYCLING FOR STUDENT GRADE X OF MAN KARANGASEM**

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ABSTRACT

The aim of this research is to find out the design, validity, and practicality of e-books based on problem-based learning as a teaching material for environmental change and waste recycling for grade X at MAN Karangasem. This type of research was development research using a 4-D development model which was modified into three stages, namely define, design, and develop. After the e-book was developed, then an assessment was carried out with validity tests by material experts and media experts as well as practicality tests by testing 3 students in class X IPA 3 in an individual test, and 9 students from class X IPA 3 in a small group test. The location of this research was at MAN Karangasem. The data obtained were analyzed descriptively to determine the validity and practicality of e-books based on PBL. The results of this study indicated (1) e-books based on PBL were designed in an attractive manner where the content of the material was adapted to PBL syntax, consisting of 3 sub-chapters, in each sub-chapter there were several interactive features and in accordance with the syntax. PBL such as Bio-Earth News, Bio Let's Thinking, Bio MiniLab&Activity, Bio Anova, Bio Best Info and Bio Funzone, (2) the validity of e-books based on PBL is 91.9% which was included in the very feasible criteria, and (3) the practicality of e-books based on PBL of 90.5% were included in the very practical criteria. From the results of this study, it was concluded that the e-books based on PBL developed was very feasible and very practical as a teaching material on environmental change and waste recycling materials for class X at MAN Karangasem.

Keywords : development, e-book, problem based learning, environmental change and waste recycling material