

ABSTRAK

PENGEMBANGAN *E-BOOK* INTERAKTIF BERBASIS REPRESENTASI KIMIA PADA MATERI INTERAKSI ANTARPARTIKEL

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Penelitian ini bertujuan untuk mengembangkan *e-book* interaktif berbasis representasi kimia pada materi interaksi antarpartikel serta mendeskripsikan karakteristik, validitas, dan tanggapan pengguna terhadap produk yang dikembangkan. Penelitian menggunakan metode *Research and Development (R&D)* yang mengacu pada model Gall, Gall, dan Borg, dibatasi sampai tahap revisi produk. E-book interaktif disusun dengan mengintegrasikan tiga level representasi kimia (makroskopik, submikroskopik, dan simbolik), serta dilengkapi gambar, animasi, video pembelajaran, kolom identifikasi yang memberikan umpan balik otomatis, dan soal-soal interaktif untuk menunjang keterlibatan siswa secara aktif. Instrumen utama dalam pengumpulan data berupa angket validasi dan angket tanggapan. Hasil validasi ahli menunjukkan rata-rata persentase pada aspek kesesuaian isi sebesar 84,26%, konstruksi 88,52%, dan keterbacaan 88,84%, dengan rata-rata keseluruhan 87,21% (kategori sangat tinggi). Tanggapan guru terhadap aspek isi, konstruksi, dan keterbacaan masing-masing memperoleh persentase 92,76%, 94,55%, dan 94,27%, sedangkan tanggapan siswa menunjukkan keterbacaan sebesar 95,80% dan kemenarikan 95,32% (kategori sangat tinggi). Berdasarkan hasil tersebut, *e-book* interaktif ini dinyatakan valid dan sangat layak digunakan sebagai media pembelajaran kimia pada materi interaksi antarpartikel yang bersifat abstrak.

Kata kunci: *e-book* interaktif, interaksi antarpartikel, representasi kimia

ABSTRACT

DEVELOPMENT OF AN INTERACTIVE *E-BOOK* BASED ON CHEMICAL REPRESENTATION ON THE TOPIC OF PARTICLE INTERACTIONS

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This study aims to develop an interactive e-book based on chemical representations for the topic of particle interactions, as well as to describe the characteristics, validity, and user responses to the developed product. The research employed a Research and Development (R&D) method referring to the Borg and Gall model, limited to the product revision stage. The interactive e-book was designed by integrating three levels of chemical representation (macroscopic, submicroscopic, and symbolic), and is equipped with images, animations, learning videos, an identification column providing automatic feedback, and interactive questions to support active student engagement. The main instruments for data collection were validation questionnaires and response questionnaires. Expert validation results showed average percentages of 84.26% for content suitability, 88.52% for construction, and 88.84% for readability, with an overall average of 87.21% (categorized as very high). Teacher responses to the aspects of content, construction, and readability were 92.76%, 94.55%, and 94.27%, respectively, while student responses showed 95.80% for readability and 95.32% for attractiveness (both in the very high category). Based on these results, this interactive e-book is declared valid and highly feasible to be used as a chemistry learning medium for the abstract topic of particle interactions.

Keywords: interactive *e-book*, particle interactions, chemical representation