

## ABSTRAK

### PENGEMBANGAN *e-BOOK* INTERAKTIF BERBASIS VISUALISASI MOLEKUL 3D MENGGUNAKAN *FLIPPDF PROFESSIONAL* PADA MATERI TEORI VSEPR DAN DOMAIN ELEKTRON

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Penelitian ini dilakukan karena perlunya bahan ajar yang dapat memvisualisasikan bentuk molekul secara 3D dan interaktif yang dapat menunjang pembelajaran di era revolusi industri. Penelitian ini bertujuan untuk mengembangkan *e-Book* interaktif berbasis visualisasi molekul 3D pada materi teori VSEPR dan domain elektron, dan mendeskripsikan karakteristik *e-Book*, serta mengetahui tanggapan guru dan siswa terhadap *e-Book* yang dikembangkan. Desain penelitian yang digunakan adalah model pengembangan *ADDIE* (*Analysis, Design, Development, Implementation, Evaluation*). Penelitian ini dilakukan sampai tahap implementasi terbatas.

*E-Book* hasil pengembangan ini memiliki karakteristik dilengkapi dengan soal-soal interaktif, dapat diakses menggunakan atau tanpa internet, dapat diakses melalui laptop dan *handphone*, dilengkapi dengan visualisasi molekul 3D yang diilustrasikan melalui animasi dari video. Produk *e-Book* hasil pengembangan divalidasi oleh 2 orang dosen dari pendidikan kimia Universitas Lampung. Hasil validasi pada aspek kesesuaian isi, kemenarikan, dan keterbacaan berturut-turut sebesar 85,93%, 80,48%, dan 85,1%.

Implementasi dilakukan di 3 SMA di Bandar Lampung dengan hasil persentase rata-rata tanggapan guru pada aspek kesesuaian isi, kemenarikan, dan keterbacaan berturut-turut sebesar 86,97%, 88,33%, 85,42%. Persentase rata-rata tanggapan siswa pada aspek keterbacaan dan aspek kemenarikan berturut-turut sebesar 88,81% dan 86,89%.

Kata kunci: *e-Book* interaktif, visualisasi molekul 3D, Teori VSEPR dan domain elektron

## **ABSTRACT**

### **DEVELOPMENT OF INTERACTIVE e-BOOK BASED ON 3D MOLECULE VISUALIZATION USING PROFESSIONAL FLIP PDF ON VSEPR THEORY AND ELECTRON DOMAIN MATERIALS**

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This research was conducted because of the need for teaching materials that can visualize molecular shapes in 3D and interactive ways that can support learning in the industrial revolution era. This study aims to develop interactive e-books based on 3D molecular visualization on VSEPR theory and electron domains, and to describe the characteristics of e-books, and to find out the responses of teachers and students to the developed e-books. The research design used is the ADDIE (Analysis, Design, Development, Implementation, Evaluation). The characteristics of the e-book resulting from this development are; equipped with interactive questions, accessible using or without the internet, accessible through any software, equipped with 3D molecular visualizations illustrated through animations from videos. The developed e-book product was validated by 2 lecturers from chemistry education at the University of Lampung. The results of the validation carried out obtained an average result of 85.93% on the suitability aspect of the content, 80.48% on the attractiveness aspect, and 85.1% on the readability aspect. Limited implementation was carried out in 3 high schools in Bandarlampung with the average percentage results obtained on teacher responses, namely 86.97% on the suitability aspect of the content, 88.33% on the attractiveness aspect, and 85.42% on the readability aspect. The average percentage obtained on the results of student responses is equal to 88.81% in the readability aspect and 86.89% in the attractiveness aspect.

**Key words:** interactive e-Book, 3D molecular visualization, VSEPR theory and electron domain