

Pengembangan E-Modul Berbasis *Project Based Learning* (PjBL)

Menggunakan *Flipbook* Pada Materi Laju Reaksi

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui kelayakan, respon guru kimia, dan respon siswa terhadap e-modul berbasis *project based learning* (PjBL) menggunakan *flipbook* pada materi laju reaksi yang dikembangkan. Metode dalam penelitian ini menggunakan metode penelitian dan pengembangan (*Research and Development*) dengan menggunakan model pengembangan 4-D terdiri dari tahap *define* (pendefinisian), *design* (perancangan), *develop* (pengembangan), dan *disseminate* (penyebarluasan). Model 4-D dipilih karena model ini memiliki langkah-langkah yang jelas, sistematis, efektif, dan efisien. Penelitian ini hanya sampai pada tahap *develop* (pengembangan). Ini disebabkan peneliti tidak menguji efektivitas atau hasil belajar siswa fase F2. Subjek penelitian ini adalah pengembangan e-modul dan objek penelitian ini adalah e-modul. Produk yang dikembangkan divalidasi oleh validator ahli materi dan ahli media. Selain itu juga dilihat respon guru kimia dan 30 orang respon siswa. Hasil penelitian menunjukkan bahwa e-modul berbasis *project basis learning* (PjBL) menggunakan *flipbook* pada materi laju reaksi dinyatakan sangat layak setelah dilakukan validasi oleh ahli materi, ahli media, dan dilihat respon guru kimia dan respon siswa. Penilaian ahli materi dengan persentase rata-rata 84,38% dengan kategori sangat layak, ahli media 87,78% dengan kategori sangat layak, respon guru kimia 94,24% dengan kategori sangat menarik, dan respon siswa 93,38% dengan kategori sangat menarik.

Kata Kunci: e-Modul, Laju Reaksi, Kelayakan, *Project Based Learning*

**Development of E-Modules Based on Project Based Learning (PjBL)
Using Flipbook on Reaction Rate Material**

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ABSTRACT

This study aims to determine the feasibility, chemistry teacher response, and student response to e-modules based on project-based learning (PjBL) using flipbooks on reaction rate material developed. The method in this study uses the research and development method (Research and Development) using the 4-D development model consisting of define, design, develop, and disseminate stages. The 4-D model was chosen because this model has clear, systematic, effective, and efficient steps. This research only reached the develop stage. This is because researchers did not test the effectiveness or learning outcomes of phase F2 students. The subject of this research is e-module development and the object of this research is e-modules. The developed product was validated by material expert validators and media experts. In addition, chemistry teacher responses and 30 student responses were also seen. The results showed that e-modules based on project-based learning (PjBL) using flipbooks on reaction rate material were declared very feasible after validation by material experts, media experts, and seen the response of chemistry teachers and student responses. The assessment of material experts with an average percentage of 84.38% with a very feasible category, media experts 87.78% with a very feasible category, 94.24% chemistry teacher response with a very interesting category, and 93.38% student response with a very interesting category.

Keywords: e-Module, Reaction Rate, Feasibility, Project Based Learning