

ABSTRAK

Enina Eninta Br Sinuhaji, NIM. 4203121034. Pengembangan Bahan Ajar Berupa *E-Modul* Berbasis *Problem Based Learning* (PBL) Untuk Meningkatkan Hasil Belajar Siswa Pada Materi Teori Kinetik Gas Di SMAN 13 Medan.

Penelitian bertujuan menghasilkan bahan ajar berupa *e-modul* berbasis *Problem Based Learning* (PBL) pada materi teori kinetik gas sebagai alat bantu meningkatkan hasil belajar siswa. Metode penelitian menggunakan model pengembangan ADDIE dengan lima tahap yaitu *analysis*, *design*, *development*, *implementation*, dan *evaluation*. Validasi *e-modul* dilakukan oleh ahli materi dan ahli media, serta uji coba di lapangan dengan melibatkan siswa kelas XI MIPA 2 SMA Negeri 13 Medan. Hasil penilaian menunjukkan kategori sangat layak dengan nilai rata-rata 92% dari dosen ahli materi dan 86,9% dari dosen ahli media. *E-modul* masuk dalam kategori sangat praktis, dengan hasil angket respon siswa menunjukkan nilai rata-rata 85,71% dan 91% dari guru fisika. Hasil uji N-gain, hasil belajar siswa meningkat dengan skor 0,77 (kategori tinggi), dengan rata-rata nilai pretest 26 dan posttest 81. Peningkatan menunjukkan bahwa *e-modul* berbasis PBL efektif dalam meningkatkan hasil belajar siswa pada materi teori kinetik gas.

Kata Kunci : *e-modul*, teori kinetik gas, *Problem Based Learning*

ABSTRACT

Enina Eninta Br Sinuhaji, Student ID. 4203121034. Development of Problem Based Learning (PBL) E-Module as Teaching Material to Improve Student Learning Outcomes on the Topic of Kinetic Theory of Gases at SMA N 13 Medan.

This research aims to produce teaching materials in the form of a Problem-Based Learning (PBL) e-module on the topic of kinetic theory of gases as a tool to improve students' learning outcomes. The research method used the ADDIE development model, which consists of five stages: analysis, design, development, implementation, and evaluation. The e-module was validated by subject matter experts and media experts, and field-tested involving students of class XI MIPA 2 at SMA Negeri 13 Medan. The assessment results indicated a "very feasible" category with an average score of 92% from subject matter experts and 86.9% from media experts. The e-module was categorized as "highly practical," with the student response questionnaire showing an average score of 85.71% and 91% from the physics teacher. The N-gain test results showed that students' learning outcomes improved with a score of 77 (high category), with an average pretest score of 26 and a posttest score of 81. The improvement shows that the PBL based e-module is effective in enhancing student learning outcomes on the topic of kinetic theory of gases.

Keywords: e-module, kinetic theory of gases, Problem Based Learning

