

ABSTRAK

Debby Sevenly Purba, NIM 4183321026 (2018). Pengembangan *E-modul* Berbasis STEM Berbantuan *Flip Pdf Corporate* Pada Materi Suhu dan Kalor kelas XI Di SMA Negeri 8 Medan.

Penelitian pengembangan ini bertujuan untuk menghasilkan bahan ajar berupa *e-modul* berbasis STEM (*Science, Technology, Engineering, Mathematics*) berbantuan *Flip Pdf Corporate* pada materi Suhu dan Kalor yang berkualitas layak untuk digunakan dalam kegiatan pembelajaran, mengetahui respon pengguna terhadap *e-modul* yang sudah dikembangkan serta mengukur keefektifan *e-modul* dalam peningkatan hasil belajar siswa. Subjek dalam penelitian ini adalah 34 orang siswa kelas XI MIPA 2 SMA Negeri 8 Medan. Jenis penelitian ini merupakan penelitian pengembangan atau *Research and Development (R&D)* menggunakan model 4-D yang terdiri dari 4 tahap yaitu *Define, Design, Develop* dan *Disseminate*. Instrumen yang digunakan penelitian ini terdiri dari angket kelayakan ahli materi dan ahli media, serta angket respon guru bidang studi dan siswa, serta soal *pretest-postest*. Berdasarkan hasil analisis data uji kelayakan diperoleh validasi dosen ahli materi sebesar 83% dengan kriteria sangat layak, validasi ahli media sebesar 84% dengan kriteria sangat layak. Hasil respon pengguna yaitu guru fisika sebesar 96% dengan kriteria sangat layak dan respon siswa pada uji kelompok kecil dengan responden 10 siswa memperoleh 77% dengan kriteria sangat praktis. Sedangkan pada uji coba kelompok besar pada responden 34 orang diperoleh 87% dengan kriteria sangat praktis. Berdasarkan tes hasil belajar *pretest-postest* diperoleh perhitungan nilai gain sebesar 0,56 dengan kriteria efektif dalam meningkatkan hasil belajar siswa. Dengan demikian, hasil penelitian menunjukkan bahwa *e-modul* berbasis STEM layak digunakan dalam kegiatan pembelajaran, terutama pada materi Suhu dan Kalor.

Kata Kunci: Pengembangan, *E-modul*, STEM, *Flip PDF Corporate*

ABSTRACT

Debby Sevenly Purba, IDN. 4183321026 (2018). Developing of STEM-Based E-Module Assisted by Flip Pdf Corporate on Temperature and Heat Materials for class XI at SMA Negeri 8 Medan.

This development research aims to produce teaching materials in the form of STEM (Science, Technology, Engineering, Mathematics) based e-module assisted by Flip Pdf Corporate on Temperature and Heat material of proper quality for use in learning activities, knowing user responses to e-modules that have been developed, and measured the effectiveness of e-modules in improving student learning outcomes. The subjects in this study were 34 students of class XI MIPA 2 SMA Negeri 8 Medan. This type of research is Research and Development (R&D) using a 4-D model which consists of 4 stages, namely Define, Design, Develop, and Disseminate. The instruments used in this study consisted of a feasibility questionnaire for material experts and media experts, response questionnaire for subject teachers and students, and a pretest-posttest questions. Based on the results of the due diligence data analysis, it was obtained that the validation of material expert lecturers was 83% with the criteria very feasible, 84% media expert validation with the criteria very feasible. The results of user responses, namely physics teachers, were 96% with criteria very feasible, and student responses in the small group test with 10 respondents obtained 77% with criteria very practical. Meanwhile, in the large group trial of 34 respondents, 87% were obtained with very practical criteria. Based on the pretest-posttest learning outcomes test, a gain value calculation of 0.56 was obtained with the criteria of being effective in increasing student learning outcomes. Thus, the results of the study show that STEM-based e-modules are feasible to use in learning activities, especially on Temperature and Heat materials.

Keywords: Development, E-module, STEM, Flip PDF Corporate