

ABSTRAK

Cindy Fazirah, NIM 4203121027 (2024), Pengembangan E-Modul Berbasis STEM Materi Fluida Dinamis Kelas XI di MAN 2 Model Medan

Penelitian ini bertujuan untuk menghasilkan e-modul berbasis *science, technology, engineering, mathematics* pada materi Fluida dinamis yang layak, praktis dan efektif digunakan dalam pembelajaran fisika. Jenis penelitian ini merupakan *Research and Development (R&D)* menggunakan model penelitian ADDIE. Subjek penelitian ini adalah ahli materi, ahli media, guru bidang studi fisika serta peserta didik di kelas XII-F1 B berjumlah 30 siswa dan XII-F1 D berjumlah 10 siswa di MAN 2 Model Medan. Instrumen yang digunakan dalam penelitian ini terdiri dari angket kelayakan (ahli materi, ahli media, dan guru bidang studi), lembar observasi, instrumen soal pretest dan posttest serta angket respon guru dan peserta didik terhadap e-modul berbasis STEM materi fluida dinamis. Hasil penelitian menunjukkan bahwa e-modul berbasis STEM materi fluida dinami yang dikembangkan masuk dalam kategori sangat layak digunakan dalam proses pembelajaran fisika berdasarkan hasil uji validasi ahli materi (85%), ahli media (85%), dan guru bidang studi fisika (86%). E-modul berbasis STEM materi fluida dinamis masuk dalam kategori sangat praktis berdasarkan hasil respon siswa kelompok kecil (86%) dan respon siswa kelompok besar (94%). E-modul masuk dalam kategori efektif melalui peningkatan yang terjadi pada n-gain sebesar 0,69 pada kategori sedang serta dengan rata-rata nilai pada posttest mencapai KKM sebesar 72,5. Dengan demikian dapat disimpulkan bahwa e-modul berbasis STEM materi fluida dinamis layak, praktis dan efektif digunakan dalam pembelajaran.

Kata kunci: R&D, E-modul, STEM, Fluida Dinamis

ABSTRACT

Cindy Fazirah, NIM 4203121027 (2024), Development of STEM-Based E-Module on Dynamic Fluid Material For Class XII at MAN Model Medan

This development research aims to produce an e-module based *science, technology, engineering, mathematics* on fluid dynamic material that is feasible, practical and effective for use in physics learning. The research follows a Research and Development (R&D) approach utilizing the ADDIE research model. The subjects of this research included material experts, media experts, physics teachers and 40 students from class XII-F1 B (30 students) and XII-F1 D (10 students) at MAN 2 Model Medan. The instruments used in this research consisted of a feasibility questionnaire (targeted at material experts, media experts, and teachers). Observation sheets, pretest and posttest questions instruments as well as teacher and student response questionnaires to e-modules based on *STEM* dynamic fluid material. The research results show that e-module is based *STEM*. The dynamic fluid material developed is in the category of very suitable for use in the physics learning process based on the validation test results of material experts (85%), media experts (85%), and physics study teachers (86%). E-module based *STEM* Dynamic fluid material is included in the very practical category based on the results of small group student responses (86%) and large group student responses (94%). The e-module is included in the effective category through an increase in n-gain of 0.69 in the medium category and with an average score on the posttest reaching the KKM of 72.5. In conclusion, the STEM-based e-module on dynamic fluid materials is a feasible, practical, and effective tool for use in physics education.

Keywords: R&D, E-Module, STEM, Dynamic Fluid