

ABSTRAK

Khairun Nisya: **Pengembangan Bahan Ajar Fisika Berbasis STEM Untuk Meningkatkan Keterampilan 4C Siswa.** Tesis. Medan: Program Studi Pendidikan Fisika, Pascasarjana Universitas Negeri Medan, 2021.

Penelitian ini untuk menganalisis kelayakan, keefektifan dan kepraktisan bahan ajar fisika berbasis STEM, dan untuk mengetahui peningkatan sebagian keterampilan 4C siswa yang diajarkan menggunakan bahan ajar fisika berbasis STEM. Penelitian ini merupakan *Research and Development* (R&D) dengan menggunakan model ADDIE meliputi tahap *analyze, design, development, implementation, dan evaluation*. Subjek dalam penelitian ini adalah siswa kelas XI MIA MAS Ponpes Darul Qur'an. Instrumen dan teknik pengumpulan data menggunakan lembar validasi bahan ajar oleh tim ahli materi dan desain, lembar penilaian keefektifan bahan ajar, dan lembar penilaian kepraktisan bahan ajar. Hasil penelitian diperoleh bahwa bahan ajar fisika berbasis STEM yang dikembangkan dalam kategori sangat layak menurut ahli materi dan desain, sangat efektif ditinjau dari hasil belajar dan penilain guru terhadap bahan ajar fisika berbasis STEM, dan sangat praktis ditinjau dari respon siswa dan penilaian para ahli terhadap bahan ajar fisika berbasis STEM. Hasil belajar siswa yang di uji dengan analisis N-gain menunjukkan bahwa bahan ajar fisika berbasis STEM mampu meningkatkan sebagian keterampilan 4C siswa. Jadi bahan ajar fisika berbasis STEM telah memenuhi kriteria layak, efektif, praktis, dan mampu meningkatkan sebagian ketrampilan 4C siswa.

Kata Kunci : Pengembangan, Bahan Ajar Fisika, STEM



ABSTRACT

Khairun Nisya: **Development Of STEM-Based Physical Teaching To Improve 4c Student Skills**. Thesis. Medan: Physics Education Study Program, Medan State University Postgraduate , 2021.

This research is to analyze the feasibility, effectiveness and practicality of STEM-based physics teaching materials, and to determine the improvement of some students' 4C skills taught using STEM-based physics teaching materials. This research is a Research and Development (R&D) using the ADDIE model covering the analyze, design, development, implementation, and evaluation stages. The subjects in this study were students of class XI MIA MAS Ponpes Darul Qur'an. Instruments and data collection techniques used teaching materials validation sheets by a material and design expert team, teaching materials effectiveness assessment sheets, and teaching materials practicality assessment sheets. The results showed that the STEM-based physics teaching materials developed in the very appropriate category according to the material and design experts, were very effective in terms of learning outcomes and teacher evaluations of STEM-based physics teaching materials, and very practical in terms of student responses and expert assessments of the materials. STEM-based physics teaching. Student learning outcomes tested with N-gain analysis showed that STEM-based physics teaching materials were able to improve some of the students' 4C skills. So the STEM-based physics teaching materials have met the criteria of being feasible, effective, practical, and able to improve some students' 4C skills.

Keywords: Development, Physics Teaching Materials , STEM

