

ABSTRAK

PENGEMBANGAN E-MODUL BERBASIS STEM-PJBL UNTUK MEMBANGUN *NATURE OF SCIENCE* PADA MATERI SIFAT BENDA DAN PERUBAHAN WUJUD BENDA PESERTA DIDIK KELAS IV SEKOLAH DASAR

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Penelitian ini bertujuan untuk mengembangkan bahan ajar berupa E-MODUL berbasis STEM-PJBL untuk membangun *Nature of Science* pada materi sifat benda dan perubahan wujud benda di kelas IV Sekolah Dasar. Penelitian ini merupakan penelitian pengembangan dengan menggunakan model pengembangan Plomp yang mencakup tiga tahap utama, yaitu *Preliminary Research*, *Development or Prototyping Phase* dan *Assessment Phase*. Penelitian ini dilakukan di SDN 4 Sukajawa Bandar Lampung kelas IV semester genap. Hasil penelitian ini menunjukkan bahwa rata-rata penilaian uji validasi materi diperoleh 85,48% (Sangat Valid), Rata-rata penilaian uji validasi ahli media 84.88% (Sangat Valid), dan rata-rata penilaian uji validasi ahli bahasa 88.00% bahasa (Sangat Valid). Rata-rata angket kepraktisan E-MODUL diperoleh 95% (Sangat Praktis) dan hasil dari praktisi (Pendidik) diperoleh 97% (Sangat Praktis). Analisis data dilakukan menggunakan uji *Idenpendent samples t test* yang menghasilkan nilai signifikansi sebesar 0.01 dan efektivitas memperoleh *N-Gain* 0.73 dengan kriteria peningkatan tinggi. Dengan demikian, dapat disimpulkan bahwa E-MODUL berbasis STEM-PJBL memenuhi kriteria valid, praktis dan efektif untuk membangun *Nature of Science* peserta didik.

Kata kunci: E-MODUL, *Nature of Science*, Sekolah Dasar, sifat benda dan perubahan wujud, STEM-PJBL.

ABSTRACT

DEVELOPMENT OF STEM-PJBL-BASED E-MODULES TO BUILD THE *NATURE OF SCIENCE* IN THE SUBJECT MATTER OF THE PROPERTIES OF OBJECTS AND CHANGES IN THE FORM OF OBJECTS FOR FOURTH GRADE STUDENTS IN ELEMENTARY SCHOOLS

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This study aims to develop teaching materials in the form of STEM-PJBL-based E-MODULES to build the Nature of Science in the subject matter of the properties of objects and changes in the form of objects in the fourth grade of elementary school. This study is a development study using the Plomp development model, which includes three main stages: Preliminary Research, Development or Prototyping Phase, and Assessment Phase. This study was conducted at SDN 4 Sukajawa Bandar Lampung in the fourth grade during the even semester. The results of this study indicate that the average validity test score for the material was 85.48% (Very Valid), the average validity test score for media experts was 84.88% (Very Valid), and the average validity test score for language experts was 88.00% (Very Valid). The average practicality questionnaire score for the E-MODULE was 95% (Very Practical), and the results from practitioners (educators) were 97% (Very Practical). Data analysis was conducted using an independent samples t-test, yielding a significance value of 0.01 and an effectiveness score of N-Gain 0.73 with a high improvement criterion. Therefore, it can be concluded that the STEM-PJBL-based E-MODULE meets the criteria of validity, practicality, and effectiveness in developing students' understanding of the nature of science.

Keywords: E-MODULE, elementary school, *Nature of Science*, properties of objects and changes in form, STEM-PJBL.