

ABSTRAK

Aulya, R. A. 2021. “Pengembangan E-Modul Kimia Berbasis PjBL-STEM untuk Pembelajaran Daring Siswa SMA pada Materi Larutan Penyangga”. Tesis. Program Pascasarjana Universitas Jambi. Pembimbing: (1). Prof. Dr. Rer.Nat. Rayandra Ashyar, M.Si.(II) Dr. Yusnaidar, S.Si., M.Si.

Kata kunci:E-Modul Kimia Berbasis Pendekatan STEM, *Project Based Learning*, Larutan Penyangga.

Pembelajaran abad 21 menuntun siswa lebih aktif dalam proses belajar, kreatif dan inovatif, sehingga dibutuhkan suatu inovasi baru dalam meningkatkan keterampilan siswa terutama di bidang sains dan matematika yaitu dengan menggabungkan ilmu sains dan matematika dalam satu sistem yang didukung dengan suatu rekayasa (*engineering*) dan teknologi yang dikenal dengan *STEM education*. Penelitian ini bertujuan untuk mengembangkan bahan ajar e-modul pembelajaran berbasis pendekatan STEM (*Science, Technology, Engineering, Mathematics*) yang disusun mengikuti tahapan model pembelajaran *project based learning* berbasis pendekatan STEM pada materi Larutan Penyangga di SMA. Metode penelitian ini mengikuti model pengembangan Lee and Owens (2004) yang dibatasi sampai pada uji kelompok kecil produk yaitu pada siswa kelas XI MIPA di SMA N 1 Lubuklinggau. Kelayakan e-modul ini dilihat dari kelayakan teoritis yaitu hasil validasi ahli materi, ahli desain pembelajaran dan ahli media. Kelayakan secara praktis yaitu dari penilaian guru dengan skor 95,71% dan respon siswa dengan skor 87,00% dengan kriteria sangat baik. Berdasarkan hasil validasi ahli materi, ahli desain pembelajaran, ahli media, penilaian guru, dan respon siswa menunjukkan bahwa e-modul berbasis pendekatan STEM ini berpotensi untuk digunakan dalam pembelajaran materi larutan penyangga di SMA.

ABSTRACT

Aulya, R. A. 2021. *“Development of The Chemistry E-Module Based on Project Based Learning Method and STEM Approach for Online Class on Buffer Solution Lessons”*. Master of Chemistry Education Study Program, Jambi University, Advisor: (1). Prof. Dr. Rer.Nat. Rayandra Ashyar, M.Si.(II) Dr. Yusnaidar, S.Si., M.Si.

Keywords : E-Module Chemistry Based on STEM Approach, Project Based Learning, Buffer Solution.

In the 21st century, students are more engaged in the learning process, creative, and innovative, necessitating a new innovation to improve student skills, particularly in the fields of science and mathematics, namely combining science and mathematics in a single system supported by engineering and technology. STEM (Science, Technology, Engineering, and Mathematics) education is the study of science, technology, engineering, and mathematics. This research intends to create teaching materials for e-module based STEM (Science, Technology, Engineering, and Mathematics) learning ways on the Buffer Solution material in high school that are organized according to the stages of a model project-based learning based on the STEM approach. This study follows the Lee and Owens (2004) development paradigm, which limits the product testing to a small sample of students from class XI MIPA at SMA N 1 Lubuklinggau. The theoretical feasibility of this e-module may be shown in the validation results of material experts, learning design experts, and media experts. Practical practicality is determined by the teacher's evaluation, which received a score of 95.71 percent, and student replies, which received a score of 87.00 percent, both of which meet the very good requirements. It is clear that e-modules are based on the STEM method, as evidenced by the validation of material experts, learning design experts, media experts, instructor assessments, and student reactions. This has the potential to be utilized in senior high school to learn buffer solution material.