

ABSTRAK

RIZKA RAMADANI DALIMUNTHER. Pengembangan E-Booklet Mikrobiologi Pangan Berbasis Science, Technology, Engineering, Art and Mathematics Terhadap Kemampuan Berpikir Kritis Mahasiswa Biologi FMIPA UNIMED.

Rendahnya kemampuan berpikir kritis mahasiswa Biologi dengan nilai 62,38 akibat minimnya media dan bahan ajar mikrobiologi pangan serta perkuliahan yang pasif, sehingga diperlukan pengembangan *E-booklet* sebagai bahan ajar pendukung. Tujuan penelitian ini untuk mengetahui kelayakan materi, desain pembelajaran dan layout *E-booklet*. Mengetahui kepraktisan juga efektivitas *E-booklet* mikrobiologi pangan berbasis STEAM. Metode penelitian yang digunakan adalah R&D dengan model pengembangan ADDIE yang terdiri dari tahap *analyze, design, development, implementation* dan *evaluation*. Penelitian ini menggunakan desain uji coba tipe *One Group Pretest Posttest*. Hasil uji kelayakan dari validator ahli materi memperoleh persentase rata-rata sebesar 79% (layak), ahli desain pembelajaran 93% (sangat layak) dan ahli layout 92% (sangat layak). Kepraktisan *E-booklet* dinilai dari tanggapan dosen pengampu mata kuliah yang memperoleh persentase rata-rata sebesar 88% (sangat baik) dan mahasiswa 93% (sangat baik). Efektivitas *E-booklet* diukur dengan kegiatan pretes dan postes menggunakan instrumen tes berupa 20 soal isian yang valid dan reliabel ($r_{11} = 0,905$). Hasil pretes memperoleh nilai rata-rata 49,52 yang menunjukkan bahwa kemampuan berpikir kritis mahasiswa rendah, sedangkan hasil postes memperoleh nilai 76,44 yang menunjukkan bahwa kemampuan berpikir kritis mahasiswa tergolong tinggi. Dengan demikian, hasil uji t memperoleh nilai Sig. ($0,000 < 0,05$) sehingga H_0 ditolak dan H_a diterima. Uji N-Gain memperoleh nilai sebesar 0,54 yang menunjukkan bahwa adanya peningkatan kemampuan berpikir kritis mahasiswa dalam kategori sedang.

Kata Kunci : Berpikir kritis, *E-booklet*, mikrobiologi pangan, STEAM.

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ABSTRACT

RIZKA RAMADANI DALIMUNTHER. Development of Food Microbiology E-Booklet Based on Science, Technology, Engineering, Art and Mathematics Towards Critical Thinking Skills of Biology Students FMIPA UNIMED.

The low critical thinking skills of Biology students with a value of 62.38 due to the lack of media and teaching materials for food microbiology and passive lectures, so it is necessary to develop E-booklets as supporting teaching materials. The purpose of this study was to determine the feasibility of material, learning design and E-booklet layout. Knowing the practicality as well as the effectiveness of STEAM-based food microbiology E-booklets. The research method used is R&D with the ADDIE development model which consists of analyze, design, development, implementation and evaluation stages. This study used a One Group Pretest Posttest type trial design. The feasibility test results from material expert validators obtained an average percentage of 79% (feasible), learning design experts 93% (very feasible) and layout experts 92% (very feasible). The practicality of the E-booklet was assessed from the responses of the course lecturers who obtained an average percentage of 88% (very good) and students 93% (very good). The effectiveness of the E-booklet was measured by pretest and post-test activities using a test instrument in the form of 20 valid and reliable fill-in questions ($r_{11} = 0.905$). The pretest results obtained an average score of 49.52 which indicated that students' critical thinking skills were low, while the post-test results obtained a score of 76.44 which indicated that students' critical thinking skills were high. Thus, the t-test results obtained a Sig. ($0.000 < 0.05$) so that H_0 is rejected and H_a is accepted. The N-Gain test obtained a value of 0.54 which indicated that there was an increase in students' critical thinking skills in the moderate category.

Kata Kunci : Critical thinking, E-booklet, food microbiology, STEAM.

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