ABSTRAK

Jefri Ardiansyah Sitepu, NIM 4192441009 (2019), Pengembangan Modul Perkuliahan Berbasis *Project Based Learning* untuk Meningkatkan Kemampuan Berpikir Kritis, Kemampuan Pemecahan Masalah, dan Hasil Belajar Kognitif Mahasiswa pada Materi Embriogenesis

Rendahnya kemampuan berpikir kritis, kemampuan pemecahan masalah, dan hasil belajar kognitif mahasiswa yang menjadi latar belakang penelitian ini. Berdasarkan latar belakang tersebut dibutuhkan inovasi yang mampu meningkatkan kemampuan berpikir kritis, kemampuan pemecahan masalah, dan hasil belajar kognitif mahasiswa, salah satunya melalui pengembangan modul perkuliahan berbasis *project based learning*. Penelitian ini bertujuan untuk mengembangkan modul perkuliahan berbasis *project based learning* berdasarkan analisis kebutuhan mahasiswa, merancang modul sesuai dengan analisis kebutuhan mahasiswa, mengetahui tingkat kelayakan, serta mengetahui pengaruh modul perkuliahan berbasis *project based learning* terhadap kemampuan berpikir kritis, kemampuan pemecahan masalah, dan hasil belajar kognitif mahasiswa. Metode penelitian yang digunakan R&D, Model 4D (*Define, Design, Development,* dan *Disseminate*). Objek pada penelitian ini adalah kelas Pendidikan Biologi 2022 A Universitas Negeri Medan (kelas eksperimen) dengan menggunakan modul perkuliahan berbasis *project based learning,* kelas Pendidikan Biologi 2022 C Universitas Negeri Medan (kelas kontrol) dengan menggunakan sumber belajar konvensional. Pengumpulan data dilakukan dengan tes kemampuan berpikir kritis, kemampuan pemecahan masalah, dan hasil belajar kognitif yang terdiri dari 20 soal uraian. Hasil penelitian menunjukkan bahwa data analisis kebutuhan mahasiswa menyatakan membutuhkan alternatif sumber belajar sebesar 91,9%. Tingkat kelayakan modul perkuliahan berbasis *project based learning* dari penilaian ahli materi mendapat kriteria "Sangat Layak" (96,87%), penilaian ahli pembelajaran mendapat kriteria Sangat Layak (97,72%)", penilaian ahli desain mendapat kriteria "Sangat Layak" (88,46%). Data respon mahasiswa diperoleh respon positif dengan kriteria "Sangat Baik" (94,52%). Hasil uji N-*gain* kemampuan berpikir kritis kelas eksperimen menunjukkan N-*gain score* sebesar 88,45 (Tinggi) sedangkan kelas kontrol sebesar 37,27 (Sedang). Hasil uji N-*gain* kemampuan pemecahan masalah kelas eksperimen N-*gain score* sebesar 87,14 (Tinggi) sedangkan kelas kontrol sebesar 47,85 (Sedang). Hasil uji N-*gain* hasil belajar kognitif kelas eksperimen N-*gain score* sebesar 86,95 (Tinggi) sedangkan kelas kontrol sebesar 47,52 (Sedang). Berdasarkan hasil uji N-*gain* dapat disimpulkan bahwa modul perkuliahan berbasis *project based learning* berpengaruh terhadap kemampuan berpikir kritis, kemampuan pemecahan masalah, dan hasil belajar kognitif mahasiswa.

Kata Kunci: Pengembangan, Modul Perkuliahan, Project Based Learning.

ABSTRACT

Jefri Ardiansyah Sitepu, NIM 4192441009 (2019), Development of Lecture Modules Based on Project Based Learning to Improve Critical Thinking Abilities, Problem Solving Abilities, and Student Cognitive Learning Outcomes on Embryogenesis Material

The low critical thinking abilities, problem solving abilities and cognitive learning outcomes of students are the background for this research. Based on this background, innovation is needed that can improve students' critical thinking skills, problem solving abilities and cognitive learning outcomes, one of which is through the development of project based learning lecture modules. This research aims to develop project based learning lecture modules based on analysis of student needs, designing modules according to the analysis of student needs, determine the level of feasibility, and determine the effect of project based learning lecture modules on students' critical thinking abilities, problem solving abilities and cognitive learning outcomes. The research method used is R&D, 4D Model (Define, Design, Development and Disseminate). The objects of this research are the Biology Education class 2022 A, Medan State University (experimental class) using lecture modules based on project based learning, Biology Education class 2022 C, Medan State University (control class) using conventional learning resources. Data collection was carried out by testing critical thinking abilities, problem solving abilities, and cognitive learning outcomes consisting of 20 descriptive questions. The research results show that 91.9% of student needs analysis data states that they need alternative learning resources. The level of feasibility of project based learning lecture modules from the assessment of material experts received the criteria "Very Eligible" (96.87%), the assessment of learning experts received the criteria Very Eligible (97.72%)", the assessment of design experts received the criteria "Very Eligible" (88.46%). Student response data obtained a positive response with the criteria "Very Good" (94.52%). The results of the N-gain test for critical thinking skills in the experimental class showed an N-gain score of 88.45 (High) while the control class was 37.27 (Medium). The N-gain test results for the experimental class's problem solving ability N-gain score were 87.14 (High) while the control class was 47.85 (Medium). The results of the N-gain test were cognitive learning results for the experimental class. The N-gain score was 86.95 (High) while the control class was 47.52 (Medium). Based on the results of the N-gain test, it can be concluded that project-based learning modules have an influence on students' critical thinking abilities, problem solving abilities and cognitive learning outcomes.

Keywords: Development, Lecture Module, Project Based Learning.