

# Needs Analysis Of Education For Sustainable Development-Oriented Textbooks In Biotechnology Courses

Lely Mardiyanti<sup>1</sup>

<sup>1</sup>Program Studi Pendidikan Biologi, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Jambi, Jambi, Indonesia

[lelymardiyanti@unja.ac.id](mailto:lelymardiyanti@unja.ac.id)

## Abstract

Sustainability competencies can be developed through Education for Sustainable Development (ESD) whose implementation will be helped by appropriate teaching materials. The purpose of this study is to determine the perceptions and initial knowledge of students, conditions, and difficulties experienced, as well as the form of teaching materials that can facilitate students to achieve competence in biotechnology courses. This descriptive quantitative research was conducted on 30 students who had taken biotechnology courses at the Department of Biology, Universitas Negeri Malang purposively. Data collection using survey techniques and review of Semester Learning Plan documents. The survey results were analyzed descriptively using percentages. The results showed that 83.3% of students ranked biotechnology in the field of biorefinery as the most difficult material to understand in biotechnology, 83.3% of students thought that textbooks were teaching materials that were considered to make it easier to understand biotechnology material, and the main problem felt by 53.3% of students while undergoing biotechnology courses was difficulty in accessing appropriate teaching materials. In addition, the low number of students (13.3%) who apply the knowledge they have obtained during college to support sustainability in the community around their place of residence. So, it can be concluded that ESD-oriented textbooks with material content of fermentation technology applications in the biorefinery field need to be developed.

**Keywords :** Needs Analysis, Textbook, ESD, Biotechnology Courses