

Advancing Sustainability Education through Tools Developed within European Projects

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Abstract

European-funded educational projects are increasingly shaping how sustainability is taught and understood in higher education and professional training. Rather than remaining at the level of policy ambitions, these initiatives translate sustainability into concrete learning experiences and practical tools. This paper explores the results and

expected impacts of seven such projects, each addressing different, yet complementary, aspects of sustainability competencies: EDU4PlastiCircular, ECO-GT, Multiclass, INES, INITIATE, NATURE-DEMO, and EnvEDU-OERs.

The projects generate a diverse portfolio of results, including structured e-learning courses, modular curricula, open educational resources (OERs), digital libraries, competence assessment instruments, and stakeholder-oriented training methodologies. The initiatives deliver methodological frameworks for integrating sustainability into engineering programs, and the results extend beyond resource development to include validated pedagogical models, increased sustainability literacy among learners, and strengthened institutional capacity to embed sustainability across curricula.

A key outcome across projects is the emphasis on scalability and transferability: tools are designed as open access to be reused and tailored, making them relevant across different educational contexts. Additionally, projects foster collaboration between universities, industry, and civil society, creating active learning communities that extend beyond individual institutions. Early evidence and projected impacts indicate improvements in learners' systems thinking, problem-solving abilities, and engagement with real-world sustainability challenges, particularly in domains such as circular economy, nature-based solutions, and green transition skills.

The paper argues that these projects represent an important step toward making sustainability a core component of higher education, lifelong learning and professional training systems.

Keywords: educational projects, education for sustainability, open educational resources, engineering education