

## Service Learning Applied to Environmental Engineering University subjects

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### Abstract

Service learning combines theoretical knowledge and practical experience through projects that address real social needs, enhancing understanding and developing leadership and civic responsibility. Grounded in experiential learning theories, service learning comprises preparation, implementation, and reflection, and is used in various fields, including environmental engineering, to provide a unique opportunity for practical, experiential learning while contributing to social welfare. A Service Learning Project (SLP) was developed by a team of professors from University Polytechnic of Madrid, implemented in the Environmental Engineering Projects subject as a practical activity. SLP involved designing, constructing, and implementing a rainwater harvesting system, connecting to an adjacent school's eco-garden, and raising environmental awareness in the rural population. SLP aimed to enhance students' competencies in organizational planning, decision-making, and teamwork, while also promoting sustainability and disseminating the 2030 Agenda. UPM students worked on a SLP with four phases, starting in September 2020. SLP involved designing and building a rainwater collection system for Isabel La Católica Public School in Navas del Rey. SLP also involved analyzing and applying Sustainable Development Objectives (SDGs) and conducting informative sessions for primary school pupils. Finally, UPM students evaluated SLP using a survey that assessed the impact on their learning and social and environmental commitment. The results show that the students strongly support the SL project and believe it is beneficial for their learning and increased social and environmental commitment. They would participate in SL projects in other science courses and recommend it to their peers.

**Keywords:** education trends, service learning, higher education, environmental engineering.