
SERVICE-LEARNING FOR SUSTAINABLE ENERGY ACCESS. INTEGRATING ACTIVE LEARNING AND SDGs IN HIGHER EDUCATION, GIRLS PROJECT.

Ion Mierlus-Mazilu^{1,*}, Stefania Constantinescu²

¹Technical University of Civil Engineering Bucharest, Bucharest, Romania

²Technical University of Civil Engineering Bucharest, Bucharest, Romania

ABSTRACT

Service-learning has emerged as a transformative educational approach that integrates community service with academic instruction, emphasizing reflection and critical thinking to enrich the learning experience, teach civic responsibility, and strengthen communities. This paper presents an in-depth examination of service-learning, with a specific focus on its implementation in higher education to address sustainable energy access. By leveraging the case study of the GIRLS project—Generation for Innovation, Resilience, Leadership, and Sustainability—this paper illustrates how service-learning can empower students with the knowledge and skills necessary to tackle real-world challenges. The GIRLS project, developed in collaboration with the Technical University of Civil Engineering Bucharest (UTCB), aims to promote inclusion, diversity, equality, digital transformation, and the Sustainable Development Goals (SDGs) through an innovative gamified structure. The project's primary task is to empower high school and university students with practical knowledge and skills to ensure access to affordable, reliable, sustainable, and modern energy. Central to this initiative is the construction of a prototype energy-independent solar house, which serves as a tangible example of renewable energy application. The solar house project exemplifies the core principles of service-learning by involving students in hands-on activities that directly benefit the community while reinforcing their academic learning. Workshops on energy efficiency, conservation techniques, and renewable technologies are conducted, providing students with practical insights into sustainable energy practices. These activities are designed to be reflective and integrative, allowing students to connect theoretical concepts with real-world applications. Community engagement is another critical component of the GIRLS project. UTCB organizes awareness campaigns and public showcase events to educate the broader community about the benefits of sustainable energy. These events create a platform for students to share their knowledge and experiences, thereby fostering a sense of civic responsibility and community involvement. Additionally, the project emphasizes the professional development of educators by introducing them to active learning methodologies, such as research-based learning (RBL), game-based learning (GBL), competency-based learning (CBL), and service-learning (SL). Training sessions equip teachers with the skills to implement these methodologies, making learning more interactive and impactful. The inclusion of Vasco de Quiroga University of Morelia in Mexico adds a unique cross-cultural dimension to the project. This partnership brings valuable insights from their extensive experience in community service and social innovation, enriching the service-learning experience for UTCB students and faculty. In conclusion, this paper highlights the significant impact of service-learning in higher education, particularly in the context of sustainable energy access. By integrating academic learning with community service, the GIRLS project not only enhances students' educational experiences but also contributes to sustainable development and social cohesion. This approach prepares students to become proactive, responsible citizens capable of driving positive change in their communities and beyond.

*Corresponding Author's E-mail: ion.mierlusmazilu@utcb.ro

Keywords Service-learning · Sustainable energy access · Sustainable Development Goals (SDGs) · Active learning methodologies

References

- [1] Furco, A., Service-learning: A balanced approach to experiential education. In: *Expanding Boundaries: Serving and Learning*, Washington, DC: Corporation for National Service, 1996.
- [2] Butin, D. W., *Service-Learning in Theory and Practice: The Future of Community Engagement in Higher Education*, Palgrave Macmillan, 2010.
- [3] Jacoby, B., *Service-Learning Essentials: Questions, Answers, and Lessons Learned*, Jossey-Bass, 2015.
- [4] Eyler, J., & Giles, D. E., *Where's the Learning in Service-Learning?*, Jossey-Bass, 1999.
- [5] Kolb, D. A., *Experiential Learning: Experience as the Source of Learning and Development*, Prentice-Hall, 1984.
- [6] Carver, R. L., Theory for practice: A framework for thinking about experiential education, *Journal of Experiential Education*, 19: 8-13, 1996.
- [7] Bringle, R. G., & Hatcher, J. A., Implementing Service Learning in Higher Education, *Journal of Higher Education*, 67(2): 221-239, 1996.
- [8] Prentice, M., & Robinson, G., *Improving Student Learning Outcomes with Service Learning*, AACC, 2010.
- [9] UNESCO, *Education for Sustainable Development Goals: Learning Objectives*, Paris: UNESCO, 2017.
- [10] World Commission on Environment and Development, *Our Common Future*, Oxford University Press, 1987.
- [11] Astin, A. W., Vogelgesang, L. J., Ikeda, E. K., & Yee, J. A., *How Service Learning Affects Students*, Higher Education Research Institute, University of California, Los Angeles, 2000.
- [12] Gelmon, S. B., Holland, B. A., Driscoll, A., Spring, A., & Kerrigan, S., *Assessing Service-Learning and Civic Engagement: Principles and Techniques*, Campus Compact, 2001.
- [13] Kuh, G. D., *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*, AAC&U, 2008.
- [14] Moore, T. L., & Mendez, M., The Promise of Service-Learning for Sustainable Development: Evidence from the Literature, *International Journal of Sustainability in Higher Education*, 15(2): 182-195, 2014.
- [15] <https://girlsproject.eu/>.