Leveraging Community-Based Service Learning Experiences into Academic Credit in Engineering Curricula

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ABSTRACT

Service learning (SL) has been formally defined as engagement of students in course-based, credit-bearing educational experiences where students participate in a service activity and are provided a framework within which to engage in guided reflection. In this paper, a pedagogical model is suggested to leverage volunteer service activities and projects into service learning requiring rigorous academic engagement with defined deliverables worthy of engineering academic credit. This requires students on the service project teams to register for an independent study course in the semester following the service activity. Students work with the faculty adviser and develop and execute independent projects configured to enhance the experiential learning acquired during the service. Two independent study projects are reported on, developed following an Engineers Without Borders-USA (Howard University Chapter – EWB-HU) site and project assessment visit to rural Kenya. All independent study projects were executed under close guidance and supervision of the faculty adviser who was the mentor on the assessment site visit to Kenya. These provide the necessary context for students to seriously reflect on and study their service activity and its impacts, leveraging the service activity into a true service learning experience.

Keywords: Community-Based, Engineering Education, Engineers Without Borders, Service Learning, Volunteer Service Activities

INTRODUCTION

Service Learning, or SL, has been formally defined as academic and/or curricular activities that are course based and credit-bearing, and have two major components – (1) engagement of students in a (usually) self-selected, planned and driven, but professionally supervised and advised, service activity, and (2) an opportunity and requirement to engage in reflection and writing on the service activity (Bringle et al., 2004). The value of service learning has been anecdotally championed and trumpeted across diverse stakeholder groups, including students, faculty, community partners, the University, society in general and employers. Over two decades of research demonstrate that high quality service-learning experiences enhance student
learning outcomes and engage students more deeply in the educational experiences, providing for independent thinking, self-development of resources and general enhancement of educational outcomes (Eyler & Giles, 1999, 2001).

Needless to say, service learning is not a new approach to education but has roots in the cooperative education movement that was founded at the University of Cincinnati in 1903, as documented by the National Service Learning Clearinghouse (2011). Over the succeeding decades, various developments in the field of service learning occurred, including the establishment of the intellectual foundations of service learning with William James and John Dewey, with James going as far as to call for a mandatory national service scheme for all citizens (James, 1906). Various presidents through the years have developed some version of a service scheme, including the Roosevelt’s Civilian Conservation Corp (1933 – 1942), Kennedy’s Peace Corps (1961) and Johnson’s VISTA (Volunteers in Service to America) program in 1964. The 1970’s saw the creation of various Youth Corps service programs and Sigmon (1979) published the three principles of service learning that have since guided SL’s pedagogical development. First, those that are being served should be the ones that should control the services being provided. This is important – it is never alright for those providing the services to tell those they are serving what they will need. Second, those being served become better able to serve and be served by their own actions. So service learning cannot happen in a vacuum – part of the services being provided must include education, training, capacity building and technology transfer. More simply, if you give a hungry man a fish, he will eat for a day, but if you teach him to fish, he will be able to eat for life. Finally, those who serve are also learners and have significant control over what is expected to be learned.

The major federal and private service groups and organizations were convened to look at the various models for service learning and to develop from these what could be taken for the best practices for service learning. The result was the Wingspread Principles of Good Practices in Service Learning (1989) which are outlined in brief in Table 1.

| 1 | An effective program engages people in responsible and challenging actions for the common good |
| 2 | An effective program provides structured opportunities for people to reflect critically on their service experience |
| 3 | An effective program articulates clear service and learning goals for everyone |
| 4 | An effective program allows for those with needs to define those needs |
| 5 | An effective program clarifies the responsibilities of each person and organization involved |
| 6 | An effective program matches service providers and service needs through a process that recognizes changing circumstances |
| 7 | An effective program expects genuine, active, and sustained organizational commitment |
| 8 | An effective program includes training, supervision, monitoring, support, recognition, and evaluation to meet service and learning goals |
| 9 | An effective program insures that the time commitment for service and learning is flexible, appropriate, and in the best interests of all involved |
| 10 | An effective program is committed to program participation by and with diverse populations |

Virtually all definitions of service-learning refer to an organized educational experience that both meets needs of the community and fulfills learning objectives of the educational program. More formalized definitions of service-learning provide a structure for both the educational and social aspects of the service-learning experience.

Table 1. Wingspread principles of good practices in service learning (adapted from Honnet & Poulson, 1979)
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