

December 2005

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Recommended Citation

Johnson, Roy and Johnson, Ping, "Service Learning in IS: Teaming with Community and Industry" (2005). *PACIS 2005 Proceedings*. 98.
<http://aisel.aisnet.org/pacis2005/98>

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Service Learning in IS: Teaming with Community and Industry

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Abstract

Service learning is a valuable instructional methodology that is little used in information systems (IS) education. The purpose of service learning is to promote real-world relevance through the application of classroom knowledge to problems in the business community. Students develop leadership and teamwork skills while enhancing their civic engagement. Service learning is self-perpetuating by increasing the service activity's impact on the business community; the service activity increases the impact of classroom lessons on the student. This paper presents the historical background of service learning in the United States, the benefits of service learning in promoting student learning and meeting the local business community's needs, steps for organizing service learning activities in (IS) education, and an example of a successful service learning project in IS.

Keywords: Service learning, IS education, Community, Industry

1. Introduction

Service learning, an important component of community-based learning, is an experiential instructional method that has been in existence for as long as education. Service learning combines traditional classroom instruction with community service to enhance student learning and civic participation (Northon 2003). Instructors utilize this method to reinforce their course objectives through meaningful and thoughtfully organized community service. The engagement in service learning builds and reinforces students' curriculum-based academic knowledge while meeting community needs, encouraging civic engagement, and promoting public good. While some instructors design the service activities to be performed based on the course goals and objectives, other instructors solicit projects from local nonprofit or for-profit organizations. Instructors select projects that are appropriate for the class, are challenging yet scaled for completion within one semester, have a high probability of success, and have a significant value for the organization (Alexander 2001).

This paper presents the historical background of service learning in the United States, the benefits of service learning in promoting student learning and meeting the local business community's needs, steps for organizing service learning activities in information systems (IS) education, and an example of a successful service learning project in IS.

2. Historical Background

Although the Corporation for National Service defines service learning as an innovative method of teaching and learning (Peacock, Bradley, and Shenk 2001), service learning is not new. Having students engaged in meeting the needs of the community and connecting these experiences to the classroom is an approach as old as education itself. For example, apprenticeship programs have long been designed to link learning new skills such as blacksmithing and wine making with providing community needs such as horseshoes and

wine. The elements of service learning can also be found in John Dewey's educational beliefs (1897) and in his experiential education practices (1938). In the 1970s, service learning appeared as experience-based career education (McClure 1979; Bucknam and Brand 1983). Kolb's work (1984) carried it forward into the 1980s. The term "service learning" was first used specifically in 1969, developed into a vital educational movement in the mid-1980s (Stanton, Giles, and Cruz 1999), and blossomed afterwards. For example, between 1984 and 1997, the proportion of U.S. schools offering curriculum-linked service learning grew from about 9% to 56% (Anonymous 2000) while about half of all community colleges offered service learning and another 40% wanted to start programs (Loschert 2001). The modern concept of service learning is also intended to develop a student sense of civic responsibility that many believe has diminished over the past several decades (Bellah, Madsen, Sullivan, Swidler, and Tipton 1985; Gray, Ondaatje, Fricker, and Geschwind 2000; Gray, Ondaatje, and Zakaras 1999; Waterman 1997).

The application of service learning to information systems (IS) education occurred in the late 1990s and is not as widespread as it is in other disciplines. An extensive review of literature only identified a limited number of articles that reported the application of service learning in IS education (Alexander 2001; Anonymous 2002; Northon 2003; Small, Venkatesh, and Marsden 1998; Warschauer and Cook 1999). This paper will introduce another successful service learning project implemented in IS education.

3. Theoretical Framework for Service Learning

Kolb's experiential learning cycle (Kolb 1981; 1984) provided a powerful theoretical and practical framework for service learning. The model draws on the interdisciplinary influences of educational philosophy by John Dewey, developmental psychology by Jean Piaget, and social psychology by Kurt Lewin. According to Kolb's model (Kolb 1981; 1984), the most effective learning requires concrete experience, reflective observation, abstract conceptualization, and active experimentation. These four learning stages are formulated into a learning cycle. The cyclical nature of Kolb's model facilitates the integration of the direct learning experience and the abstract generalization, with reflection as the linking function (McEwen 1996). Learning is most effective when the student goes through all stages in the cycle, regardless of where he or she starts.

McEwen (1996) and Petkus (2000) believe that service learning should and can be involved in all stages of Kolb's model. The concrete experience stage takes place when the student engages in community service. Reflective observation occurs when the student reflects informally on his or her own, or participates in formal reflection with the instructor and other students who are engaged in the service learning. The reflection helps the student incorporate the concrete experience into course-relevant theories and concepts during the abstract conceptualization stage. Finally, during the active experimentation phase, the student actively and deliberately applies the theories and concepts in further service experiences (Petkus 2000).

4. Benefits of Service Learning

Research has proved that the benefits of service learning far exceed those of service or learning by themselves (Mass-Weigert 1998; Jacoby 1996; Kinsley 1994; Berson 1994). Service learning strengthens classroom education, enhances community life and business productivity (Swick 2001), and provides personal benefits (Alexandrowicz 2001; Elwell

2001). By engaging in service learning activities, students apply classroom knowledge in real-world situations and use real-world experiences to inform classroom knowledge. Such an exchange encourages students to become lifelong, active participants in the community (Berson 1994). Service learning provides a powerful tool to accomplish course objectives (Alexandrowicz 2001) by involving students in a wide range of activities that are of benefit to others and to use the experience generated for advancing curriculum goals, such as gaining a deeper understanding of the course content, a broader appreciation of the discipline, an enhanced sense of civic responsibility (Brown and Roodin 2001; Bringle and Hatcher 1996; Waterman 1997), and a sense of purpose, especially the belief that they can make a difference in the community (Swick 2001). In the process of service learning, students explore career opportunities, broaden their perspective, and gain skills in critical thinking (Emanoil 2000). Additionally, service learning has been used as a dropout intervention for at-risk students (Martin, Tobin, and Sugai 2002).

Through service learning, students participate in an organized service activity that meets identified community needs (Eyler and Chiles 1999; Zlotkowski 1998). In service learning, those being served in the community teach lessons to the students who are serving them (Santon, Giles, and Cruz 1999). It is through this reciprocal process that students gain a greater sense of belonging and responsibility as members of a larger community (Jacoby 1996). Service learning can also solve the problem of educational alienation (Elwell 2001) at all five levels: (1) community, lack of connection between what the students are learning and the challenges encountered by the broader community, (2) disciplines, lack of connection between the different disciplines from which the students are learning, (3) other learners, lack of connection between students communicating with their classmates, (4) self, the lack of connection between students' passions and interests and what the university wants students to learn, and (5) generativity, the lack of connection between students' selfish learning motives and a more comprehensive vision which benefits the overall community (Wallace 2000).

In IS education, service learning helps students apply what they learn in the classroom to help solve real-world business problems and meet the needs of community organizations and local businesses (Alexander 2001). This includes integrating geographic information systems (GIS) into secondary education (Northon 2003), building accounting information systems (AIS) for nonprofit organizations (Alexander 2001), bridging the gap between the technologically disadvantaged community-based organizations and technologically rich academic institutions (digital divide), providing "real world" experiences to students (Chronicle of Higher Education 2002), and offering technologically-related services to the nonprofit community (Small et al. 1998, Warschauer and Cook 1999).

Additional benefits to a local business organization in the IS field include a better understanding of its systems, needs, and opportunities, increased technical knowledge and awareness among its staff, a source of potential staff because the students may want to intern with the organization and may be inspired to work in the organization, insight of the information system even if the organization does not use the new system, and interaction between the organization and the university which may lead to other partnerships (Alexander 2001).

5. Steps of Organizing Service Learning Activities

Each university, department, and instructor operates service projects somewhat differently. It is generally recommended that one start small and refine the service learning programs before

expanding them (Loschert 2001). In IS related education, the organization of service learning projects falls into two broad categories, instructor initiated projects and student initiated projects.

5.1 Instructor Initiated Projects

If the instructor solicits service projects from the local business community, the following steps are recommended (Alexander 2001):

- (1) The instructor contacts local businesses that may offer opportunities for conducting service learning projects and requests that the businesses provide an identified service need.
- (2) The instructor identifies projects that are appropriate for the course, challenging yet doable in the semester timeframe, likely to be successful, and of significant value for the business organization after receiving the solicited service projects from the local business community.
- (3) The instructor creates a database of local business organizations that have projects suitable for the course.
- (4) The instructor gives the list of projects to student teams (each consisting of three to five students).
- (5) The instructor assigns projects based on students' preference and instructor's assessment of their skills as required by the project.
- (6) Students meet with their client and write a service learning proposal outlining the needs of the organization and their solution.
- (7) The instructor reviews and revises students' proposals.
- (8) Students start their work following an acceptable proposal.
- (9) The instructor meets with student teams regularly to review their work and provide technical assistance.
- (10) The instructor reviews all completed projects and suggests changes if needed.
- (11) Students make modifications to their projects and deliver the projects to the business organizations.
- (12) The instructor is available for questions or minor modifications after the semester ends.

The first three steps may take up to one year to accomplish. Therefore, it is important that the instructor plan ahead and start small.

5.2 Student Initiated Projects

This approach is suitable for campuses that have primarily non-traditional students that are currently employed part or full time. The following steps have been employed by the authors (see example in the next section):

- (1) The instructor designs a service learning project outline based on the goals and objectives of the course.
- (2) Based on the project outline, teams of three to five students identify a business need in an organization in which at least one of the team members is employed.
- (3) Students meet with their client and write a service learning proposal outlining the needs of the organization and their solution.
- (4) The instructor reviews and revises the students' proposals.
- (5) Students start their work following an acceptable proposal.
- (6) The instructor meets with student teams regularly to review their work and provide technical assistance.
- (7) The instructor reviews all completed projects and suggests changes if needed.

- (8) Students make modifications to their projects and deliver the projects to the business organizations.
- (9) The instructor is available for questions or minor modifications after the semester ends.

This approach requires planning, but takes less time to initiate the projects because students take the responsibility for identifying service learning projects within their business organizations. Students also take ownership of the process, which becomes a motivating force and a source of pride when completed.

6. An Example of a Successful Service Learning Project

An example of the successful utilization of service learning in teaching an IS course in the United States is described here to demonstrate the structure and benefits of service learning in IS education. In this example, students were enrolled in a system analysis course that was conducted in a regional university of the southeastern United States. The students were assigned a service learning project to apply and practice the knowledge and skills learned from the system analysis course. Students in small groups (4-5 students per group) were asked to identify a local business in which one of the team members was employed. This allowed the students immediate access to the decision makers and provided a supportive environment in which to practice their systems analysis skills.

Each team was responsible for identifying a specific need or core problem as well as providing a set of solutions to the employer. Students were asked to analyze the business system by following the guidelines provided by the instructor. Students were required to submit a service learning proposal for the instructor's approval prior to performing their analysis. The systems analyzed included inventory control, accounts payable, human resources, and scheduling. The businesses that received the analyses included travel agencies, supermarkets, pet stores, police departments, and real estate agencies.

Detailed guidelines and constant feedback were provided for students to complete the service learning project. Results of the analysis and three solutions were presented to the decision makers in the organization. Upon completion of the service learning project, students were required to write a reflection paper that 1) summarized their learning experience in conducting a real-world business analysis, 2) described their feelings of having provided services to the community, and 3) evaluated the relevance of the service activities to the objectives of the course by addressing the questions, "In what ways did the project contribute to your knowledge?" and "What could have been done to make this a more meaningful project for you?"

The contact person in each organization that received systems analyses from students completed a Service-Learning Agency Evaluation Form that provided feedback on students' performance, the satisfaction level of the business, and the service learning's contribution to the organization. The positive responses from the students and the businesses they served indicated that service learning activities provided by students not only were effective, they offered students greater flexibility in determining the types of business and systems to be analyzed.

The true value of the experience is best represented by the fact that five of the six teams were employed to design and implement the system in the following semester. The instructor did not participate in the extra curricular activities, but found this endorsement by the business

community to be validation of both the skills that were built by the students and the needs of the business community.

7. Discussion and Conclusions

The experience from this course demonstrated that service learning is a valuable instructional methodology in IS education. Service learning 1) promotes a higher level of understanding of the real-world relevance of what students are learning in college through hands-on community service, 2) motivates students to learn more, and 3) enhances students' retention of knowledge received in class through service learning activities. Students commented in their reflection papers that the service learning experience has provided them the opportunity to better develop leadership and teamwork skills along with enhancing their sense of civic responsibility. The experience of utilizing service learning in teaching a system analysis course confirmed that through service learning, the power of one instructor can be multiplied by the hundreds of students that all work toward a common goal. Service learning is therefore a viable and valuable instructional methodology in IS education which increases the service activity's impact on the community, while the service activity increases the impact of class lessons on the student.

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