

# ACADEMIC SERVICE-LEARNING AS AN INFORMATION SYSTEMS CURRICULUM ASSET

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## ABSTRACT

*The effective preparation of students for active, ethical civic participation in the workplace and in a diverse democratic society continues to be an essential element in the basic mission of most higher education institutions in the United States. Information Systems Departments are often well-positioned to take leadership roles in supporting this institutional goal by bringing academic service-learning (ASL) to their Colleges. Integrating information systems technical education with community-based service-learning opportunities provide IS faculty with a range of academic rationales for viewing ASL as directly relevant to their coursework. This paper provides an approach to developing and implementing academic service-learning as a valuable IS Curriculum asset.*

**Keywords:** curriculum design, academic service-learning, ethical behavior, civic education, peopleware, program development

## INTRODUCTION

Information Systems Faculty at many universities find themselves under increasing pressure to provide educational experiences that advance high ethical standards and well-developed civic sensibilities in their students. These challenges are primarily peopleware issues. Meanwhile, software engineering field studies indicate that competent management of peopleware tends to yield the highest returns for software quality and software productivity of any category of IT-related issues (4, 9). From an IS Curriculum design perspective, there's a synergy that exists between learning objectives that emphasize professional ethics and those that emphasize quality and productivity people-related dimensions of software engineering.

However, it's not enough to simply expose Information Systems (IS) majors to, say, the ACM Code of Ethics and hope for the best. Some form of experiential learning (with validating assessments) is often needed to help ensure that IS graduates can assume their proper roles and responsibilities as ethically contributing members to organizations as well as in Society-At-Large. Because Information Systems Departments are often located in a College of Business Administration (CBA) the IS Faculty share these same ethical-behavioral educational responsibilities with faculty in the other CBA departments. While not addressed in this paper, a shared educational need among CBA departments in this area of ethics learning objectives presents fresh possibilities for interdisciplinary and co-curricular ASL collaborations.

Service-learning has emerged, more recently, as an effective educational response to a growing and perceived societal need for graduates that demonstrate improved ethical behaviors (12). In the IS field the need for ethical citizen-employees extends to how information systems are developed as well as how information technologies are being applied. Service-learning, in its current manifestation, has a variety of forms of expression (5). Academic service-learning is one

of the forms and many Information Systems faculty know very little about it. For example, is service-learning “a movement of socially and morally concerned activists operating from an academic base or a movement of socially, morally, and pedagogically concerned academicians?” (12). Is community-based service-learning a form of vocationalism that simply emphasizes work in the community? This latter query may cause one to recall aspects of the sometimes divisive IS *education* versus IS *training* curriculum debates.

This paper is organized in three sections in order to present an approach to developing and implementing ASL in the IS Curriculum. In the first section key concepts relevant to academic service-learning coursework development are presented. General service-learning principles, myths about academic service-learning, and ASL coursework design criteria are described. The idea here is to provide a kind of summarized context of academic service-learning pedagogy. In the second section, general academic learning goals are discussed that have been found to support service-learning as an approach that enhances academic learning in a course. Here, the intention is to provide IS faculty with a more refined set of course design ‘filters’ that make it easier to ‘see’ opportunities in their own courses where ASL can be of help. In the third section, a number of information systems coursework interfaces are identified that can positively support reciprocal links to academic service-learning activities. Three kinds of IS courses described in the IS’2002 Model Curriculum are examined for their IS-ASL learning potential. A subset of IS coursework learning objectives are identified that fit well with the ASL academic learning enhancement criteria. IS Faculty can build upon these ASL-enhancing IS academic learning objectives by creating specific coursework scenarios that fit their particular teaching styles and departmental curriculum.

### **ACADEMIC SERVICE-LEARNING (ASL) COURSEWORK DEVELOPMENT**

The principles of engagement, reflection, reciprocity and public dissemination are important in guiding faculty in the design and implementation of service-learning activities (5). *Engagement* focuses on the extent to which service-learning satisfies some public need and whether the community is sufficiently consulted in the process (and that includes the negotiation of the campus-community boundaries). *Reflection* refers to the extent to which students are thoughtful about why their service is important and how ASL relates to the content of their IS academic coursework. From a pedagogical perspective, academic service-learning is *reciprocal*. ASL is a ‘full duplex’ teaching-learning experience. Broadband learning communications are a good way of describing the learning ‘transactions’ continuously exchanged between university students and their community clients during ASL activities. And, the *public dissemination* aspect of ASL can be satisfied in a variety of ways depending upon the particular set of IS coursework learning objectives. What’s important here is that opportunities must exist for presenting or returning the ‘work products’ to the community.

Often any struggle to advance academic service-learning in a curriculum can be traced to confusion and misunderstandings about this particular form of learning model. With this in mind, four myths about academic service-learning have been identified that are helpful to understand before proceeding to more detailed course planning activities (8). Myth #1 is the “*Myth of Terminology: Academic service-learning is the same as student community service and co-curricular service-learning.* It’s often the case that student community service doesn’t

involve a learning agenda. In contrast, both forms of service-learning – academic and co-curricular – make intentional efforts to engage students in planned and purposeful learning related to the service experiences. Co-curricular service-learning is concerned with raising students' consciousness and familiarity with issues related to various communities. Academic service-learning utilizes the service experience as a course 'text' for both academic learning and civic learning." Myth #2 is the "*Myth of Conceptualization: Academic service-learning is just a new name for internships*. Generally speaking, internships are not about civic learning. They develop and socialize students for a profession, and tend to be silent on student civic development. They also emphasize student benefits more than community benefits, while academic service-learning is equally attentive to both."

Myth #3 is the "*Myth of Synonymy: Experience, such as in the community, is synonymous with learning*. Experience and learning are not the same. While experience is a necessary condition of learning, it is not sufficient... so one cannot assume that student involvement in the community automatically yields learning. Harvesting academic and/or civic learning from a community service experience requires purposeful and intentional efforts. This harvesting process is often referred to as 'reflection' in the service-learning literature." Myth #4 is the "*Myth of Marginality: Academic service-learning is the addition of community service-learning to a traditional course*. Grafting a community service requirement (or option) onto an otherwise unchanged academic course does not constitute academic service-learning. To realize service-learning's full potential as a pedagogy, community experiences must be considered in the context of, and integrated with, the other planned learning strategies and resources in the course."

To qualify as an academic service-learning course the following three *criteria* must be satisfied (5):

- relevant and meaningful service with the community must be demonstrated, and,
- the service activity must enhance student academic learning related to the course content, and,
- the service-learning activity must 'directly and intentionally prepare students for active civic participation in a diverse democratic society'

If all three criteria are not satisfied then the course is, perhaps, some other form of community-based service activity. In this way, *academic service-learning* is the most criteria-intensive form of community-based service-learning.

The academic service-learning principles, myths and criteria converge to provide ASL faculty with a number of good practices for service-learning pedagogy (5). For example, it's important to remember that academic credit is made available for the learning that has happened and not simply for the services provided. It's also true that very explicit learning objectives must be established for ASL courses. The very nature of learning-in-community extends the variety of learning possibilities and speaks to the need to try and multiply the learning benefits. Student preparation for academic service-learning will ensure enhanced ASL outcomes. Four areas of competency that have been identified as supportive of academic service-learning include reflective listening, seeking feedback, acuity in observation, and mindfulness in thinking (10). Faculty can select from a wide array of education resources for matching particular preparation exercises that emphasize these competencies for their IS-ASL coursework designs.

## COURSE GOALS WHERE ASL CAN ENHANCE INFORMATION SYSTEMS ACADEMIC LEARNING

In this section, general academic learning goals are discussed that support ASL as an approach that enhances academic learning in an IS course. Here, the intention is to provide IS faculty with a more refined set of ASL-oriented design ‘filters’ that make it easier to ‘see’ opportunities in their own courses where ASL can be of help. In the section that follows this discussion, these ASL filters are applied to three IS’2002 Model Curriculum Courses and IS course-specific learning objectives are identified as likely interfaces that can positively support reciprocal links to academic service-learning activities.

The six categories of academic learning goals amenable to ASL activities include: course-specific academic learning, generic academic learning, learning how to learn, community learning, inter- and intra-personal learning, and civic learning (8). *Course-specific academic learning goals* include learning objectives such as the knowledge, skills, attitudes and behaviors particular to a course. For ASL adaptations list a course’s original set of goals and then revise them to fit the academic service-learning criteria. *Generic academic learning goals* correspond to learning objectives that include knowledge and skills that are acquired in and are instrumental for all college courses. Examples of these might be critical thinking and problem solving skills.

*Learning how to learn goals* build learning capacities. Some of the associated kinds of learning objectives include: learning to become an active learner, to be an independent learner, to know how to extract meaning from experience, to be able to apply knowledge in the real world, to know how to integrate theory and experience, as well as learning across disciplines. *Community learning goals* represent learning objectives that can only be learned in the community. Learning about a particular community or population in the community, learning about a particular social issue or an agency or grass-root effort, learning where social services are provided are all examples of community learning objectives. *Intra- and Inter-Personal Learning goals* are important for the development of the whole person. IS faculty would need to choose here among a variety of learning objectives such as: learning to work collaboratively with others, learning about other groups and cultures, exploring personal values, ethics, and ideologies, learning about self, strengthening personal skills, developing a sense of appreciation, awe and wonder. *Civic learning goals* are intended to address the knowledge, skills and values that directly contribute to the preparation of students for active civic participation. The related learning objectives go beyond simply voting and obeying the law to realizing concrete contributions to one’s local community and Society-At-Large (8).

While course design can often take an iterative path the ‘waterfall’ sequence of design ‘phases’ consists of identifying and aligning learning goals, learning objectives, learning strategies and learning assessment methods (6). Learning assessments, for example, provide valuable feedback to the IS faculty member about the effectiveness of the goals, objectives and strategies. In the next section the ASL-oriented learning goal ‘filters’ are used to locate viable interface points with IS academic learning objectives.

## IDENTIFYING IS CURRICULUM INTERFACES FOR ASL ACTIVITIES

The IS'2002 Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems has been very helpful in this part of the research (1). The work of IS'2002 (coordinated by the Association for Computing Machinery/ACM, the Association for Information Systems/AIS, and the Association of Information Technology Professionals/AITP) represents the baseline set of IS Model Curriculum learning objectives that can be analyzed for high affinity ASL activity links.

The ASL-oriented goal 'filters' were used to scan specific information systems course models to identify those learning objectives that would likely support reciprocal links to a wide range of academic service-learning client projects. Three IS courses developed in the IS'2002 Model Curriculum were investigated for their IS-ASL peopleware interface potential. The three IS Courses reviewed here are Analysis and Logical Design, Project Management and Practice, and IS Foundations (1). For each course selected from the IS'2002 model portions of the catalog, scope, topics, and discussion sections are provided and highlighted with *italicized* text indicating areas of learning objectives with strong IS-ASL peopleware and ethical-behavioral learning potential.

### IS'2001 Analysis and Logical Design Course

CATALOG: Students with information technology skills will learn to analyze and design information systems.

SCOPE: This course examines the system development and modification process. *It emphasizes the factors for effective communication and integration with users and user systems. It encourages interpersonal skill development with clients, users, team members, and others associated with development, operation, and maintenance of the system...*

TOPICS: ... *requirements determination... implementation planning, interpersonal skills, interviewing, presentation skills, group dynamics; risk and feasibility analysis, group-based approaches... structured walkthroughs...RAD, prototyping; database design; software package evaluation, acquisition, and integration, global and inter-organizational issues and system integration, professional code of ethics.*

DISCUSSION: Students with the basic skills of information technology will learn to gather information in order to identify problems to be solved. ...*Team concepts including personal and interpersonal skills will be discussed and monitored. Empowerment concepts will be used and measured. Scheduling and completing individual and group actions will be used to ensure project milestone completion.*

### IS'2002 Project Management and Practice Course

CATALOG: Advanced IS majors operating as a high-performance team will engage in and complete the design and implementation of a significant information system....

SCOPE: This course covers the *factors necessary for successful management of information systems development or enhancement projects*. Both technical and *behavioral aspects* of project management are applied within the context of an information systems development project.

TOPICS: *Managing the system life cycle, requirements determination... project tracking... managing expectations of managers, clients, team members, and others; determining skill requirements and staffing... management of behavioral and technical aspects of the project, change management... Team collaboration techniques and tools.*

DISCUSSION: This is the capstone course for IS majors who have completed the systems analysis and design sequences....The project is a *team effort and allows a final opportunity to practice personal and interdependence skills to ensure team member empowerment and success.* Project management tools will be employed by the team to ensure *tracking of the project and communication of project goals and accomplishments to the client... Each team member should play a significant role in some aspect of presentation.*

### **IS'2001 IS Foundations Course**

CATALOG: *Systems theory, quality, decision making, and the organizational role of information systems are introduced... Concepts of organizations, information systems growth, and process improvement are introduced.*

SCOPE: This course provides an introduction to systems and development concepts, information technology, and application software. It explains *how information is used in organizations ...*

TOPICS: *Systems concepts; system components and relationships; cost/value and quality of information... re-engineering of information systems... characteristics of IS professionals and IS career paths, information security, crime, and ethics....*

DISCUSSION: *Students with practical end-user knowledge will study systems theory and quality concepts as a introduction to information technology concepts and information systems development. ...Standard systems purpose and organization will be introduced. The concept that information is of significance in stating and attaining organizational goals will be used as the basis for exploring the development of databases to store information. Information systems will be introduced to process and communicate the information. ... The development path for entry level to senior information systems professionals will be explained. Professional ethical expectations and obligations will be reviewed. The necessity for personal and interpersonal communications skills will be discussed.*

## **CONCLUSIONS**

It's also important to remember that academic rigor is not compromised in academic service-learning courses. The unstructured nature of service work with community 'clients' often places greater academic demands on students than that found in traditional format courses. ASL challenges students academically because they must satisfy rigorous academic and civic learning standards.

IS Faculty interested in pursuing ASL opportunities can, perhaps, best begin with a thoughtful review of the growing service-learning literature. While some of the key ASL concepts were summarized above it's useful to review and consider the more nuanced differences between, say, co-curricular activities, internships and academic service-learning in the context of one's own curriculum. This research found it fruitful to then apply the ASL-oriented goal 'filters' when scanning IS course-specific learning objectives for likely compatibility with ASL criteria.

Having located one or more courses with IS academic learning objectives that appear promising, further coursework design efforts then move into the area of scripting design strategies that include ASL components. Thankfully, software engineering is a field with much opportunity and synergy whenever curriculum design needs exist for a convergence of peopleware competencies and ethical values and practices in the same Information Systems course.

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