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LEAPING FORWARD: A CASE STUDY EMPLOYING HIGH IMPACT PRACTICES IN UNDERGRADUATE EDUCATION

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ABSTRACT

In support of a major curriculum association initiative adopted by a large Midwestern business college, faculty adopted a hands-on community service-based project in an undergraduate business project management course. The project was developed in order to incorporate the specific High-Impact Educational Practice (HIP) of service or community-based learning, as defined by the Liberal Education and America's Promise (LEAP) initiative. This research describes (1) how the project management faculty revised the course to incorporate service and community-based learning, (2) related student activities, (3) preliminary results, and (4) next steps.

Keywords

High impact practices, project management education, IT enrollments, service learning

INTRODUCTION

The information technology (IT) discipline is facing important challenges which require educators to be both flexible and responsive. New technological advances in a global economy require educators to consistently retool their skills and course models. Educators must also stay cognizant of industry and employer needs to ensure that students have the skills necessary to contribute in the workforce upon graduation. Finally, educators must prepare curriculum suitable for digital natives, or individuals that only know of a world where the use of information and communications technology is pervasive and ubiquitous (Vodanovich, Sundaram, & Myers, 2010).

Significant enrollment declines in IT related fields have been a strong driver for change in the IT discipline. The bursting of the enrollment bubble, which was created in the 1990's by the popularity of Enterprise Resource Planning (ERP) software, the Year 2000 (Y2K) problem, and the rise of electronic commerce over the Internet, has perpetuated several myths that persist today despite substantial contradicting evidence (Dick, Granger, Jacobson, & van Slyke, 2007; Firth, Lawrence, & Looney, 2008; Panko, 2008; Pollacia, Lomerson, & Russell, 2008). These declines in enrollment, some quite considerable (George, Valacich, & Valor, 2005; Dick et al., 2007; Granger, Dick, Luftman, van Slyke, & Watson, 2007; Street, Wade, Bjørn-Andersen, Ives, Venable, & Zack, 2008; Ciganek, 2009), have forced the IT field to focus on recruiting students to this major for the first time in decades (George et al., 2005). One potential strategy for addressing enrollment issues is to implement curriculum changes, such as making the IT degree more relevant (Becker, Hassan, & Naumann, 2006; Dick et al., 2007) and attracting non-IT majors through flexible degree options (Becker et al., 2006; Dick et al., 2007; Pollacia et al., 2008).

Accreditation bodies and other leading associations prescribe processes and curriculum for academic programs to follow and deliver quality education, and to address challenges such as those described above. These organizations have also extended their influence to ensure that programs maintain relevance despite the challenges of a dynamic educational setting. These challenges are neither new nor unique to the IT discipline, but the longevity of decreasing enrollments in IT degrees is alarming, and makes it particularly important for educators to adopt quality educational practices that will both attract and retain students.

This research examines the case of a single IT project management (ITPM) course adopted at a business college in the Midwestern United States. The ITPM course has progressed over time in response to external stakeholders and has recently employed an educational practice following the guidance of a leading curriculum association. The objective of this research is to examine the impact of utilizing the educational practices from the leading curriculum association within project management education.

LITERATURE REVIEW AND BACKGROUND

Curriculum Association Initiative

The Association of American Colleges and Universities (AAC&U) is a national association focused on enhancing undergraduate liberal education. The AAC&U targets enhancement around five broad goals: A Guiding Vision for Liberal Education, Inclusive Excellence, Intentional and Integrative Learning, Civic, Diversity, and Global Engagement, Authentic Evidence (AAC&U). A key AAC&U program that began in 2005 towards enhancing undergraduate liberal education was the Liberal Education and America's Promise (LEAP) initiative.

The LEAP initiative strives towards making excellence inclusive by challenging the historical practice of providing liberal education to some students and narrow training to others (AAC&U). A key tenant of the LEAP initiative is to improve the relevance of a liberal education degree through High-Impact Educational Practices (HIPs). HIPs are guidelines to reinvigorate teaching, learning, and educational experiences to help all students achieve the essential learning outcomes necessary in college learning in the 21st century. Courses incorporating HIPs have shown relationships between Selected High-Impact Activities, Deep Learning, and Self-Reported Gains as well as relationships between Selected High-Impact Activities and Clusters of Effective Educational Practices (Kuh, 2008).

Service Learning, Community Based Learning

Service Learning, Community-Based Learning (hereafter referred to as "service learning") is one of the HIPs included in the LEAP initiative. Service learning, as defined by LEAP, emphasizes the use of field-based "experiential learning" with community partners as an instructional strategy. The idea is to give students direct experience with issues they are studying in the curriculum and with ongoing efforts to analyze and solve problems in the community. A key element in service learning programs is the opportunity students have to both apply what they are learning in real-world settings and reflect in a classroom setting on their service experiences. These programs model the idea that giving something back to the community is an important college outcome, and that working with community partners is good preparation for citizenship, work, and life.

Incorporating a service learning approach in the classroom includes several factors that can positively affect student outcomes (Astin, Higher Education Research, & University of California, 2000; Eyler, Corporation for National, Learn, & Serve, 2001). Through service learning projects, students learn to apply what they've learned in class to real world scenarios. Ample opportunity for in class discussion encourages students to share their experiences with each other, and to link those experiences with the associated course material. Further, connecting service experiences with academic course material enhances students' cognitive thinking skills. When all or most of these factors are incorporated into a course, students report positive outcomes such as feeling that their service made a difference to the community and that they learned more from the experience than they would from reading a textbook or completing in-class exercises.

CASE: MIDWESTERN BUSINESS COLLEGE

The Midwestern business college that is the focus of this study is located in the state designated as the first official partner state in the LEAP campaign (AAC&U). The Midwestern business college is AACSB-International accredited and a part of a medium-sized public university (11,615 students enrolled in classes in fall 2011). The Midwestern business college awards the largest number of bachelor's degrees in the university (35% of all degrees in 2009-2010). Despite an increase in the number of enrollments at the Midwestern University (9% growth over past 5 years), the overall number of IT majors declined (see Table 1). Multiple new courses were offered in the IT program (e.g., business intelligence, mobile application development, business analysis) in response to feedback from the IT advisory board.

The focus of this study is the development of a project management course and how it has progressed over time. First piloted in the spring of 2007 as a special studies course to 10 students, the project management course covered the basic elements of project management at a level appropriate for undergraduate business students. Subsequent curriculum changes were accompanied by a corresponding enrollment growth and an increase in the percentage of non-IT degree seeking students registered in the course (see Table 1). Since the course was growing in popularity for both IT and non-IT majors, the enrollment increases and the roll-out of the campus-wide LEAP initiative presented an opportunity to revise the course curriculum to add more hands-on training and development activities and to provide content that would be more beneficial for both IT and non-IT majors enrolled in the course.

Term	SP08	FA08	SP09	FA09	SP10	FA10	SP11	FA11	SP12
Enrollment	26	32	35	32	27	41	64*	60†	63*
Non-IT Majors %	27%	19%	23%	44%	52%	37%	67%	42%	62%

* Two ITPM sections offered with one section offered online in both spring 2011 and spring 2012
† Two ITPM sections offered in fall 2011

Table 1. ITPM Course Enrollment Data

The project management course historically had a pure IT project management focus. The course content consisted of project management fundamentals taken largely from the Project Management Body of Knowledge (PMBOK). The PMBOK, developed by the U.S.-headquartered Project Management Institute (PMI), is a collection of best practices for managing projects that could be applied across multiple industries (PMI). The course readings and assignments were taken from the textbook "Information Technology Project Management" by Kathy Schwalbe (2007). Although the Schwalbe text drew from the PMBOK, the overall application of those concepts in the course was solely focused on managing IT projects.

Similarly, the course had a group project component that was case study based around an IT project scenario. The group project often had a global focus that included collaborations with students at international universities. Group project deliverables consisted of documentation common in the initiation and planning stages of projects. Since the group project was based on case study scenarios, all student learning was theoretical in nature; students studied, but did not get real-world hands-on experience with each of the project management process groups: initiation, planning, execution, monitoring and controlling, and closing.

Motivation for service learning

In addition to the increased enrollment of non-IT majors, the Midwestern business college experienced two new developments in 2011 that together prompted the IT faculty to revisit the group project component of the course. First, the IT advisory board (consisting of student leaders, alumni, and corporate partners) requested that the IT faculty provide more opportunities for students to acquire hands-on experience with business processes and methodologies. Second, the College launched its official LEAP campaign, offering LEAP training to faculty throughout the College, and issuing a call for faculty to formerly adopt LEAP HIPs into the existing course curriculum.

With these three developments in mind, the IT project management faculty made several changes to the project management course, beginning with selecting a new course textbook, "An Introduction to Project Management" (Schwalbe, 2010). The new textbook would make the course content broader in perspective, which would appeal to the non-IT students who comprised a significant enrollment in the class (see Table 1). Additionally, the topics of the new textbook were organized so that they followed the typical order of a project, moving sequentially through the process areas of initiation, planning, execution, monitoring and control, and closing. The new textbook would also enable the faculty to incorporate a broad range of service projects into the course, since it's focus was not IT-specific and the content was presented at a higher level than the previous text.

The second change involved the group project. The faculty developed a new group project component that fit well with the service learning HIP. The project was conducted with a community partner selected by faculty prior to the start of the course. The community partner selected a strategic objective that the students' projects should support for their organization. Students were required to submit proposals for projects they wished to conduct, including justification for how the project supported the strategic objective selected by the community partner. Students learned the tools and techniques for managing projects in the classroom and applied this learning to conduct the project throughout the semester. The final outputs of the project were a formal presentation of project outcomes and a project notebook containing (1) the documentation produced during each project phase and (2) a team report reflecting on their project experience. The community partner also completed a project acceptance/completion form and provided feedback to the project team.

Service learning benefits

The service learning design of the project provided several benefits for students. In executing the project, students would receive real-world/hands-on experience spanning all project management process groups. Due to careful collaboration with the community partner, the projects selected for students to work on would also be "safe" projects, meaning they were not

mission-critical initiatives for the community partner. All projects would provide surplus funds or benefit to the community partner; this afforded an opportunity for students to potentially "fail" in executing their project without significant consequences (for the students, sponsor, or IT program), which is important for an entry-level or first time experience using project management tools and techniques. By executing the project, students would be eligible to receive credit for community service hours from the College, and potentially for project management experience (for students looking to eventually pursue project management certification). Finally, students would have the opportunity to work on projects that would be related to their major – e.g., IT majors could propose web design, data management and similar IT-focused projects, while management majors might propose program development projects, and marketing majors could propose sales/fundraising projects. To maintain a significant IT component in the course, students learned to work with spreadsheet, project management, documentation management, and communication software tools while working on their projects.

Implementation

The Midwestern business college introduced the redesigned course in fall of 2011. There were two sections of the course and 60 students enrolled across both sections. Following an introduction to the course given by the project management faculty, the senior executive from the community partner spoke with the class about their organization, strategic goals, and example projects that would be beneficial for the organization. By the third week of class, students formed project teams, identified a project manager for the team, and submitted formal project proposals for approval. During the semester, students learned the project management fundamentals, five project management process areas, and how to complete related project documentation. Students also received hands-on training with Microsoft Project 2010 and AtTask Project Management software. At regular intervals during the semester, project teams delivered status reports detailing their project progress to date, issues, and upcoming tasks and discussing pertinent issues with other students.

The students completed a total of 12 projects (see Table 2) across both sections of the course. Projects ranged from fundraisers, to physical work at the community partner's site, to database and website development. Seven of the 12 projects were successful. Project success was determined based on whether the groups achieved all of the success criteria defined in the project initiation phase. The remaining five projects satisfied some, but not all project success criteria. Four of the project groups also qualified for community service credit from the College for their work. Community service credit was determined by evaluating projects against a weighted scorecard of project- and service-related criteria defined (with student input) at the start of the semester.

Group #	Description	Success?	Awarded service credit?
1	Benefit concert held on campus (fundraiser)	Partial	No
2	Fashion show and prize raffle (fundraiser)	Yes	Yes
3	Design and sale of wristbands (fundraiser)	Yes	Yes
4	Games night, silent auction and raffle (fundraiser)	Yes	Yes
5	Removal of physical structure on site of the community partner	Yes	Yes
6	Development of database and front-end website	Partial	No
7	Shoe collection (fundraiser)	Partial	No
8	Waste recycle (fundraiser)/Garden maintenance	Partial	No
9	Yankee candle (fundraiser)	Yes	No
10	Bowling event (fundraiser)	Partial	No
11	Grant Application	Yes	No
12	Grant Application	Yes	No

Table 2. Student Projects Completed during Fall 2011

Results

Following this first implementation of the service learning focused project management course, both faculty and students felt that the revised group project was a value-added change to the course. There were two students who were taking the class for a second time; both students commented to a PM instructor that they learned more from the new course format. To gain a better understanding of student perspectives on the course, the IT faculty distributed an online survey. The survey asked students how they benefitted from completing a service learning project; whether students should complete more service learning projects in the future; what they would change about the service learning project; whether working on the service

learning project taught them about project management; and how likely they would be to use the tools and techniques from the class in the future. Students were not required to complete the survey, nor were it an opportunity to earn extra points for the course. 46 out of 60 students completed the survey - approximately 76% of the total enrollment.

Survey results were overwhelmingly positive. Most students (45 of 46) felt they had benefitted from completing the service learning project by giving back to the community and experiencing a sense of accomplishment. Most students (45 of 46) also indicated that students should continue to work on service learning projects in the future. Regarding what they would change about the service learning project, most students suggested (1) having more control over the projects they could choose and with different community partners, (2) ensuring that the sponsor or other representative from the community partner was more involved with the project, and (3) better control over project duration, both for managing the amount of work involved and the ability for the group to complete the project by the end of the semester. 11 students indicated they wouldn't change anything about the project. These results were consistent with the expected outcomes of service learning, with many students stating that they made a difference in the community and that they'd learned more than would be otherwise learned from a textbook.

The project management faculty met to discuss the course changes at the end of the semester. From the perspective of the faculty who taught the course, there were several lessons learned. Although students were required to give status reports and submit project documentation at scheduled milestones, they rarely told the "whole story" regarding their project progress and/or team dynamics. At times, students faced issues that could have been quickly resolved just by notifying the instructor, or discussing more in class with other students. Several teams had difficulty communicating with the project sponsor (from the community partner). Other teams chose large-scale projects (like the benefit concert and web-based database) that required a disproportionately large amount of work outside the classroom. These were issues that could potentially take away from the benefits of the service learning project if not addressed and proactively managed in the next iteration of the course. Additionally, when comparing the service-learning components that had been incorporated into the course, faculty felt they had succeeded in providing opportunity to apply course materials in a real-world scenario and linking students' experiences to the course material, but probably had not provided ample time for in class discussion. This would also be an issue to address in the next iteration of the course.

Next steps

Based on the lessons learned, the project management faculty would incorporate some changes for the next semester. A new community partner has agreed to sponsor the student projects and the faculty is working closely with the partner to define project scope, duration and effort. The faculty is also educating the project sponsor on communication needs, sponsor documentation and other sponsor commitments and expectations. Though students suggested working with multiple community partners as a potential change, this would not be incorporated for the second iteration of the course. Faculty will make the students' status reports more explicit, proactively monitor their project progress more closely, and incorporate more opportunities for in class discussion and student reflection, particularly, encouraging students to share experiences with each other as they collectively apply their learning's to the course material.

Another change would be in the course delivery. For the next semester, the course would be offered in both online and classroom formats. Other than the changes noted above, the classroom section would operate similarly to the prior semester. However, the online section of the course would add a virtual component that would need to be monitored carefully by the project management faculty. For both online and classroom sections of the course, a major concern for faculty will be in evaluating and ensuring the sustainability of the service learning model, both in community partner involvement and student interest. Another challenge is to ensure that the IT aspect of the course remains prominent.

CONCLUSION

This research examined the case of an ITPM course adopted at a business college in the Midwestern United States. The ITPM course was modified over time in response to external stakeholders and an emphasis in service learning was recently integrated into the ITPM course following the guidance of a leading curriculum association. The service learning component had positive results for students, faculty, and a community partner. Several lessons were learned that have implications for addressing changing enrollment trends in IT courses, accreditation concerns for providing quality educational outcomes, and approaches to employing HIPs to improve the relevance of course curriculum. Such examples can be useful for educators and administrators in the process of enhancing their own curriculum efforts.

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