

Creating Real Life Project Opportunities for Systems Analysis and Design Students

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Abstract

One of the responsibilities of MIS faculty today is to prepare our students for entry-level positions where the working environment requires a variety of technical, behavioral, and communication skills. The purpose of this paper is to share how MIS faculty members at a small liberal arts college created partnership opportunities with various on-campus entities and non-profit off-campus organizations to present real life projects for the students in their systems analysis and design course. These partnerships are especially crucial for a college that are located in a town of only 8,000 people where opportunities for information systems (IS) projects are not in abundance. Through our partnerships, we found our students to be more engaging in class; they ask better questions and connect better with the concepts presented in class. As faculty members, we have learned to maintain existing partnerships and to cultivate new ones. And for our "clients," they are eager to work with enthusiastic and dedicated young MIS majors to address their IS needs.

Keywords: Systems analysis and design, active learning, project management, teams

1. INTRODUCTION

In the spring of 1996, our interim president urged the faculty to consider several "Academic issues for the 21st Century," including (1) will our focus shift from how faculty teach to how students learn?, and (2) what will our 2005-2010-2020 curriculum need to look like? He strongly urged members of the Luther faculty and staff to begin active planning for the continued intellectual vibrancy of the College and its curriculum.

According to recent Carnegie Foundation surveys, the best American institutions in the eyes of both faculty and students are the selective liberal arts colleges. "In these institutions *all* members of the collegium believe they are important contributors to a community where they are respected ..." (Spitzberg, 1994, p.302). How do we get our students to be active participants in their learning process? How do we make learning meaningful? How do we make teaching fun and rewarding for the faculty as well?

Furthermore, current literature on teaching and learning abounds with articles and research demonstrating the need for both greater variety in teaching strategies and greater student involvement with the content. Research on the concept of "active learning" has clearly demonstrated that the more college students become involved with the education process, the more they learn (Wadsworth, Hoepfel and Hassell, 1994). In terms of teaching systems analysis and design, how should MIS faculty provide a more realistic view of the process through one or more projects? How could students be exposed to organizational culture and politics in which they must operate after graduation?

Given the above, role-playing, for example, has been investigated as an approach to enhance the instructions in systems analysis and design courses (Kirs, 1994; Janz and Zeltmann, 1998). It has also been stated that project-oriented courses can enhance student learning (Barrett and Hockensmith, 1987; Grabow and

McGinnis, 1998). These projects, operating in a more dynamic environment, tend to have higher level of uncertainty. Another common approach is for MIS students to participate in internships offered by IT companies.

2. THE SYSTEMS ANALYSIS AND DESIGN COURSE

Two upper-level courses, MIS 62 and 63, are offered every year for our junior and senior students. MIS 62, offered in the fall semester, is part one of the year-long systems analysis and design course sequence. Its objectives are to help our students to understand the roles and responsibilities of a system analyst, to explore the systems analysis and design process, to experience interactions with end-users, and to learn how to manage meetings and group dynamics. The second course, MIS 63, offered in the spring semester, is more project-oriented where the students, divided into teams, manage a project from the investigation to implementation phase. The objective of MIS 63 is to enable MIS students to put what they have learned in MIS 62 into practice. Hence, the key question we ask ourselves frequently is: What can we do creatively to fulfill the course objective with the students?

The Skill Set

For MIS professionals, though technical skills are still highly valued (Cheney and Dickson, 1982), technical expertise alone is no longer sufficient; “people” skills are required (Hoffer, George, Valacich, 1999). One of the key ideas stressed in our systems analysis and design courses is that MIS professionals should provide quality service to our clients. A few of the critical, non-technical skills reported by ComputerWorld recently were: managing IS customer expectations, IS customer service, earning a partnership role with IS clients, active listening, adapting to and managing change, and cooperation and collaboration (Vitiello, 1997).

Furthermore, organizations and industries today are moving toward work teams rather than discrete job assignments. Are our students learning the non-technical skills of a job assignment which will maximize their performance in such a work setting? Are we effectively providing learning of key cognitive skills such as the ability to communicate effectively and to solve problems and seek solutions? Research has shown, for example, the importance of emphasizing communication skills to MIS majors (Janz and Zeltmann, 1998). One of the topics discussed and practiced in our course is how to conduct effective meetings. We found that “How to Make Meetings Work” (Doyle and Straus, 1976) is a very helpful resource for our students. It was very interesting to see how they “meet” at the beginning of the semester when divided into groups for accomplishing tasks before reading the Doyle and Straus book and later on how the

students put the ideas from the discussion to practice. We also sensed that the meeting took on a more serious tone when the meetings were better managed and participants’ roles were better defined.

The Projects

In order to present a real life project to our students which will challenge their technical, behavioral, and communication skills, the MIS faculty members started to canvass on-campus entities and off-campus non-profit organizations for potential projects. Many were receptive to our request because their IS needs are not addressed well in a small town such as ours.

First, we have to ascertain that the projects can be accomplished within one semester and that the “clients” are willing to work with our students who are technically learning on the job. However, we do not define the scope of each project for our students. That’s their responsibility. Second, since the number of feasible projects may exceed the number of students enrolled in the course, the MIS faculty must prioritize the projects available. Some potential clients are more than willing to wait and see how other projects turn out before they get involved.

No monetary compensation was accepted from any clients but they have to provide the necessary IT and non-IT resources needed for the project. For the past three years, we have been successful in providing four to five projects each year for our MIS majors.

3. BENEFITS TO STUDENTS

In the past three years, we have observed the following benefits gained by our students:

- To provide real world experience to our majors: Our students are able to link concepts presented in class with their hands-on experiences. They are also more likely to see that what works for one project might not be feasible for another.
- To provide work experience for international students: Most of our international students are not eligible legally to work off-campus. The projects enable them to be exposed to the dynamics of a real life organization. When they are interviewing for full-time positions in their senior year with companies that are willing to hire international students, this experience can be shared with the recruiters to illustrate their skills and knowledge.
- To provide US students who are not able to benefit from an internship experience: A few of our students, due to family and other constraints, are not able to accept summer internship positions. Similar to our international students, these students can gain some benefits from these projects.
- To expose our students to the dilemma between group work and our academic competitive system: Our students, just like students in other colleges,

are used to competing with other students for academic achievements and rewards. However, our projects require them to work and succeed as a team. This can be hard for many students to adjust to but the ability to work as a team is a reality that they will face after graduation.

- To help our students to understand group dynamics: By the time they come to their senior year, most of our majors have taken courses with each other at least once. Even with such familiarity, group dynamics is still an issue to address formally. Even friends can develop serious differences when working on a project. Developing the ability to address group issues and problems is a great benefit for our students. It is also important for our students to know who should, and when to, step up and lead the team.
- To provide our students an understanding of what working life is like for their clients: It becomes more obvious as the project progresses that our students must see the project in terms of the constraints that their clients are facing. The project will progress at the rate that the client's environment allows it to; their project planning must be flexible to accommodate daily challenges faced by the clients. This will challenge our students' ability to manage time and the project.
- To help our students to develop their ability to define the scope of project: As mentioned earlier, all we as faculty did was to ascertain that a project could be done within one semester. It is tempting to also define the scope of the project for our students and let them do the rest. However, the ability to define the project scope is the key to their success. One benefit of this skill is to spot and prevent feature creep as the project progresses. In order to define the scope correctly, our students must practice good communication skills.
- To help our students to learn on their own: One key lesson we expect our students to learn is that they can't expect themselves to know every skill that is required of a project. Finding a resource person to go to for help might be an option. If this option is not available, it is reasonable to expect that some new skills will have to be acquired by one or more team members during the project.
- To encourage our students to document what worked and what didn't: The systems analysis and design process is a learning process. We hope our students will remember and understand why certain aspects of the projects worked out well for them and why some did not. Post-implementation review and presentation are required of each team so that all may learn from each other's success and failure. It will help to strengthen their game plan for their next project.
- To enable our students to practice skills transfer: For every project, each team, with the help of the client, must identify who in the client's

organization will maintain the project after the team has fulfilled its requirements. They have to provide the appropriate level of training to their client. Therefore understanding the competency and concerns of that individual or individuals is crucial. Furthermore, the training has to be planned well by taking the work schedule of the trainee(s) into consideration. Building a strong, trusting working relationship is key.

4. BENEFITS TO CLIENTS

Given the diverse projects our students have done with our clients, we see the following as benefits gained by our clients:

- To have the opportunity to address an IS need: Our students are always eager to work with a real life project. Their enthusiasm and dedication to the project, and with faculty guidance, means that the client can count on a quality product at the end.
- To expose our clients to a less stressful project development environment: Many of our clients have not dealt with IT consultants before. Their experience with our students is less intimidating to them; our clients understand that our students are also learning along the way but they have the skills to finish the project. Also, the project is usually smaller in scope because of the semester limitation.
- To develop a system at minimal costs: Our clients are mainly non-profit entities. They only need to invest in new hardware and software if the requirements of the solution states so. Another investment by the client is the time spent visiting with the project team. There is no monetary compensation for our students.
- To acquire new skills and knowledge from our students: Our students are technologically competent. They are willing to try new things on behalf of the clients. This enables our clients to acquire new skills and knowledge without having to spend additional resources for off-site training.
- To use the college as a resource for potential future projects: Given the above benefits, our clients see their collaboration with us as a win-win partnership.

5. LESSONS LEARNED BY FACULTY

Through our interactions with our clients and our student-led project teams, the following lessons were crucial to our success:

- Visit with potential clients before hand to ascertain the viability of the project: Since our students only have one semester to work with, the potential project should fit the one-semester time frame. If the project doesn't fit the time frame, we will determine if it can be divided in two or more projects to be handled by several teams.

- Be a resource for the students but don't take over their project: In order for our students to learn to manage a project, the faculty must stay out of their way. It is tempting to be too involved. Students will be more passive when we become more active. We must always remember that it is all right for our students to make mistakes as long as we are there to be a resource for them.
- Check with the clients once in a while to see how the project is progressing: Even though we try to stay out of the project teams' way, it is still important for the faculty to keep in touch with the client so that progress can be verified. To stay informed is to help the teams and the clients succeed.
- Appreciate the power of the word of mouth: Maintaining high quality standards of projects can't be emphasized enough. Our clients will communicate our success or failure to their peers. In order to garner future projects, positive testimonies from our clients are important to our success. Just recently, the new director of our Library Information Services department expressed his interest in partnering with our students to work on projects needed by his department.
- Serve as a liaison between college and town: Since we are located in a small town, the town-gown relationship is crucial to the college's success. These projects enable our students to showcase their skills and knowledge and directly address an IS need of the client. This enables the college to provide a service to the local community. Enhancing the town-gown relationship is important to the support the college needs from the community. Creating projects for off-campus clients allows the students and faculty to be good-will ambassadors of the college.
- Emphasize and require good documentation from project teams: Since our students usually graduate after the end of the project, it is important to have excellent documentation of their project. If a client were to build on the system developed by an earlier team, the next team would know what was done and why. The documentation is also a good teaching tool to show how documentation should be done by future teams.
- Accept that we may never know what problems or successes our teams will encounter from week to week: Other than admonishing the students to be flexible when managing a project, the faculty must also be ready to help the students solve their problems at anytime. It is our experience that no two semesters are alike when it comes to project problems. Our reaction to new challenges is a good way to model flexibility and problem solving skills for our students.

6. CONCLUSION

Given that our college is located in a small town where IS projects are not in abundance, the MIS faculty must be creative in finding diverse resources to help educate and train our students. By providing our students with real life projects, our MIS students have to learn to deal with team problems and project constraints. One of the lessons learned by our students is that project plans may not progress smoothly because of constraints experienced by their clients.

Although our projects are small, the benefits to our students, to our clients, to us faculty, and to the college are large. The clients who offered the project are always grateful for the service provided by the students. The MIS faculty definitely gained from the professional interactions with the businesses in town. And the college continues to enhance its relationships with the local community.

Overall, our experience has been positive. We no longer rely solely on "traditional" textbooks and materials to teach our systems analysis and design course. By seeking real life projects, it enables us to both prepare our classes for an exciting experience and also to keep ourselves "thinking outside the box" when we try to make the classes we teach meaningful to our students. The constant challenge is: Are we preparing our students appropriately to accept the challenges in their professional careers?

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