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A Systems Analysis Experiential Case Study: Repeatable Real World Problem Solving

Many business schools today are emphasizing experiential education, particularly in undergraduate instruction, where students often have had limited exposure to business settings. While a business problem can be presented in the form of a written case study, real world projects for external clients are increasingly being incorporated into the classroom. However finding suitable clients and projects for multiple student teams each semester can be difficult. Projects for undergraduates must be complex enough to reflect the real world, but simple enough that students with various levels of technical skills and little work experience can succeed and learn. In addition, with projects for real clients, the focus at times shifts from learning and understanding of core concepts, to getting a product delivered. It can also be challenging for an instructor to continuously improve class instruction when clients and projects change each semester. Much of the instructional effort is spent on learning about the clients and projects with the students, and that knowledge is frequently not transferrable to the next semester.

To overcome these problems, we developed a systems analysis class project based on an *experiential case study approach*. This approach combines the benefits of working with a written case explanation and materials, with the benefits of interacting with business people who share their real world experience as well as their real world expectations. We leveraged a case study created by James Willis of the PricewaterhouseCoopers (PwC) Chicago Practice. The case study, for a fictional company called Spuds, was designed to train PwC practitioners on systems implementation assurance methodology. To add an experiential component, we included interaction with PwC staff. The staff not only presented real world PwC business processes, which the students were expected to implement, they also role played as clients in the case.

Learning Objectives and Case Description

The goal for the class project was for students to be able to identify business problems, document the problems and propose solutions. The course was designated by the business school as 'writing intensive', meaning that writing assignments, feedback and opportunities for re-writes were key aspects that needed to be integrated into the project. In the process of accomplishing these objectives the students would:

- Gain experience interviewing business contacts and analyzing documentation;
- Apply current modeling techniques to document a business problem;
- Apply knowledge of the people, processes and technology involved in a business problem; and
- Produce status reports as well as preliminary and final reports for presentation to management, in accordance with established business processes and standards.

To realize these goals we modified the Spuds case description and deliverables to be suitable for an undergraduate systems analysis class (see Appendix A for the website with course materials). Spuds, Inc. is a salty snack food company that is in the process of implementing an information system to improve their delivery and inventory management. Systems analysis case studies typically place students at the very start of a project, when the analysis is first requested. The Spuds case however assumes that an information systems development project has already begun. The students' objective was to analyze the current state of the project and assess areas at risk for preventing a successful project completion. The format of the case offered the benefit of presenting students with mistakes that are often made in IT projects. Students were asked to use their knowledge of systems analysis and project management, compare that knowledge to what had occurred in the case, and to propose remediations to management. In addition, students were expected to create reports in a standard format, which were based on templates used by the PwC

systems and process assurance group. Each student created a first draft of each deliverable, which was commented on by the instructor. For the final draft of each report, students created a single team version which was commented on by both the instructor and the PwC staff.

Course Structure

The structure of the class in terms of project related topics, assignments and feedback is shown in Table 1. The semester was 14 weeks long and the 75 minute class met twice a week. The PwC staff provided two presentations, in weeks 3 and 7, which explained basic system implementation assurance and project management concepts. The staff also spoke about their work experiences and engaged students in discussions about systems analysis issues. In week 4 the staff helped to bring the case to life by role playing as key informants in the case such as the CIO and CFO. Students interviewed the informants in order to better understand the facts of the case. Here again the PwC staff highlighted real world issues, as the informants at times contradicted each other, presented new and sometimes unrealistic goals for the project, or were minimally interested in assisting the interviewers. In week 14 the PwC staff attended the final student presentations and provided feedback. In total the PwC staff spent 6 hours in the classroom and 20 hours outside of the classroom on project preparing for class and providing feedback on the written and oral deliverables.

Project Evaluation

For the most part, students found the project approach to be engaging and thought that it would be valuable to them in their future careers. The majority of the students said they made substantial or exceptional progress in learning how to apply course material to improve thinking, problem solving and decisions. Students enjoyed the participation from the PwC staff and

appreciated the real world perspective the staff provided to the case. One student expressed frustration, stating that the case had no right or wrong answers, and that the instructor and PwC staff did not offer any definitive answers to the case. This comment highlights the difficulty in encouraging students to use higher level critical thinking skills and in building an awareness of the ambiguity inherent in most business situations.

For the instructor, there are several benefits to using an experiential case study approach. It is easier to make improvements to classroom instruction, materials and assignments when the same case is used each semester and the instructor can apply previous lessons learned. Since there is not a client need for a solution, the class can be modified on the fly as needed, based on whether or not students are grasping the material. When the class was previously taught using client projects, there was often pressure to get a solution delivered to the client and to keep moving forward to complete the project by semester's end. While such a situation can be a learning experience for students, it can come at the expense of deeper understanding of basic concepts and skills. With the experiential case study, students still benefit from interacting with business people, but also have more opportunity to learn at their own pace. The focus remains on learning, rather than project completion at any cost. Since the class schedule was well-defined at the beginning of semester, the PwC participants were able to plan their schedules accordingly, in order to ensure that they would be available when their participation was needed.

Adapting the Project

The experiential case approach can be adapted to local business contexts, as well as other types of case studies. While we leveraged processes from PwC, the same case could be used with processes employed in other companies. In addition, most business professionals could quickly pick up on the roles in the case, adding their personal business experiences to help the

case come to life. Instructors are encouraged to explore the possibilities with firms in their area, since benefits can accrue to participating businesses. Several students in the course went on to internships or post-graduation jobs with the PwC. PwC plans to continue their participation in the course in order to maintain access to top students interested in information technology and to continue to develop relationships with students who are seeking internships.

Table 1: Class Structure of Project Related Topics and Assignments

Week Number	**Topics**	**Case Related Assignments and Feedback to Students**
1 and 2	Introduction to systems analysis Communicating in business Project management introduction	--
3	Analyzing business problems Introduction to case and SPA staff SPA presentation of high-level analytic processes	Students draft questions for interviews of case role players Students submit first project status report
4	Review of SPA processes Review of analyzing business problems	Students interview case role players (during class) Students submit interview notes
5	Introduction to modeling techniques	Students submit first draft of preliminary report
6	Project management issues Systems implementation issues	Feedback provided by instructor on first draft of preliminary report
7	SPA group presentation of lower level analytic processes Additional case information provided	Students submit second (final) version of preliminary report
8	Review of report formats and content Assessing project risks	SPA staff provide feedback on preliminary reports Students submit project status update
9 and 10	Project Work	Students submit first draft of final report (week 10)
11 and 12	Project Work	Instructor provides feedback on first draft of final report
13	Prepare for presentations	Students submit project status update
14	Presentations	Final report due to SPA staff before presentations SPA staff provides feedback on presentations and report

Appendix A

Course Materials Website: http://blue.butler.edu/~parling/ExperientialCaseStudy