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Project Report to LITRE
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During Spring 2007, a LITRE-supported project was implemented in my BUS 449, IT Capstone course. To address the use of the analytic tools and learning outcomes, I used three methods of assessment:

- 1) A pre- and post- test survey of students perceived learning;
- 2) E-journals from students and a graduate student ("guru") to capture the technical and analyses experiences of students using analytic tools in the classroom;
- 3) Comparison of a prior, yet, similar project to the 2007 cohort

PART I – Pre and Post Surveys

I administered a pre-test survey to all students during the first full week of class during the Spring semester (January 22, 2007). Initial results from the pre- and post- tests indicate the following:

- 1) All students were seniors in the undergraduate IT concentration in the College of Management
- 2) Most students had between 1-2 years of experience in the IT field
- 3) Most students had either worked, or was currently working, in a IT-related part-time or fulltime position
- 4) None of the students had experience using analytic tools prior to enrolling in BUS 449

Moreover, the initial results of the pre-test survey indicated that over half the students strongly agreed that the course was successful in bringing real-life problems to the classroom and that the course improved their understanding of industry concepts. Nearly all the student identified that mutual and team learning took place, particularly for idea generation, software utilization, and data analyses & interpretation. Almost all students indicated that they received the software training needed to effectively work on the course project.

While similar responses were found from the post-tests, students indicated that software training and locating appropriate references to substantiate their recommendations were challenging. This can be attributable to the international context of the overall project and an increase in course workload after the Spring Break time period. In addition, the post-test results indicated that students were challenged by the necessary time needed outside of the classroom in order to meet the requirements of the course. These findings align with the

Content Driven dimensions of the assessment questionnaire used for this project which captures ease-of-use dimensions associated with the technology. More specifically, the students scored “sufficient training” as the most critical item to understanding, accessing or using the analytic tools assigned to the class. Other challenges involved the students’ abilities to identify suitable industry materials to offer context in an explicit domain. To address these issues, additional training sessions on analytic applications and industry acumen were provided throughout the course. Despite this finding, students did rank the timeliness of the course materials as appropriate and found that this content helped them to complete assigned tasks within the given time.

Additional data analyses are currently in process.

Part II – E-Journals Students

Each student was required to keep an e-journal with bi-weekly submission regarding their learning experiences. The students were directed to focus on the use of the analytic software tools used in the course. In addition, the students were required to document how their learning experiences were impacted with the presence of a technology guru (graduate student). Likewise, my graduate student kept an e-journal through the project’s duration and recorded contact points via email and/or face-to-face with the students.

Overall, the e-journals indicated a distinction between the pre-midterm and post-midterm entries. The most significant observations were among the following:

- 1) Technology & Support – While the students embraced the use of tools that could distinguish them for career preparation, there were challenges associated with using enterprise level applications, including download timeouts, platform compliance & incompatibility, software orientation, etc. The most significant challenge was the student level of concern to obtain ample training to successfully complete the course project. Once students received several training sessions, they move through the materials efficiently and found the technical support of the professor, GA guru and industry professionals of significant assistance.
- 2) Workload – After midterm, technology increased student workload as more emphasis was placed on the “how to and hands-on” to assist with data analyses. However, once the

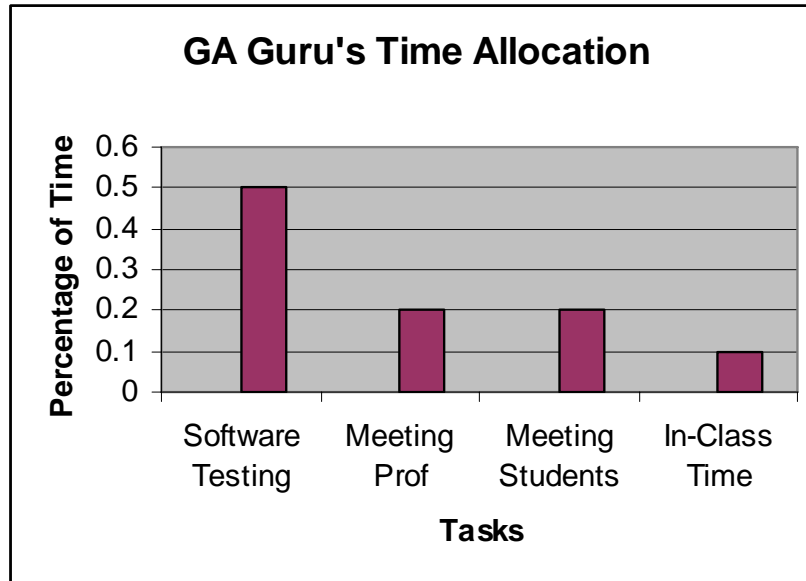
- appropriate training levels and sessions were (re)defined, students were more stimulated and worked diligently to address the needs of the course project.
- 3) Content - While the content of the course did not change due to the use of the technology, students and the professor did remain agile to redirect resources, lectures and content when appropriate. The students moved through (non)technology aspects of the project more quickly and efficiently, and this permitted more time for the professor to address technology issues.
 - 4) Satisfaction – Earlier journal entries uncovered that students were dissatisfied with the use of the analytics technology, and this was largely due to the numerous technical, unanticipated glitches we experienced. These experiences were reported by students attempting to download the applications to their PCs and individual laptops. Typically, the software running on the COM server worked to their satisfaction.

Graduate Assistant (Technical Guru)

My GA reported similar findings as noted above, but included her tasks completed to assist with the course. Her reflective journal shows 4 major task categories for this project including:

- 1) Evaluating datasets & testing analytic tools prior to student interactions
- 2) Meeting with me to determine students' needs & resolve any software problems
- 3) Meeting (face-to-face and via email) with students who may need technical assistance
- 4) Attended the BUS 449 class as an additional resource during software training sessions(in-class time)

A breakdown of her time is shown in the graph below:



The students made use of the guru's technical expertise through software testing & distribution, direct student interactions, development of a listserv and in-class times. Fifty percent (50%) of her time was dedicated to analytic software installations, problem resolution, troubleshooting, etc. The GA has years of IT experience and was a former student in my graduate Database Management course.

III. Comparison to Previous Project

I implemented a similar IT Capstone project in Fall 2003. Note that I did not share the 2003 project output with the 2007 students. I wanted to foster creativity and ideal generation rather than project replication with the 2007 group.

The Spring 2007 IT Capstone project, however, had several distinctions from my 2003 course including:

- 1) The presence of an IT guru;
- 2) An additional analytic application;
- 3) Use of e-journals as a student individual assessment tool
- 4) The 2003 cohort primarily used COM laptops with the necessary software; only 1 student in the 2003 cohort had a laptop to house the needed applications

Though both cohorts worked with similar data, the outcomes and project directions were somewhat difference. The impact of the guru

assisted the 2007 cohort to evaluate more diverse project alternatives and to resolve their software issues more efficiently. Again, only 1 student from the 2003 class had the software installed on his personal laptop. Hence, the notion of platform compatibility & software downloads were (non)issues for the earlier group.

Each year, the student final project deliverables have improved notably with regard to written & oral communication, and recommendations supported by the analytic tools. While I have noticed the improvements, corporate executives that interacted with the students via my class have reported similar observations. I made the prior project deliverables, with the exception of 2003, available to the 2007 students.

The course benefited from the e-journals as they provided continual feedback to the professor. Hence and where required, implementation of course improvements and/or interventions was possible on a gradual basis.

A comparison of the final grades would indicate parity between the groups. The IT Capstone is an elective course which tends to attract students that are dedicated to the challenges associated with a project-oriented course. Students, in both cohorts, have found IT internships and full-time careers with several firms, and have emailed me to discuss the benefit of the IT Capstone and its learning objectives.

IV. Lessons Learned

Student Interactions

There are several lessons learned from the project this term:

- 1) Students need an appropriate level of training when tasked with using analytic applications. Training should be task-specific and link directly to the course project in order to facilitate successful outcomes.
- 2) The presence of a technical "guru" is significant and provides a supplementary resource for students to engage via email or face-to-face.
- 3) A team approach facilitates learning complex software applications (analytic). Learn-driven dimensions (e.g., learning from my colleagues) scored significantly high among the items on the questionnaires.

- 4) Withstanding the intricacies of learning and using the analytic applications, post-class emails from students show that the course is effective. Below is but one unsolicited example provided by a Spring 2007 student:

Dr. Payton, you would never believe the project that I am working on now. It's Data Governance, which deals largely with (the analytics application). That's something I was able to have a lot of experience working with during our capstone project, and believe it or not, know more than my team does about it. So I get to run an information session about what's cutting edge right now in the industry and some of the metrics I feel we should use when evaluating our data sets. Well that's part of what I am doing now.

Teaching Observations

My teaching observations including the following:

- 1) Students are often anxious about learning complex tools and doing so in the context of a live project. I implemented several strategies to ease these concerns. I often provided background on prior IT Capstone projects and remained agile to accommodate tasks necessary to meet project milestones.
- 2) Timely feedback to students and industry partners is critical to communicate project changes and unexpected occurrences.
- 3) Expectation management is another vital piece to teaching. This provides a reasonable project scope for the students and all parties involved to gain an unambiguous understanding of what is probable in a semester (not a calendar year).
- 4) Hardware, software and human infrastructure must be in place to support class activities. A contingent plan is should be developed in cases of network & software failures, etc.
- 5) Students who had their own personal laptops adopted to software requirements more easily than those with personal desktops or those that solely depended on computing labs to provide software access. Laptop owners were able to bring their machines to class to work software, installation and dataset issues, and they more frequently "tried" the software functionality at home while raising any issues in class or with the technical guru. This strategy offered immediate feedback for me and often enabled me to prepare for unexpected changes needed to move the project forward.