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In this issue:

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Initial Experiences with a Capstone Approach to an Introductory IS Course (IS 2002.1)

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Abstract

This work reports on the initial results of the introduction of a new capstone introductory IS course for undergraduate business majors. The redesigned course is placed near the end of students' business degree program and has several pre-requisite courses. The focus of the course is on analysis of IS cases within the context of a whole business organization. While the course remains in development, the initial results are promising.

Keywords: Course design; Capstone course; IS2002.1

1. INTRODUCTION

Describing the redesigned capstone introductory IS course at the University of New Mexico, Schatzberg (2003) discussed the challenges of formulating a course aimed at students of widely differing technical backgrounds and interests, ranging from IS majors to those uninterested in IS but seeking a management degree. That work also provides the theoretical justification for the shift in course design and content.

The IS faculty had decided to de-couple the personal productivity content (IS2002.p0) from the use of information (and technology) in organizations (IS2002.1). We sought to retain the personal productivity software skills early in the program, while moving the integrative use of information much later in students' programs. Further, within the Bloom (1956) taxonomy of learning, we sought to structure the integrative course so that students could be expected to move beyond the Comprehension (2nd) level and to achieve the Application (3rd) or Analysis (4th) levels with respect to IS concepts.

The focus of the redesigned capstone course is on the analysis of IS-oriented business cases. How does IS function within and impact the organization at large? Indeed, the driving force for this case-based approach is the crucial role played by non-IS managers in determining the success, or otherwise, of information technologies and systems within their organizations. However, given that this course is introductory, about 40% of class time is spent on foundation IS concepts material, using a variety of pedagogical approaches to engage students. The intent is to relate and apply the isolated concepts to the analysis of real world cases.

Essential to the integrative nature of this course we have positioned it near the end of the students' course of study, requiring pre-requisites in operations management, managerial accounting, organizational behavior and diversity, and marketing management. During case analysis students are expected to apply the fundamental concepts of IS that they are currently learning along side with those of the other basic management and business disciplines they have studied earlier. Thus, in class discussions and team analyses of cases, individual students can apply a variety of concepts and skills, notably the domain expertise of their major. This integrative approach recognizes the importance of all students gaining both IS and non-IS perspectives on real world situations.

The new capstone course replaced the traditional course beginning in Fall 2003. In the remaining sections we report on the transition, course material, faculty experiences, and student feedback since that time. Where possible, we compare these results with those from the traditional course, measured soon before the changeover.

2. TRANSITIONAL ISSUES

Transitional issues included (1) documenting and justifying the proposed changes within the curriculum com-

mittees of the management school and university, and securing their endorsement; (2) communicating the change to advisors and students to enable students to plan their programs of study; (3) responding to enrollment "bubbles" (for this course and pre-requisites) stemming from the increased preparation requirement; and (4) implementing new expectations for both faculty and students in the course.

Documenting and Communicating
The curriculum work began nearly two years before the new course was formally introduced and the communications began about a year later. This lag between our having "defined the problem and identified a solution" and our ability to "implement and evaluate the solution" was partially mitigated by our introducing one case analysis into the traditional classes. This early work allowed faculty to get a sense of students' abilities to think about real world situations in an integrated manner. This experimentation involved students who lacked the pre-requisites for the new course, so it was a rather "worst case" experiment.

Responding to Enrollment Bubbles
Requiring several pre-requisite courses served to move the course from early in students' programs to late in their programs. This result was our intent. This shift from early to late in programs of study also meant that far fewer students had taken the four required prerequisites by Fall 2003, when the new course was formally launched. While we had anticipated a reduced demand for the course in Fall 2003, the reduction was far greater than we had expected. Normally, we offer 8 sections of this course during an academic year and deliver the course to 500 students. In 2003-2004, we delivered the course to 300 students in 7 sections.

There were two sources of the lowered enrollments: (1) students who correctly didn't register for the course because they lacked the pre-requisites and (2) students who registered and were subsequently dropped for lack of requirements. We had anticipated the first group, but not the second, and there were a surprising number of students in that second group.

Despite widespread dissemination of the new requirements (flyers, emails, advisors, in-class announcements), many students ignored them or believed the requirements didn't pertain to them. In Fall 2003, about 70% of registered students for the class lacked the full set of pre-requisites.

In response, for Fall 2003, the IS faculty relaxed the requirement from having completed all four pre-requisites to having completed any two of them and *also* being co-enrolled in a third course. While not ideal, the compromise provided a bridge between the old and new courses and eased the complaints and frustration. To meet the demand for the pre- and co-requisites, we quickly scheduled additional sections of them.

In Spring 2004, the students were required to have completed at least two of pre-requisites and had to be enrolled in the remaining two. Our communications, bolstered by students' word of mouth seemed to be working. We estimate that about 5% of students who registered for the course in Spring 2004 eventually withdrew voluntarily or were dropped because they lacked the pre-/co-requisites. By Fall 2004, we will fully enforce the preparation requirements.

While the additional demand for the pre-requisites should level off by Fall 2004, there will be an increased demand for this course, as the backlog of students begins to move through. We anticipate delivering the course to 150-200 additional students in the coming year.

Implementing New Expectations
This aspect of the transition parallels the course-enrollment issue described above. Early in the class, instructors provided course outlines and focused deliberately on the new expectations: concepts and not isolated facts; integrating IS with non-IS issues; managerial perspectives; using Office Suite technology for assignments, not hands-on instruction about how to do so. Most of the students had not performed case analyses before and thus, instructors provided samples and answers to frequently asked questions (FAQs). Some instructors allowed early drafts to be submitted for "free feedback" prior to the due date.

We find that incoming expectations are difficult to correct and the mix of students is still widely varying. At one extreme students were still hoping for hands-on "how to" instruction on Office software and at the other, MIS students were hoping for a meatier technology course.

3. NEW COURSE DESIGN & CONTENT

There are two major components to the course content: IS fundamentals and IS case study analysis.

IS fundamentals
IS fundamentals are taught a level suited to non-IS business majors, whose technical expertise and know how is assumed to be limited to one programming course. All the major MIS textbooks cover this material.

IS Case Study Analyses
The balance of the course is case-based, utilizing IS-related business cases to engage students in real world situations. It is in the case analyses that students are expected apply their basic understanding of marketing, operations management, accounting, and organizations (topic areas of the four pre-requisites). The intent here is to explore the underlying concepts rather than the technical details of IS case studies, and to explore the many related non-IS issues. We use the case studies as the vehicle by which to show the connections among the topics in the pre-requisite courses.

Because faculty members selected differently from a set of cases, it is difficult to identify specific concepts in all the pre-requisite courses that are used in the analyses,

but some examples include (1) using cost/benefit analysis and internal rate of return analyses – from accounting; (2) conveying benefits instead of features – from marketing; (3) exploring work flows through the organization – from operations management, and (4) discussing training and organization redesign issues – from organization behavior. A number of introductory MIS textbooks contain case studies. As we move forward, we are trying new texts and cases to evaluate the results. We characterize this part of the course as developing students' understanding at the Comprehension (2nd) level of Bloom's taxonomy.

Teams of students apply the IS concepts they are learning, together with the concepts from the prerequisite courses, to analyze, discuss, and report on each case. Instructors used two types of reports: Case Briefs (2-3 pages) and Case Impact Analyses (1 page). The reports varied not only in length but also in the orientation of the assignment. In larger classes, either impact analyses or team-based case briefs were used in order to ease the grading burden.

The structure of a 3-page case brief includes (1) a brief summary (20%), (2) an analysis of the issues – including IS and non-IS considerations (50-60%), and (3) recommendations for moving forward (20-30%). Students learn to "report" in the first section, to "critique" in the second section, and to "manage" in the third section. The reporting skill used in the summary section demonstrates Comprehension level of learning. The critique skill used in the analysis section combines skills from Application (3rd) and Analysis (4th) level of learning. The recommendations section begin to develop their management thinking in Analysis (4th) and – for the more capable students Synthesis (5th).

The structure of a 1-page impact analysis includes (1) lessons learned, (2) MIS interdependence with non-MIS issues, and (3) application of the lessons/interdependencies to another setting. This assignment brings students into the Application (3rd) level of learning rather quickly. To specify lessons learned requires more than just comprehending the story of the case. It is not a summary of the case, but rather an explication of the reason the case was written and assigned. Students often struggled with this part of the assignment in their initial impact analyses. The section covering interdependencies seems to blend comprehension with application. The third section draws out a combination of Application, Analysis and Synthesis since students write about similar situations they have experienced and attempt to overlay the lessons learned into that new (and very real to them) setting.

See Appendix 1 for sample case brief and guidelines. See Appendix 2 for a sample impact analysis and guidelines.

It should be noted that no attempt is made to standardize the case selection, pace, or non-IS topics discussed for each case. Instead, we depend upon the experience and expertise of each instructor to tailor the course content based on class dynamics and skills. Thus, while all students will learn IS fundamentals and all students will engage in several in-depth case analyses, the cases will vary (within and across semesters) as will many of the focal areas for each case.

We believe it is the course approach and the general content rather than any specific points that result in the greatest student gains. This assumption would be interesting and challenging to evaluate, and we will consider it as we mature in our delivery of this course.

4. STUDENT REACTIONS TO COURSE & COMPARISON WITH OLD DESIGN

Anecdotally, the reaction of students to the integrated, case-based approach was overwhelmingly positive. The few negative comments came mostly from IS majors, who expected to advance their knowledge of technology per se rather than learn about IS in the context of organizations and general business challenges. However, while students responded positively to the design of the course in principle and to the cases in general, comments on the value of specific cases varied widely. Further, the official course evaluations show minimal difference between the before and after "Rate the Course Content" item.

Tables 1a and 1b summarize student assessments during formal end-of-course evaluations across three instructors. The data blend the results from these instructors, all of whom taught the course in both the old and new formats.

It is noteworthy that the results from before and after seem indistinguishable and that surprised us, since we had expected a major overall improvement in students' assessment of the experience. Perhaps, as we gain more experience teaching this new course, we will systematically improve our delivery. Perhaps, as the word-of-mouth from the old course fades (as those students graduate), then student expectations will be more fully aligned with what we deliver. Part of the legacy from the old format is that some students expect to be able the course to be easy. We do expect that, to the extent possible with a required course, more students will be more satisfied with the new format. We also expect that those who do well in the course will have developed a stronger and more applicable understanding of just how MIS fits into the organizational world.

In addition to the formal end-of-course evaluations, students in three sections of the Spring 2004 Capstone IS course completed a brief survey shortly before the end of the courses. They completed the survey anonymously. These three sections included 85 students, about 25 of whom took the time to complete the survey. We assume, therefore, that respondents had stronger views (either positive or negative) than those who chose not to participate. The survey instrument was an open-ended format, asking for comments on (1) the course in general, with particular attention to the case studies (2)

what students liked (specifically), (3) what they didn't like (specifically), (4) what they believe they've learned, and (5) what changes they recommend for the course. We present the results below.

Table 1a Student Evaluations of Traditional Introductory IS Course
(Scale: 1 (poor) – 6 (excellent))

OLD COURSE

Semester	N	Content	Overall
Fall	39	4.3	4.3
	42	4.7	4.3
	46	4.8	4.9
	46	4.6	4.4
Spring	40	4.3	4.2
	42	4.7	4.7
	55	4.3	4.3
	57	4.3	4.1
Weighted Average		**4.49**	

Table 1b Student Evaluations of Capstone Introductory IS Course
(Scale: 1 (poor) – 6 (excellent))

NEW COURSE

Semester	N	Content	Overall
Fall 03	23	5	4.9
	28	4	4.1
	34	4.2	4.5
	51	5	5.2
Spring 04	9	4.6	4.3
	20	4.2	4.2
	25	4.2	4.3
Weighted Average		**4.62**	

General

Feedback on the cases used for these courses ran the full gamut from excellent, to find some decent cases or write some better ones yourself. Some IS majors expect more technologically advanced challenges in these cases. Initially they are reluctant to accept that technology per se is infrequently a top five factor in determining the success or failure of IS projects. This speaks to the goal of developing a broader business perspective among our IS majors.

In general, students opined that most of the cases were too business-oriented. They argued that more technical detail would aid in developing their understanding of the IS fundamentals that were being taught in parallel with the cases. Here we have the challenge of balancing the IS and business components of the cases in order to demonstrate the technological issues as they apply in typical organizational environments. This issue might be mitigated by a careful scrutiny and selection process for cases that have some meaty technical details.

Most students anticipate significant hands on work in IS courses. However, many case studies, especially those in which names have been changed to provide anonymity, do not lend themselves to online analysis of web sites, customer services, financial results and the like. This group, finding many of the cases dry, suggested that online elements should be added to the cases to provide hands on computer experience. While a number of students, specifically those who participated actively in class reviews of the cases, expressed concern that other students did not involve themselves sufficiently in these analyses. They suggested ways in which participation could be broadened.

In general, students like the real world, case study approach as a context within which to integrate their new learning. They dislike "too much" writing and some wished for more hands-on work. It was unclear whether hands-on meant office productivity work or web research or something different. There were reasonable criticisms of the text as well.

5. INTERPRETATION OF STUDENT RESPONSES

While the formal course evaluations show no pattern of difference in students' rating of the course content, the open-ended feedback suggests that students do value the real-world material, although it is more challenging for them to grasp and master. It is noteworthy, that cases, in and of themselves, are not sufficient to stimulate thinking, analysis, and conceptual integration. Rather the quality and relevance of the IS case studies and the pedagogical approach employed by the instructor are key factors in shaping the students' impressions. We might conclude from the general feedback that while we got the *"What"* of the course right, *"How"* best to teach it remains a work in progress.

Cases

With few exceptions, the students valued the switch to a case-based course and considered case analysis an effective learning experience. The group of students, which was least positive about the new approach, was the IS majors. It should be noted here that the old course was easy for anyone steeped in MIS, whereas the new one demanded considerably more effort on their part due to the integrative approach. So, it is perhaps not surprising that we find this general dichotomy of opinion between the IS students and the majority group with their lesser technical expertise.

However, it is also reasonable to consider the IS student feedback in strengthening both the current course and in considering additional course work for IS majors. Within the context of the current course, IS majors can be asked to research one technical topic and present its relevance to one or more of the case studies. Similarly, students from each major can be asked to research and present on an issue from their fields and relate that to

one or more of the cases. Depending on class size, these projects can be completed in small groups. This type of enhancement not only deepens the opportunity for each student's individualized learning, but it also strengthens the active involvement by more students.

While outside the scope of this introductory course, the IS student feedback suggests an opportunity for an IS case course within the curriculum for IS majors. That type of course could offer wide latitude in topics that are largely technical in nature (ERP design issues, web site construction and management, technology replacement models, etc.).

Case Quality
Students' complaints concerning the quality and relevance of some of the cases have some merit. One source of frustration is that few cases demand deeper exploration of the IS concepts, focusing as they do on the general business problems rather than technology issues. Students do begin to accept such cases as typical of the real world situations. However, this does not negate the instructor's responsibility to search for cases with meatier technology content.

Ideally, case studies should be interactive, although there are differing meanings to that concept as well. Interactive capability would support hands on investigation and analysis. Another improvement would be more cases for written about companies that didn't require anonymity of presentation. Again this would facilitate online investigation of the said companies by the students.

Pedagogy
There is a challenge of how best to engage large groups of undergraduates in reviewing cases in a classroom environment with 30-60 students. Many students either do not study a case beforehand or simply elect not to participate in open discussions. Instructors require special skills and discipline to draw out new voices and to limit without stifling the enthusiastic contributors.

One promising approach may be to split the class into groups, each of which is given the task of analyzing and reporting to the class on a particular facet of a case, for example: overview, what went right?, what went wrong?, the roles of key players, the technology issues, what now?

Textbook Challenge
Historically IS case studies have been developed with graduate students in mind and typically instructors are familiar with employing the cases in relatively small graduate classes. Hence instructors teaching the undergraduate capstone course are presented with the challenge of finding cases with not only the appropriate technology balance, but also of suitable length and difficulty.

Printing technologies come to our aid here, with publishers now willing and able to reproduce texts that include cases specifically selected by the instructor. This tailoring of the texts broadens the availability of cases to better support the goals of the course.

6. CONCLUSIONS

Undergraduate business majors responded positively to the redesigned capstone introductory IS course, both anecdotally and in surveys. There was unreserved student support for the focus on IS cases studies and the real world business insight their analysis provides. However, students did question the quality and relevance of some of the cases and challenged instructors on how best to review cases in large undergraduate classes.

In this very early stage of implementation, our informal results indicate the overall goals of the redesigned course are beginning to be met. Naturally, however, the course remains in development, with instructors seeking the optimal pedagogical approaches to engaging large undergraduate groups in case analysis. We expect to conduct more rigorous data collection and analyses once we determine that we are again in a steady state with the course.

7. ACKNOWLEDGEMENTS

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8. REFERENCES and RESOURCES

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Schatzberg, Laurie, "A Capstone Introductory IS Course," *Informatics Systems Education Journal*, Vol. 1:1 2003, http://isedj.org/1/1/

Appendix 1:

Sample Case Brief Guidelines

(Adapted from Martin, et. al, 2002)

Overview (In this section, describe the setting, and provide a *brief* synopsis of the chain(s) of events described. Remember to keep this section to *maximum* 20%-25%. I've read the case, and the authors have copyrighted it, so there's no reason for you to rehash the whole thing. Focus on background, issues, topics that you'll address in the later sections. Your "voice" in this section is that of a largely dispassionate reporter.)

MSCC is a growing, aggressive, statewide chamber of commerce that has benefited from strong leadership in the past. One of those strong leaders, Lassiter, the VP of Marketing was convinced that MSCC needed new SW to provide enhanced sales and marketing support. Lassiter became the champion for acquiring a particular SW system (Unitrak) and then convinced the Board's executive committee to authorize its purchase. That's when the problems emerged.

Lassiter was not in charge of IS and was never able to gain the commitment of the person who was in charge (Hedges, VP of Public Finance). Further, the systems analyst (Kovecki) was upset that he had not been appointed manager of Computer Operations and he provided almost no support during the early stages of attempted Unitrak installation. Kovecki appeared to get involved during the later stages. The software vendor was more talk than action in the conversion process but did provide some training. Thus, Lassiter was attempting to champion a major installation and training process without the support of key people. At the time of the case, the UNITRAK system conversion was failing and the old system was no longer operative because of the efforts to bring up the new system. MSCC has no computer support.

Analysis (The material in this section varies by case, but the purpose is to pull out lessons, links to the concepts and principles in the text, and discuss issues of MIS interdependencies with other organizational complexities. You can be a judge in this section as you try to explain why things happened as they did – using knowledge you've gained in the course and/or your own experiences. Your "voice" in this section is that of a Business Analyst. As you progress thru the course, you'll be able to relate MIS principles and concepts more completely. Be aware that while a given case is discussed along with some new readings, you should also expect to include material from earlier in course.) This case illustrates just how complex and messy it is to try to

implement a new information system in an organization with conflicting or unclear goals. It also shows (1) the various roles that business managers play in implementing new systems, (2) pitfalls of new technology introduction, (3) roles of technology vendors, and (4) organizational realities that often surrounds new initiatives. It is interesting to me that none of the key players in all the years covered by the case was an MIS professional.

The roles of several user-managers are worth noting. From Marketing and Sales, Lassiter's zeal to get buy-in from the Board for a new software system (primarily to support his area) was understandable. However, he seemed to "make up" his cost-benefit figures to portray the result he wanted. He did not carefully assess organization-wide needs, nor did he investigate the vendors very carefully. He may have misinterpreted other managers disinterest as support. From Public Finance, Hedges (to whom the small computer operations group reported) was completely uninvolved and did not place Unitrak success as a high priority for his staffer, Kovecki. It is not uncommon, especially in smaller organizations for MIS functions to report to Accounting or Finance executives, but problems like this one are not uncommon, given the groups' differing priorities and perspectives.

Kovecki is a computer scientist with no formal training in business. Initially, Kovecki expressed several concerns about Unitrak and its suitability. While his concerns may (not) have been deal-breakers, the case seemed to suggest that Lassiter didn't dwell too long on the concerns Kovecki raised. It is unclear whether Kovecki was actively resisting Unitrak, or whether he was simply following the priorities set out by his own manager (Hedges). In either case, this situation was yet another example of a poor working relationship with MSCC ranks. Especially in the current (2003) environment of scrutiny of Boards and executives, the behaviors of MSCC board and president are noteworthy. While they approved the large off-budget expenditure, it's not clear that they really the issues involved.

Ginder made some concessions to get the sale – and provided some training to MSCC. However, inadequate/ ineffective support was provided to Kovecki during his attempted conversion to Unitrak. Such poor service should not be tolerated, and technology purchases should include specific requirements for both products and service.

Clearly several of these roles should have been different. One interpretation is that neither Hedges nor Kovecki was doing his job, since Lassiter could not garner their commitments. On the other hand, how could Lassiter believe he implement such a major change without their commitment and partnership. Given his lack of MIS expertise, he also failed to recognize the total acquisition cost of the Unitrak included the human resources to build support for the shift. He also failed to recognize the crucial importance of clear, consistent, top-level involvement. Wallingford (and, perhaps the executive committee) should not have remained aloof during the initial proposal, analysis, and the eventual

crisis. They didn't really understand the extent to which a vibrant organization is dependent upon reliable information and information services. The migration from an "as is" system to a new one is not trivial and should have been a major discussion point with each of the potential vendors.

MSCC made the classic mistake of buying a solution, when the problem(s) are neither well defined nor understood. Moreover, MSCC bought "a solution" based on fortuitous awareness of that product, with no effort to compare that solution with other alternatives. There are *always* alternatives.

Interestingly, this case describes a rather routine use of IT when viewed within a context of an organization with a skilled and experienced staff. Yet MSCC failed miserably to get their new system to work. This result highlights just how important it is for organizations to evaluate their own readiness for integrating new (information) technology with existing resources. The case did not describe much in the way of problem analysis. It is also unclear whether anyone evaluated the scope of the Unitrak proposal. For an organization with little formal MIS expertise, a major overhaul based on the words of a vendor is extremely risky behavior.

IS/IT politics is another harsh organizational reality. Lassiter couldn't get the support of the key people he needed, so he went over their heads. In doing so, he won the battle but lost the war, since the project became "his" and not "theirs." The eventual users and owners must embrace new information systems, or the systems will remain idle or irrelevant to the organization. Another benchmark with which to evaluate potential IT innovations is the extent to which the proposal provides very localized improvements or whether it is clearly tied to enabling the organization to achieve its goals. While Lassiter was not wrong to want a solution to support his area, the Board and President were wrong to not insist on a broader, up-front analysis. It did seem that a short-term, quick fix of a few more PCs might have bought them the time they needed to choose a solution.

User-managers have lots to learn from this case – the pitfalls of going it alone, and the very real likelihood of getting enough rope to hang oneself. Calculated risk is good, and often it is necessary to achieve major business leaps and successes, but not seeking or else refusing the counsel of those *most informed* on the topic is just foolish.

What to do now? (In this section, put yourself in the role of a key player or players in the case. Your "voice" in this section is that of a manager and decision maker. Propose what you would/should do *now*, what options you have, what potential risks and benefits come with each option, and then choose and justify one of those. Remember to focus on how will you handle the current situation, *not on what went wrong* [you did this already in the analysis section]. As managers, you'll often be left to clean up messes (!) that hindsight tells you could've been avoided. Develop & practice that skill here.)

Taking the role of Lassiter, the key manager here, I consider my alternatives. There seem to be only two main paths at this point: (1) continue to promise & plead or bargain for patience as the conversion drags on, or (2) cut my losses & the losses of MSCC. I choose #2 because the problems that got me to this point cannot be wished away: the Board still does *not* understand the impact of IT on MSCC; Hedges & Kovecki are *not* championing this cause; UNITRACK is *not* able/willing to provide the conversion support we need. To cut our losses and accept sunk costs is humbling, but a far better alternative than to continue to throw money at this mess. The specifics follow.

First, I'll prepare a quick analysis -- including key learnings to present to Wallingford & the Board – including at least rough cost and time estimates to date. I'll estimate costs going forward under three scenarios (1) continue on this path, (2) reconstructing our old system, and (3) creating a quick 'n' dirty workaround. For each alternative, I'll include rough costs and time estimates, and potential risks. I'd also bring explicit attention to our need for executive level support for any movement forward, and propose that we employ a much more professional approach to modernizing our information systems. I'd also evaluate the organization/ management of MSCC to see how to better integrate MIS into the decision-making.

I'll also gauge management's interest in a professional approach, mentally note my career options, and quietly begin to look for a career move to organization where someone with my marketing vision and talent can work effectively with a high-powered IS team. Finally, I'll formally apologize to the staff for the misses and the time and effort this all has cost them.

Appendix 2

Sample Impact Analysis Guidelines

Lessons, Pitfalls & Problems (In this section, succinctly outline the lessons you have learned from the case study. In doing this, you might uncover "gotchas" that might complicate the lessons you've learned. I call those pitfalls & problems.)

- Unclear organizational goals can lead to chaos and make it tough to know if a project is successful or not.
- Organizations must actively manage contracts and relationships with (software) vendors.
- Somehow the technical people must be able to communicate with end users and managers. MIS folks need business & management knowledge.
- When deciding on a solution, it's important to really understand the problem(s) that need solving.
- Seems like politics can interfere with implementing good ideas.
- Recognizing "sunk costs" is important to prevent throwing more money at the wrong approach.

MIS interdependence with non-MIS issues (In this section, focus on how MIS is interconnected with the functional areas of the organization. Apply concepts you've learned in accounting, finance, HR, marketing, operations management, org behavior, etc.)

- I learned about cost-benefit analysis in another class and that seems to be something that could work here, too. The project manager should evaluate the costs of buying, implementing and supporting new software and consider what benefits MSCC might expect.
- The UNITRAK project was supposed to be something that would help many parts of the MSCC organization. If you have an idea for a project that has many stakeholders, then you should involve them in the project planning. If they don't get involved, you can plan to fail.

Application to another setting (In this section, reflect on the general concepts you've presented in the first 2 sections and see how they apply to a different situation in the real world. You might see ties to other classes, to work, to UNM as an organization, to church or clubs. The idea here is to strengthen your understanding by applying the concept to something *you* know and care about.

I do volunteer work at a local nonprofit agency. I had some good ideas for how they could do things better, but I had no idea what to do about it. This case gave me some ideas and some tips on what to avoid. For one example, this agency recently had to hire a new bookkeeper and that person is having a really hard time figuring out what the previous person had done. The new person is pretty much starting from scratch to create her own way of keeping track of small items.

It's not my job, but I know they'd be better off if they got something like Quicken. From this case, I realize I should talk to the manager about it and make sure the right people understand the idea, the costs, the savings over time, and the improvements possible. They might just listen to me, and that'd be cool. If they don't, however, I know now I can't make it happen without them.