DOCUMENT RESUME

ED 422 949 IR 057 107

AUTHOR Novitzki, James E.
TITLE The MIS Core Course: A Revolutionary Look.
PUB DATE 1997-00-00
NOTE 8p.; In: Proceedings of the International Academy for Information Management Annual Conference (12th, Atlanta, GA, December 12-14, 1997); see IR 057 067.
PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Business Administration Education; *Core Curriculum; *Course Content; Course Evaluation; Curriculum Development; Graduate Study; Higher Education; *Instructional Design; Instructional Development; *Management Information Systems; *Student Attitudes; Student Surveys; Undergraduate Study
IDENTIFIERS *Course Development

ABSTRACT

This paper discusses the remaking of the MIS (Management Information Systems) core course in a graduate business degree program. The graduate MIS course has many of the same problems as the undergraduate one, which has been described as "the widow maker." Several attempts to modify the course resulted in lower evaluations. The course then underwent a major redesign. The new course does not teach technology--rather, students learn about how basic business functions and operations can be impacted in both good and bad ways through the use of technology. Technical issues are brought up only to the level that the discussion of functional organizational issues requires technical knowledge for understanding about what is happening and why. Initial results indicate significant improvement in students' understanding important concepts, perceiving the need for management involvement, and recognizing the importance of the course. Finally, the revised course resulted in higher satisfaction with the entire course for both students and instructors. (Author/AEF)

THE MIS CORE COURSE: A REVOLUTIONARY LOOK

James E. Novitzki
Johns Hopkins University, SCS

This paper discusses the remaking of the MIS core course in a graduate business degree program. The graduate MIS course has many of the same problems as the undergraduate one, which has been identified in several articles as "the widow maker." Several attempts to modify the course actually resulted in lower evaluations. The course then underwent a major redesign. The new course does not "teach technology", rather students learn about how basic business functions and operations can be impacted in both good and bad ways through the use of technology. Technical issues are brought up only to the level that the discussion of functional organizational issues requires technical knowledge for understanding about what is happening and why. Initial results indicate significant improvement in student understanding of important concepts, perceiving the need for management involvement, and recognizing the importance of the course. Finally, the revised course resulted in higher satisfaction with the entire course for both students and instructors.

INTRODUCTION

The undergraduate MIS core course has been identified by both students and faculty as being generally unsatisfying and often providing students with little practical information. A similar course has been included in the business core of most MBA programs (AACSB, 1991). The course is called a variety of names including Management Information Systems (MIS), Information Systems (IS), Information Systems Management (ISM), or Information Technology (IT), all of which were identified as course names in a review of various schools' graduate business programs. Although there have been numerous articles discussing the course and various approaches to "fix" it, the course remains a problem at many schools.

BACKGROUND

Albin and Otto (1987), Buckingham et al (1987), Cheney et al (1990), and Padget and Meyers (1995) all present varying views of the needs of organizations and ways to use and integrate technology into the curriculum. Richards and Kelly (1994) discussed what they thought were the most valuable components of IS education. Woods (1992) discussed the importance of technology issues and education in the MBA. A consistent theme noted in all of these articles is that graduates of MBA programs generally lack understanding of the technology used in business today, and its impact on the organization. This has lead to a general conclusion that technology must be made a more integral part of the MBA program in particular and business programs in general.

Although not the best solution to the problem, the typical response has been to produce a course that takes one of three forms. One approach is an introductory course on various computer applications, word processing, spreadsheet, data base, and presentations. This course, while reasonably well accepted by undergraduate students, is not a course for working adult students, who generally have some knowledge of these programs. It is not a graduate level course, and it certainly has little to do with the information function in an organization. The second approach is the survey of MIS. This approach is exemplified in courses which use texts by Louden, Shulthies, McLeod, etc. One section contains chapters on the systems approach, computer hardware, system and application software, and databases. Another

section which describes the operation of the IS systems in the various functional areas, Accounting IS, Finance IS, Marketing IS, Human Resource IS, follows. Finally, there is a section on networked systems, office automation, and trends for the future. The last approach tries to combine both of the previous approaches into one course similar to the MacMillan computer system year books at the undergraduate level.

This course has a goal or desired outcome to provide knowledge of Information Systems to students, who for many this will be their only "technology" course. The problem is that in many cases the knowledge is either not articulated clearly or is lost in a sea of facts, which are memorized for an exam and then forgotten. Student response to the course at the graduate level closely mirrors the dissatisfaction noted at the undergraduate level.

Twenty schools were surveyed about student views on IS and the IS course (Novitzki, 1990). Results showed that an overwhelming number of students, 87.3 percent, felt that the IS technology course that they received was not a meaningful course. Material was not relevant to them and focused on issues that were not of interest to them. Interestingly, there was no significant statistical difference between responses from various schools even though several different approaches were used in the courses.

FIRST REVISION

The technology course at our school was no exception to the points described above. The business core in our MSB program is virtually identical to the core found in most MBA programs. For several years our IS technology course, which is called Information System Management (ISM), has used one of the standard MIS texts, presenting history, hardware, software, various information systems, expert systems, etc. in a general survey of Information Systems.

Our students have on the average been out of school for 10 years, are working full time, and most do not have either technical or business undergraduate degrees. Their comments on the course are consistent with that reported in earlier studies focusing on the course's lack of relevance, requirement for mindless memorization of facts, little tie to the rest of core, and no connection to the program as a whole.

The course went through a major revision based on student and faculty responses, almost all of which resulted in additions to the course. More group work was added, more hands on computer exercises were added, etc. Students were required to use Power Point, send E-mail, do Internet searches, etc., besides covering the general survey of IS.

Previous end of course evaluations revealed little consistent difference in student attitudes towards IS although there was often a slight numerical increase. This revision, showed a significant increase in the use of and familiarity with technology and various software applications. A major concern was that in some class sections, the students' view of the need for technology knowledge actually showed a significant decrease in value. Before the course's revision, on a five point Likert scale the average score for the value of the course was 3.7. After the revision with its many additions, the average score was 3.52. With an n=97, the difference was significant at .05 level. Student opinions about the value of technology are also taken in the surveys at the beginning and end of the course, and these were also compared. Previously, the comparison revealed little change, but there was typically a slight numerical increase. The revised course comparison revealed, that in this case, the numbers were lower. After the course, there was an indication that students actually felt less need for knowledge about technology and its uses to do help their jobs than before they took the course. The results indicated that our students could be better prepared for the technical work place if we eliminated the course as currently taught!

Specific issues mentioned in course evaluations were: students with a technical background reported that the group discussions on IS issues were really an important part of the course. They were frustrated by the lack of IS knowledge demonstrated by most students in the course, and they felt that the computer application exercises were a waste of time. Students with no significant technical background felt that the hands on exercises with the application packages were the best part of the course, and the hardware, software, and systems discussions were a waste of time. Student comments also

focused on the inordinate amount of work required for the course, and the fact that most material did not seem to impact them in the jobs. This last point was a key point leading to the new course development. IT did not seem relevant to them or their jobs, even though it impacts jobs at all levels in almost every organization. Since over two thirds of students taking the course could see no relevance, it was obvious that we were doing something wrong.

PRESENT REDESIGN

As noted above, several problems had been identified both in other studies and by our students. The key points were: First, the course held no relevance to business students. Many students felt it was like a general education requirement giving some background, but which wasn't really important for most managers. Second, some students felt that the course should provide basic skills in using specific technology and software rather than discuss general uses and purposes. Most students agreed that the course, as formulated, was trying to do too much. New requirements had been added to the course, but nothing was deleted. Several comments were particularly revealing. Less than 25% of the students felt that they had learned anything. Second, for almost 60% of the students, the IS discussion cases served no purpose because they did not have the back ground to address the problems or in some cases even see that there was a problem.

COURSE CHANGES

One of the key elements of concern in any revision of an academic program should be the needs noted by business and organizations who employ the program graduates. A review of literature identified several articles that presented ideas that should be addressed. Chow and Edmundson (1994) discussed what IS employees lack from the employers standpoint. Alavi et al (1995) and Godfrey (1995) addressed issues for consideration and some of their ideas were included in this revision. It was clear that merely adding things to the course was not a solution. A major change in direction and philosophy would be necessary to provide a solution. The hands-on computer exercises were clearly not helping students either in their understanding of IS or their use, although they did provide skills with various office applications. A review of the ACM and DPMA model curricula and interviews with IS professionals and business executives pointed to three general outcomes that the course must give students. First, students must understand that IS plays an important role in every organization. Second, functional managers throughout the company must have a basic understanding of what IS can do for a company or to a company, if it is not managed properly. Third, having established these concepts, then the course should define the role of functional managers in dealing with IS.

From these concepts and ideas several key determinations were made about the new course:

1. The graduate IS course should NOT be used to address computer skill training.
   a. Students with a familiarity with standard application software, such a Word, Excel, Access, Powerpoint, etc., but a need to improve skills, can attend free short workshops.
   b. Students with no expertise or skills can attend short one and two day non-credit courses which are offered several times during the term.
2. The survey approach of covering everything there is to know about IS would not be used.
   a. Business students generally do not need knowledge about a wide variety of specific hardware and software because they change so frequently.
   b. Business students need detailed focused information about their role in the management and development of IS programs.
3. IS would not be discussed outside of an overall organizational context.
   a. Everything should be tied to how a organization operates.
   b. Any technical information is presented as part of what or how something is being done.

Based on the decisions discussed above, in the spring of 1997 a syllabus was developed that focused on these outcomes and which identified

enabling objectives and methods that would help students achieve the desired outcomes. The result is a course that looks little like a "technology course." It rather looks like a capstone course, in that it largely focuses on cases and articles about business issues in current organizations. The difference is that this course builds on general business knowledge, and the role of the functional line manager. It then links these together with the capabilities and limitations of Information Systems and their ability to address these issues.

SPECIFIC COURSE CONTENT

The only assumption made was that students have no real knowledge of the impact of information technology on organizations. Course specifics include:

1. Present a brief history of data processing and Information Systems in organizations. Discussion focuses on how the role, impact, and capability of IS systems have changed. It then highlights the need for line managers to become more involved in technology decisions as computer systems become more pervasive in the organization. There is no focus on changing technology except in passing to explain new or increased capabilities. The purpose is to point out the change of IS from being a back office operation to involvement in key operations in organizations.
2. Highlight technology with Information System success stories. This part of the course highlights what IS has done to create new markets, give new capabilities, speed up operations, improve decision making and product quality. Use before and after success stories showing how IS was able to allow a company to do something different, better, faster, or cheaper than it could without IS.
3. Discuss elements of Information Systems at an introductory level. When discussing organizations, the instructor identifies the various elements of IS and discusses them at the level necessary. For example, a company uses a data warehouse to improve inventory control. The Instructor then explains what a data warehouse, database, fields, records, indexes, etc. are, but all tied to a manager's standpoint not the technical focus. A careful selection of cases or articles allows the instructor to cover most of the technical elements of an information system.
4. Present failures of Information Systems. Present some stories, articles, cases, etc. where IS implementation was abandoned, didn't work, or was a disaster. Again bring in technical elements as needed, but focus on what caused the project to go wrong.
5. Discuss the role of functional managers with Information Systems. For many of these failures, a lack of early functional management involvement is a continuing thread, and the instructor should highlight the consequences of such inaction.
6. Identify the need for functional managers to be involved in the management of information systems. The point to stress is that just because a manager does not understand all the nuances involved in IS does not mean that they should abdicate their role as a manager to others when considering IS programs, projects, and time lines. Use technically knowledgeable students to help make points.
7. Describe System Life Cycle and the manager's role in the development process. Having laid the ground work previously, discuss how systems are built and the system life cycle, but emphasize the role functional managers must play throughout the process. The presentation goes through a standard description of the elements involved, but focuses on the role managers should play. A key point to be highlighted is the mistakes managers, who don't understand IS, make, especially in the implementation phase. Such things as unrealistic schedules, saving money by reducing training costs, or saving time by reducing testing are typical errors that have had major repercussions in the development and use of Information Systems.
8. Have student's research their company's Information System. Students describe how computer/information systems are used in their company/industry. This often shows there is a close link between the integration and use of technology and their company's competitive position in the market place.
9. Have students do a group case analysis. At end of course, divide students into groups to analyze a case to explain what the IT

elements were, which went right or wrong, and what functional managers did or did not do to ensure the success of the project. Several videos from the IRWIN Information series are used to support discussion and to get students involved.

RESULTS

The redesigned course was first offered in one section during the summer term of 1997. Two sections are being run during the fall semester. There are 18 student surveys and end of course comment sheets from the summer term. At the end of the fall semester there will be an additional 51 student comment sheets from the 2 additional sections of the redesigned class.

Evaluation Procedure

Selection of the class section to use for the revised course was completely random and students did not know that their course was going to be different until after classes started. A survey is presented to students the first day of class. This same survey was given to all classes in the summer term and fall semester. The questions covered the students' background, technical expertise, familiarity with applications, feeling on importance of technology in business, and their feelings on the need for the course. The same survey is given at the end of the course along with a standard student course evaluation which included questions about course ranking, usefulness of course, and amount learned in the course.

Analysis: Beginning of course survey results for the summer course were compared to the previous classes. A t-test for difference of means was performed on all responses. The highest t noted was 1.46 which was well below the critical t of 2.021 for a two tailed test and a level of significance of .05. All of the other t scores were numerically less which indicates that there were no significant differences in the students responses between the class sections. See Table 1. These surveys from the beginning of the course continue to show that, in general, business students generally have a low understanding of the impact or use of technology across all areas in business.

TABLE 1

BEGININNG SURVEY COMPARISON OF PREVIOUS CLASS TO PRESENT CLASS

Key Items	Observed t
Need for Course	0.94
Knowledge of IS	1.46
Importance of Course	0.67
Need for Management Involvement	1.22
Need for Management Knowledge	1.04
Value of IS	1.14

The results of the end of class survey and end of class questionnaires for the revised course were compared in two ways. First, the revised class beginning and end of class surveys were compared to see if there was any significant difference between the student responses at the beginning and at the end of the course. The t-test for difference of means was again performed on all responses. All responses indicated improved values, and four had differences that were statistically significant. Student knowledge of IS, interest in its uses, importance of the course, and need for management knowledge of IS, all had t scores of 2.12 or higher. The t of 2.12 was above the critical t of 2.021 for a two tailed test and a level of significance of .05. See Table 2. This indicated that several significant changes had occurred as a result of the class.

Finally, the end of class evaluation and survey were compared between the original class and revised class. In this case the same four categories resulted in high t scores, but all six were statistically significant. The lowest t score of the six was 2.29 which was significant at the point .05 level and one, need for management involvement, had an observed t of 2.46 which was significant at the .02 level which indicated a very significant difference. See Table 3. These results are extremely encouraging. There were numerical improvements in all other categories as well.

TABLE 2

PRESENT COURSE
COMPARISON OF BEGINNING AND
END OF CLASS SURVEYS

Key Items	Observed t
Need for Course	2.19
Knowledge of IS	2.06
Importance of Course	2.12
Need for Management Involvement	2.17
Need for Management Knowledge	2.02
Value of IS	2.29

TABLE 3

END OF CLASS SURVEYS
COMPARISON OF PREVIOUS CLASS
TO PRESENT CLASS

Key Items	Observed t
Need for Course	2.29
Knowledge of IS	2.46
Importance of Course	2.31
Need for Management Involvement	2.41
Need for Management Knowledge	2.34
Value of IS	2.38

At the end of the course, students felt an increased need to learn more about technology, its capabilities, and its limitations. Many also realized the major role that all functional managers must play in the development of new IS systems. Most also acknowledged that all managers must have some technology knowledge if they are to be effective managers in the twenty-first century. A key point was that these comments were in the free form comments section of the evaluation. There was no direct request for comments in these areas in either the survey or the evaluation. The results and comments are indications of students achieving many of the goals that have been articulated for this course. If these results are repeatable in the following terms, they indicate a pedagogy that deserves further exploration and experimentation.

After the summer, student comments were reviewed, and a few minor adjustments were made on the amount of time and level of coverage of some topics. All sections of the course will use the new course format in the spring semester.

These results are extremely preliminary, but they do point to a possible improvement in a course which has been a problem in the curriculum for years. There are, however, several possible mitigating factors such as impact of the professor, the unique way the course was offered with no text and complete dependence on handouts and cases, the fact that this course section was different than the others. These combined with the extremely small sample size mean that little can be generalized at this point.

At the end of the fall semester, results should be more generalizable, and at the end of the spring term all of the issues will have been addressed. Only two instructors have been involved in the course up to now. Three more will be involved by the end of the fall, and in the spring all instructors will be using the revised format. Even if a text has not been found, the handouts and cases will have been standardized to the point that they will be sold through the bookstore. All sections of the course, a total of eight sections, will be taught as the revised course. Of these sections, two will be in a shortened six week format instead of the usual 15 week format to see if the course format might have some effect on student responses.

CONCLUSIONS

The addition of a technology course as a simple add on has generally not been effective in achieving increased student awareness about major technological issues in business. The revised course, as described here, appears to produce the outcomes desired without requiring the major overhaul of an entire program. Initial responses from students indicate that the new MIS course may finally do what it has been expected to do since its creation. It appears to make business students aware of the importance of IS in organizations, provide students with basic understanding of the elements of information systems, and make students aware of the critical role all managers play in the success of IS projects in an organization.

FUTURE ISSUES

Many issues need to be resolved. There is no text book that fits this course model. As a result, the course relies on extensive handouts. Cases that fit course requirements and examples have not been fully developed. Extensive research is required of both students and instructors to keep examples topical. As a result the course is instructor work intensive. If full implementation produces comparable favorable results, then effort must be done to develop suitable materials to reduce workload and make the course more consistent with other courses in the program. When this is completed, and if the results continue to show the favorable results, then other schools should experiment with the course to verify improved results in other settings with a larger base of students.

REFERENCES

AACSB Accreditation Information Packet, American Assembly of Collegiate Schools of Business, St. Louis, MO, March 1991.

Alavi, M., Wheeler, B.C., and Farwell, D. (1995), Using IT to Reengineer Business Education: An Exploratory Investigation of Collaborative Telelearning, *MIS Quarterly*, 19 (3), 293-312.

Albin, M. and Otto, R.W. (1987), The CIS Curriculum: What Employers Want from CIS and General Business Majors. *The Journal of Computer Information Systems*, Summer, 15-19.

Buckingham, R.A., Hirschiem, R.A., Land, F.F. and Tully, C.J. (1987) *Information Systems Education: Recommendations and Implications*. Cambridge University Press, Cambridge.

Cale, E.G. (1994) Teaching Information Systems in a Functionally Integrated MBA Program. *Proceedings of the Ninth Annual Conference of the International Academy of Information Management*, 87-94.

Cheney, P.H., Hale,D.P. and Kasper, G.M. (1990) Knowledge, Skills and Abilities of Information Systems Professionals: Past, Present, and Future. *Information and Management*, 19, 237-247.

Chow, J., Dick, G. and Edmundson, R. (1994) Industry Satisfaction with IS Graduates in the 1990s: An Empirical Study. *Proceedings of the Ninth Anual Conference of the International Academy of Information Management*, 153-174.

CIS '90 The DPMA Model Curriculum for Undergraduate Computer Information Systems, Data Processing Management Association, Park Ridge, IL. 1990.

Godfrey, R.M. (1995), Students as End-users: Participative Design of the I/S Learning Experience, *Journal of Computer Information Systems*, 36 (1), 17-22.

Novitzki, James E. (1990), Scheduling and Content of MIS Courses at the Undergraduate Level, *Interface, The Computer Education Quarterly*, Vol. 12, No. 2, Sum, pp 41-42.

Padgett, Thomas C. and Martha E. Myers (1995), The IS Curriculum From The Perspective Of The Student, *Proceedings of the Tenth Annual Conference of the International Academy of Management*, 40-50.

Richards, Martin and Pelley, Lee (1994), The Ten most Valuable Components of Systems Education, *Information and Management*, 27, 59-68.

Silver, M.S., Markus, M.L. and Beath, C.M., Information Technology Interaction Model: A Foundation for the MBA Core Course, *MIS Quarterly*, 19 (3), 361-383.

Woods, R.E. (1992), Information Technology and the MBA. *Proceedings of the Seventh Annual Conference of the International Academy of Management*, 205-213.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

[X] This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

[ ] This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").