A Survey of MIS Emphases in MBA Degree Programs

ABSTRACT: An exploratory survey of 111 colleges and universities that offer an MIS specialization in the MBA program was conducted. Survey data was compared to data obtained on nonrespondents to test for sample bias. No significant differ- ences were found between respondent and nonrespondent schools. The data was then combined and reported. Most MBA-MIS specialization programs require little prior computer experience. Most of the entering students have professional experi- ence and about one-quarter have IS related experience. A majority of programs emphasize IS analyst skills. Systems analysis and design and database management systems were the most prevalent of course offerings. Employer and student demand for these programs appear to be increasing.

KEYWORDS: Information Systems Education, Curriculum, Graduate MIS

INTRODUCTION

This paper presents the results of an exploratory survey of colleges and uni- versities in the United States and Canada that offer MIS specializations in the MBA programs. The survey exam- ined: demand and reasons for offering an MBA-MIS specialization, background of students entering MBA-MIS pro- grams, content of the curricula offered in these programs, and types of jobs in which program graduates were placed.

Recent research has examined a vari- ety of IS curriculum issues. McLeod [I] surveyed schools to determine the con- tent of the undergraduate MIS course, while Gupta and Seeborg [2] conduct- ed a similar survey at the graduate level. Vijayaraman, et. al. [3] surveyed MIS faculty on the appropriate coverage of information technology in the core courses in MBA programs at AACSB schools. Chen and Willhard [4] exam- ined the conformance of undergradu- ate IS programs to the DPMA and ACM model curricula. Stolen [5] surveyed schools to determine the MIS courses offered at the undergraduate level and the emphasis on "management of infor- mation." Towell and Lauer [6] and Wagner [7] described the curriculum at representative programs that offer a Masters of Science in Management Information Systems. Bialaszewski, et. al. [8] have twice surveyed all schools

with MBA programs accredited by AACSB about their IS course offerings. Swanson, et. al. [9] surveyed a select group of North American schools to determine the IS acceptance as mea- sured by IS faculty, IS courses and if a IS concentration was offered.

Data from these surveys relating to MBA-MIS programs is extremely limit- ed. The McLeod [1] and Gupta [2] sur- veys contain a measure of the percent- age of responding schools having an IS oriented Master's Degree program. The McLeod [1] study, conducted in 1983, found 38.9% of schools having such a program, while the 1987 Gupta [2] sur- veyfound 51.6% ofrespondents.with a IS oriented Masters. These estimates would include MS in IS programs as well as MBA-MIS programs. Also, the estimates are not comparable since the Gupta [2] survey was sent only to schools having an MBA degree, while the McLeod survey was sent to some schools that had no master's degree program. Towell and Lauer [6] exclud- ed the MBA degree from their survey. Major findings of their study indicated expected growth in demand for gradu- ates and in the number of students entering the program. The top two posi- tions of individuals completing the MS/MIS are Systems Analyst and End- user Support Consultant. They also sur- veyed human resource directors on

James N. Morgan and Craig A. VanLengen

College of Business Administration Northern Arizona University Flagstaff, Arizona 86011-5066

positions, skill categories and on degree recognition. They found that 43% of the human resource directors had an understanding of the MBA degree and the skills possessed by its graduates while only 28% indicated a similar understanding with respect to Master's Degree in Management Information Systems.

The Bialaszewski [8] surveys are more useful for our purposes. Identical sur- veys were used in 1984 and 1987. These surveys focus primarily upon IS course offerings. However, they do differenti- ate between programs offering a doctor- al degree with a major in MIS, pro- grams offering a masters degree in IS (MSIS) , programs offering an MBA with a concentration in MIS (MBA-MIS) , and programs offering no specialization in MIS. Only two results relating specifical- ly to MBA-MIS programs were reported. The percentage of responding schools having an MIS concentration in their MBA degree was found to have increased slightly-from 45% in 1984 to 49% in 1987. The surveys also asked for estimates of the percentage of MBA stu- dents who were choosing the MIS con- centration. For 1987, in 80% of the responding schools, the MBA-MIS was chosen by less than one-fIfth of MBA students.

Swanson's [9] survey was of a small number of "leading" schools. Swanson

found a diverse picture of IS in the MBA program. However, they did
report that the "average" school in their sample offers "six or seven IS courses within the MBA, including a required core course...and provides either a for- mal optional concentration in IS or an informal equivalent." [9, p. 8]

The previous surveys did not examine the demand for the MBA-MIS program from students and employers. They also did not examine the background of incoming students and the content of the curriculum. To gather this informa- tion about MBA-MIS programs, we developed a survey questionnaire focused exclusively on the MBA-MIS program and sent that questionnaire only to schools offering an MBA-MIS specialization.

THE SURVEY INSTRUMENT

Our survey focused on four key ele- ments of MBA-MIS programs. These are: the demand for the program
and reasons why a school chooses to offer an MBA-MIS specialization,the background of entering students- coursework and skill requirements of entering students and work experi- ence characteristics,the content of the MBA-MIS curriculum-credit
hours required, number and type of required and elective courses
offered, and the topical distribution of IS coursework, the distribution of placements of program graduates by type of position.

In the next section, the survey pro- cedures used are described. Following that, the results of the responses received are summarized.

Survey forms were sent..to each school listed as having an MBA pro- gram with an MIS specialization option in the 1992 Directoryof Management Information Systems Faculty [10]. Forms were not sent to schools that have an MA or MS in a computer field but do not have an MBA with an MIS specialization. Schools having both an *MAIMS* and an MBA-MIS program were asked to base their survey responses only on

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the MBA-MIS portion of their program. The survey form was sent to the depart- ment chair or coordinator of the CS/IS department of each appropriate school in late Spring of 1992. A follow-up request was sent early in the Summer of 1992. Survey forms were sent to 111 schools. Fifty- two responses were received for a response rate of 46.9%. Of the 52 respondents, four indicated that they had never had, or no longer had, an MBA-MIS specialization at their school.

Graduate catalogs for nonrespondent schools were searched for information about MBA-MIS program requirements in order to enrich the data set. Program content information was found for 28 nonrespondent schools having MBA- MIS emphasis programs. For the remaining nonrespondent schools, either the catalog information was inadequate to identify program chara- cteristics of there was no MBA-MIS

specialization offered.

Comparison of the respondent and nonrespondent data for those items that could be obtained from graduate catalogs showed no statistically signifi- cant differences across the two groups. Thus, there is no evidence of sample bias. In the statistical results that follow, overall figures combining survey responses and the catalog search results will be presented for those items where data could be extracted from graduate catalogs.

SUMMARY OF SURVEY RESULTS

Demand for the MBA-MIS program can be seen in two contexts. The num- ber of qualified students seeking enroll- ment in a program represents, in a direct sense, the demand for that pro- gram (Table I).

At the same time, employer demand for graduates is an important element

TABLE 1 **Number of Qualified Applications**

Response	Number of Schools	Percentage of Schools
4 24 12 6 O		
8.7% 52.2% 26.1% 13.0% 0.0%		

TABLE 2 Employer Demand for Graduates		
Emphasis	**Number of Schools**	**Percentage of Schools**
Increased sharply	5	10.9%
Increased slightly	19	41.3%
Stayed the same	12	26.1%
Decreased slightly	9	19.5%
Decreased sharply	1	2.2%
Totals	**46**	**100.0%**

TABLE 3 Reasons for Offering **MIS** Specialization in the **MBA**

Program Rational

Average Rank: 1 = most important; 5 = least important; 6 + not considered

Increases school's reputation
High student demand for program
High employer demand for graduates
Program improves faculty recruitment/retention Program requires minimal additional resources

3.125 2.667 2.375 3.354 4.063

of the demand for a program (Table 2) . Our survey respondents were asked to address these issues by describing the trend over the last five years in the demand for their MBA-MIS program. They were asked to describe the trend both in employer demand for their graduates and in the number of qualified students seeking admission to their program.

Overall, the results shown suggest a modest trend toward more demand for MBA-MIS programs. This was true for both the numbers of qualified applicants and employer demand for gradu- ates, although the positive trend in the number of students was a bit stronger than that of the demand for graduates. Towell and Lauer [6] found similar results for MS-MIS degree programs.

Table 3 deals with the reasons for offering an MBA-MIS specialization. Respondents were asked to rank five statements describing alternative rea- sons for offering graduate MBA-MIS. They were to rank the statements from 1 to 5, with 1 representing the most important reason for offering the pro- gram and 5 representing the least important. Respondents were allowed to write in their own sixth reason and to assign a rank of 6 to any statement that they felt played no role in the decision

to offer the MBA-MIS program. Thus, a low average rank for one of the stated reasons for offering the MBA-MIS

means that reason was considered very important.

Employer demand for graduates was seen as the most important factor, fol- lowed closely by student demand for the program. Enhancement of a school's reputation and help in recruiting and retaining faculty were also see~ as important reasons for offering MBA- MIS programs. However, their impor- tance was clearly seen as secondary to program demand factors.

Table 4 looks at the level of informa- tion systems coursework or equivalent proficiency required for a student to enter the MBA-MIS program without taking remedial coursework.

Clearly most of the MBA-MIS pro- grams are designed to serve students

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with minimal prior technical training. Over 60% of the respondent programs require a single introductory IS course or less of their entering students. Less than 20% of the programs require nine or more hours of IS coursework of their entrants. Programs that require IS coursework beyond an introductory course (Table 5) of their entering stu- dents, most frequently require MIS courses and programming language courses.

Respondents were also asked to indi- cate the percentages of their entering MBA-MIS students with various work and technical backgrounds (Table 6). Nearly two-thirds of the entering stu- dents have some professional job expe-

rience, while only about a quarter have IS related job experience, and just over 20% have undergraduate IS or CS majors in their backgrounds. The MBA- MIS program is clearly being used pre- dominantly to build IS related technical skills in students with non-IS profession- al backgrounds.

The survey also examined characteris- tics of the MBA-MIS curricula. In Table 7, hours requirements are summarized. For these items, data from the Graduate Catalog search of nonrespondent schools is combined with survey responses.

The average number of hours required for graduation is 46.2. Twenty- four programs require 36 hours or less,

TABLE 4 **Level of IS Coursework/Skills Required of Entering Students**

Level Number of Schools Percentage of Schools None 16 33.3% Microcomputer software tools 4 8.3% Introduction to CIS course 11 22.9% 1 or more programming languages 9 18.8% 9 or more hours of IS coursework 8 16.7%

i **Totals**

TABLE 5 Specific Courses Commonly Required of Entering Students

Course	Number of Schools Requiring	Percentage of Schools Requiring
MIS	9	18.8%
COBOL programming	8	16.7%
Other programming/data structures	7	14.6%
Database management	3	6.3%
IS analysis and design	4	8.3%

TABLE 6 Percentage of Entering Students with

Experience Level	Average Across All Schools
Professional job experience	63.0%
IS related job experience	26.0%
Undergraduate IS or CS major	21.8%

TABLE 7 Credit Hour Requirements (based on data from 73 schools)

Category Average Hours Required

Total hours required for graduation MIS hours required of all MBAs IS hours for MIS specialization Hours in specific required courses for IS specialization IS elective hours

46.2 1.9 13.1 5.2 5.9

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conceivably allowing graduation in one year, while 19 programs require 60

hours or more. The average amount of IS coursework required is 13.1, or about four and half courses. This means that just over 28% of the coursework in a typical MBA-MIS program is devoted to the IS specialization courses. Typically, a bit less than half of the IS hours needed for graduation are in the form of specif- ic required courses. However, programs vary greatly in this regard. There are 38 programs having no specified required courses and 17 programs who's entire IS content is in the form of specific required courses. The typical MBA-MIS program offers a fairly limited amount of choice for IS electives. The number of IS hours offered is on average 5.9 hours (two courses) greater than the number of IS hours required for the specialization.

The restriction on the number of hours of IS courses offered may be con- strained by accreditation requirements. For MBA degrees with a specialization field, the American Association of Colleges and Schools Of Business (AACSB) [11] accrediting body requires that at least 18 hours in general course- work be taken outside the field of spe- cialization. The AACSB also permits schools to offer other non-MBA mas- ters' degrees, *e.g.,* a Masters of Information Systems. These degrees must have at least 12 hours in the spe- cialized field and must be clearly distin- guished from the school's MBA degree in terms of target market and curricu- lum.

These regulations and the difficulty of effectively providing the breadth of coverage of general business topics expected of MBAs tend to limit the number of IS hours offered, particular- ly in one year programs. Most schools offering one year MBAs with a special- ization in IS tend to require 9 to 12 hours of IS coursework.

Table 8 deals with the topical distri- bution of IS coursework in abroad sense. Respondents were asked to estimate the proportion of IS course- work f~ling into each of four broad
lcategones.

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The categories used were adapted from categories of skills developed by Wagner [7] and Klingman [12] to describe the range of skills needed by IS professionals completing master's level programs. The following descriptions of the categories were presented to the respondents.

Human skills: Dealing with employ- ees, budgeting, scheduling, planning, and communication.

Conceptual skills: Development of a research orientation so that students

can keep up with the field after the con- clusion of their formal coursework.

General technical skills: A sufficient knowledge of the technology to be able to communicate effectively with vendors and the MIS staff. To learn the why as well as how of various MIS tools and techniques.

Technical design and development skills: Detailed knowledge of systems analysis, design and implementation processes.

The responses suggest that the IS coursework in MBA-MIS programs cen- ters largely on technical skills. About a third of IS coursework is normally devoted to technical design and devel- opment skills and another third is devoted to general technical skills. The remaining third is about evenly split between human skills and conceptual skills. It should be noted, however, that this response was restricted to IS course- work only. The concentration of human skills and conceptual skills building

activities may be much higher in the core MBA curricula of the responding schools.

Table 9 provides a categorization of the emphasis of respondent school MBA-MIS programs. Programs were cat- egorized based on the type of courses required and available electives. Programs offering courses in systems analysis and design, database manage- ment systems, networking, and decision support systems where two or more of these courses were required (or the number of elective courses offered assured that at least two would be

taken) were classified as emphasizing IS Analyst skills. Programs which included at least two courses from management of IS, management information systems, and information resource management, while not requiring systems analysis and design were classified as emphasizing management of IS skills. These two clas- sifications are similar to Swanson's [9]

IS and business professional. The man- agement of IS is similar to an emphasis in information management as described by Lederer [13]. The Operations Research (OR) classification was used for those programs that required operations research courses and courses in mathematical simulation or programming.

The results for this categorization sug- gest that most programs emphasize IS Analyst skills (53.5%) or Management of IS skills (39.5%). Analysis was per- formed to determine whether program

TABLE 8 Topical Distribution of IS Coursework (based on data from 45 schools)

Topic % of IS Work Devoted to Topic Human skills 16.8% Conceptual skills 16.8% General technical skills 31.3% Technical design/development skills 35.3%

TABLE 9 **Emphasis of Program**

Response	Number of Schools	Percentage of Schools
Management of IS	17	39.5%
IS analyst	23	53.5%
Operations research	3	7.0%

demand characteristics were different across the program emphases. However, no significant differences were found.

Figure 1 presents summary informa- tion about the ten most commonly offered IS courses in MBA-MIS pro- grams. Results shown are from survey respondents plus the Graduate Catalog analysis of nonrespondent schools. The lower portion of the bar for each course indicates the proportion of schools requiring the course, while the upper portion of the bar adds schools that offer the course as an elective.

The first course in Systems Analysis and Design and the Database Management Systems course are the most prevalent courses, being offered in over 80% of programs. Next comes the graduate MIS course, which is offered in just over 70% of the programs. It should be noted that the MIS course is the most likely course to be required, about half the time, and it is often a

part of the core required of all MBAs. The next most commonly offered cours- es are in Decision Support Systems and Networking and Telecommunications. Such courses are offered in more than half of the programs, although they are seldom required courses. Management oriented courses in the Management of IS and Information Resource Management are offered by about a third of the programs and the Management of IS course is frequently a required one. Completing the top 10 are IS Topics courses, courses in Artificial Intelligence and Expert Systems, and a second course in Systems Analysis and Design.

Figure 2 summarizes the distribution of placements of MBA-MIS program graduates across alternative ca.tegories of position. Among students not going on for further schooling placements are about evenly split between traditional entry level IS positions and other place- ments. Just over 45% of program gradu- ates are placed in positions as systems analysts or programmer analysts. A bit less that 15% take management posi- tions in IS. Placements as IS specialists working within end-user functional

areas are quite common, nearly 20%,

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while a relatively small number of grad- uates, about 7% take positions as infor- mation center specialists. **CO NCLUSI** O **NS**

The results of this study suggest that both student and employer demand for MBAs with an IS specialization is increasing. Given the anecdotal evi- dence of a decline in market demand for generalist MBAs experienced in many regions, this may be a good time to consider initiating or expanding spe- cialized MBA programs. Individuals who would normally be in a generalist MBA program, business professionals who have been displaced during downsizing and individuals that have completed a non-technical undergraduate degree program are all potential applicants for a specialized MBA program. The back- grounds of these potential applicants match those from this study. The typical entering student in an MBA IS special- ization program has limited formal IS training and IS related job experience. However, almost tWo-third of entering students have professional job experi- ence. Most current MBA IS programs appear to be drawing their students from workers seeking to upgrade and redirect their business and technical skills so that they can move into the IS field.

Our results also identified tWo major alternative types of programs, those designed to prepare students for sys- tems analyst or programmer analyst positions and those designed to prepare

students for careers in the management of information systems. Each type of program has experienced approximate- ly the same degree of success. The type of program that is most likely to be suc- cessful for a given school will be deter- mined by local market conditions and the skills of that schools faculty.

AUTHORS'

BIOGRAPHIES

James N. Morgan is a Professor of Computer Information Systems. His research interests include the design of databases and database management systems and MIS curriculum.

Craig A. VanLengen is an Associate Professor of CIS/ Accounting. His research interests include human com- puter interaction, CASE tools, and MIS curriculum. His pri~ary teaching responsibilities are in systems analysis and design, introductory programming, and accounting information systems.

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Figure 2 **Distribution of Placement by .Job Type**

![pie chart legend]
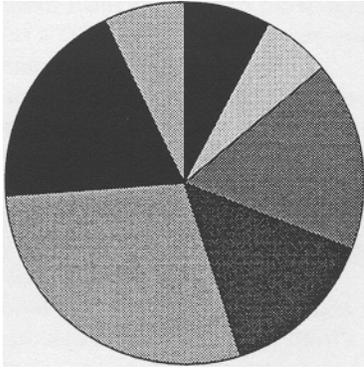
Information Center Specialist: 7%

IS

Systems Analyst: 29%

Specialist in **End-User** Area: 19%

IS

Programmer/Analyst: 17%

Other: 6%

Student in PhD/DBA Program: 8%

Managment Possition: 14%

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