

Issues In The Design And Implementation Of A Graduate Accounting Information Systems Program

Arthur H. Gilbert, Jr., (Agilbert@Ctr.Umkc.Edu), University Of Missouri-Kansas City
Nancy D. Weatherholt, (Nweatherholt@Ctr.Umkc.Edu), University Of Missouri-Kansas City

Abstract

This paper addresses the major issues faced at the Henry W. Bloch School of Business & Public Administration at the University Of Missouri-Kansas City in designing and implementing a graduate program in accounting information systems (AIS). These issues revolve around faculty requirements, curriculum, and technological support.

Introduction

The role of information technology in the accounting process is pervasive in organizations of all types and sizes. The International Federation of Accountants (1995, 34) states, "IT [information technology] is one of the core competencies of professional accountants and requires special attention due to its explosive growth and its rapid rate of change." The message of the IFAC guideline is that accounting education must incorporate increasing amounts of IT. This critical component of accounting education cannot be relegated to IT faculty in IT classes alone (AICPA, 1996). This emphasis on education in information technology for accountants is reflected in the increased incorporation of information systems courses into university accounting curricula in the U.S. This is shown in Table 1. The table indicates that the

number of U.S. accounting programs with faculty having a teaching/research interest in information systems increased substantially from 1988 to 1998.

There is no one model for implementing the study of information systems into the accounting curriculum. Some universities have a single accounting information systems course at the graduate level. Others have extensive course offerings. A few universities, such as Arizona State University, have multiple tracks a student may follow within the accounting information systems area.

This paper describes the program implemented in the Henry W. Bloch School of Business & Public Administration (Bloch School) at the University of Missouri-Kansas City (UMKC) beginning with the 1993-94 academic year. It addresses the issues that have been

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deemed critical in designing and implementing a successful program. The authors believe these same issues will be faced by any other university intent on offering a program in accounting information systems, whether at the graduate or undergraduate level. The issues addressed are faculty requirements, curriculum, and technological support.

program is of extreme importance. An effective faculty can be obtained in two ways. One method is to recruit faculty members with formal education and experience in accounting information systems. An ideal candidate would have a doctorate in accounting with an emphasis in accounting information systems, be professionally certified (CPA, CIA or CISA), and have sub-

Table 1
Growth in Accounting Systems Faculty In U.S. Universities, 1988 - 1998

<u>Number of Systems-oriented Personnel on the Faculty</u>	<u>Number of Accounting Programs</u>		
	<u>1988^A</u>	<u>1998^B</u>	<u>% Inc</u>
One	150	276	84
More than one	131	194	48
Total	281	470	67

^ASource: Hasselback (1987); ^BSource: Hasselback (1997).

Background

In the early 1990s, the Bloch School Advisory Council, which includes practicing accountants, determined that the study of information systems needed to be emphasized and reinforced in the curricula. The faculty decided to rejuvenate the relatively dormant management information systems (MIS) emphasis in the Master of Business Administration program. In addition, the faculty in the Division of Accountancy decided that students in the Master of Science in Accounting (MSA) program needed greater exposure to the role of information technology in the accounting process. In particular, a curriculum was needed for students desiring to pursue a course of study specifically addressing information systems and accounting. This was accomplished through the implementation of a new track, or focus, in accounting information systems. The AIS focus complements the two existing focus areas of taxation and accounting/auditing.

Faculty Requirements

The selection of faculty for a specialized

stantial experience in the field. Inasmuch as demand outpaces the supply of individuals having these qualifications, an alternative approach is to engage one or more faculty members who are enthusiastic about information technology and are willing to invest the time and energy to become knowledgeable about the field. The Bloch School has had success in recruiting competent AIS faculty using both of these approaches.

Also vital is continued faculty development in the area of IT due to the rapid rate of change in this area. It is imperative that faculty remain up-to-date on the latest developments in the field. This can be accomplished through an active professional reading program as well as attendance at relevant professional seminars. Universities must accept this as an investment in the program and make the financial commitment to maintain a qualified faculty.

Curriculum

The curriculum is the heart of the program. In designing the curriculum, several principles were followed. The issuance of the IFAC (1995) and AICPA (1996) documents serve to

reinforce these principles as they have been applied in the program.

First, the program had to support the goal of producing graduates with in-depth knowledge of the role of information technology in the accounting process. In particular, the study of internal controls as applied to information technology was considered to be of paramount importance.

Second, the curriculum had to be structured in such a manner so as to develop/reinforce students' oral and written communication skills. Also, the development of team and organization skills was of high priority. Discussions with members of the professional community had revealed these to be areas in which new graduates were somewhat weak.

The third design principle was that the curriculum must incorporate enough flexibility to accommodate the wide range of backgrounds, interests, and career aspirations of the students. Graduate students in accounting at the Bloch School constitute a diverse group as to background and career goals. Some enter the graduate program immediately upon graduation from the undergraduate accounting program. Others return to school for graduate work after having worked several years in an accounting position. Finally, an increasing number of students with non-accounting undergraduate degrees realize the value of an accounting education and return to pursue graduate work in the field. This necessitates their enrolling in course work to provide them with the knowledge equivalent to that obtained in an undergraduate accounting curriculum.

Upon graduation, approximately twenty percent of the graduates of the MSA program enter public accounting with firms ranging from the Big Six to local firms. While the majority of these students have traditionally entered the audit and tax practices of the public accounting firms, an increasing number are entering the consulting

practice. Most of remaining graduates typically enter accounting or financial management positions in industry or government. A very small percentage continue their education by pursuing doctoral degrees. It must be noted that the emphasis of the AIS program is to prepare students to be users, managers, designers, and reviewers of information systems as described in IFAC (1995). There is no doctoral program in accounting at UMKC. Therefore, the education of accounting scholars, as one would see at a university with a doctoral program in the field, is not emphasized.

Finally, in designing the AIS curriculum, the structures of the other focus areas, accounting/auditing and taxation were considered. Both of these focus areas are based on core curriculum with a small number of elective courses allowed to accommodate students' individual interests and career aspirations.

The thirty semester hour AIS curriculum is organized around a core of four courses that are required of all students in the program: Accounting Systems Analysis and Design, Advanced Information Technology and Auditing, Advanced Accounting Information Systems, and Accounting Information Systems Consulting. As shown in Table 2, these courses are designed to provide a broad base of knowledge addressing the interface of information technology and accounting.

Accounting Systems Design and Analysis introduces students to the principles of information systems design. Emphasis is placed on the design process and the incorporation of internal controls into the system design. Students, functioning as members of teams, are required to design and document an accounting system incorporating unique requirements for a firm operating in a specific industry.

Advanced Information Technology and Auditing addresses issues encountered in auditing computer-based information systems and the

use of the computer as a tool in the audit process. Students are introduced to general and specialized audit software which were donated to the Bloch School by an international accounting and consulting firm.

rial accounting, and taxation. Flexibility is provided in the curriculum through three restricted elective courses. Students may take electives in business courses with a systems orientation, such as MIS or operations planning and control, or

Table 2
AIS Courses and Content
University of Missouri-Kansas City
Henry W. Bloch School of Business & Public Administration

<u>Course</u>	<u>Content</u>
Accounting Systems Analysis & Design	Information systems design Internal control
Advanced Information Technology	Auditing computer-based systems & Auditing Use of the computer as an audit tool
Advanced Accounting Information Systems	Specialized topics such as: Computer networks Data communications Expert systems
Accounting Information Systems Consulting	Capstone course emphasizing: Teamwork Organization Planning Knowledge application

Advanced Accounting Information Systems addresses specialized AIS topics on a rotating basis. Currently, an in-depth analysis of computer networks and data communications is the topic for this course with current technology and internal controls being the focal points. Student teams are required to examine, document, and make an oral presentation addressing a firm's computer network. Planned future topics for this course include the role of expert systems in accounting.

Accounting Information Systems Consulting is the capstone course for the AIS focus. Students are organized into consulting teams that assist a local firm in addressing a systems problem. Each team negotiates a contract with the client (subject to review by the course instructor), analyzes the problem, and prepares oral and written presentations providing recommended solutions to the client's management.

In addition to the courses in AIS, students are required to complete courses in advanced financial accounting, advanced manage-

they may design a more technical program by selecting courses in computer science. A C++ programming course is required of all students enrolling in computer science courses as electives. Other students are encouraged to enroll in this course. Care must be exercised in approving computer science courses as AIS electives as accounting students may not possess the mathematical maturity for some courses. A strong working relationship with the computer science faculty can help alleviate this problem.

Technological Support

A substantial commitment and investment in technology is required to support a graduate AIS program. A viable program will employ technology that approximates the technology the graduates will utilize in the marketplace. Providing this level of support is somewhat daunting for some business schools during periods of austere funding. Maintaining a strong relationship with the professional accounting community is one way to help alleviate this problem. Some firms provide gifts of equipment

and software to accounting programs with which they have a strong relationship. The Bloch School has been the recipient of several gifts of software and hardware for educational use from outside sources. Grants are another external source of funding to support the program.

Easy access by students to the technology used in the AIS program is also important. Some of the technology, particularly software, used in a program may be expensive and, in some cases, proprietary. Students may not be able to purchase educational versions for use on their own machines. Ideally, students should be able to access these tools from a remote location as opposed to their being required to come to campus.

Staff support is also very important. Students will accomplish most of their hands-on computer work outside of the regularly scheduled periods in the classroom. It is necessary to have trained personnel available to assist and provide technical support to students outside of the classroom setting. This support may be provided through staff personnel or by employing knowledgeable graduate assistants.

Program Results


The AIS program at the Bloch School is considered a success. Enrollment continues to increase. Also, large numbers of students enrolled in the accounting/auditing and taxation focus areas select AIS courses as their electives. Faculty associated with these focus areas report their students having a greater awareness and appreciation of the power of information technology as applied to those areas. Also, students in the MIS emphasis of the Master of Business Administration program are requesting permission to take AIS courses as electives. Permission is granted on an individual basis to insure these students have the prerequisite courses.

The professional accounting community has enthusiastically embraced the AIS program.

Students enrolled in the program are actively recruited by public accounting firms, industrial firms, and government. Those entering public accounting are entering both the audit and consulting practices of their firms. Those choosing a career in industry are typically being recruited as consultants, systems analysts, and financial system coordinators. Governmental entities are recruiting AIS graduates as information systems auditors.

However, a program based on such a rapidly changing field must remain flexible and dynamic. There must be continuing evaluation and assessment by the faculty to insure that the curriculum remains relevant in light of the changing demands placed on accountants, whether in public practice, industry, or government by advances in information technology.

Conclusion

The task of designing and implementing a program in accounting information systems can be overwhelming. However, information technology is destined to play an increasingly important in accounting education. Educators must address the issues involved in providing this unique element of accounting education if students are to be prepared to face the information technology challenges they will face as accounting practitioners. 

References

1. American Institute of Certified Public Accountants (AICPA), *Information Technology Competencies in the Accounting Profession: AICPA Implementation Strategies for IFAC International Education Guideline No. 11*, AICPA, New York, New York, 1996.
2. Hasselback, James R., *1998-1999 Accounting Faculty Directory*, Prentice-Hall, Upper Saddle River, New Jersey, 1998.
3. _____, *1988 Accounting Faculty Directory*, Prentice-Hall, Upper

- Saddle River, New Jersey, 1988.
4. International Federation of Accountants (IFAC), *International Education Guideline No. 11, Information Technology in the Accounting Curriculum*, IFAC, New York, New York, 1995.