Preparing Future Technology Users

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No longer is it sufficient for a graduate of a business school to be knowledgeable about a specific business functional area; there are additional skills and abilities required by a business organization. Employees in every specialty, at every level in a business organization, are using technology to enhance their performance. Knowledge of productivity software such as word processing, spreadsheets and presentation packages is assumed. However, the combination of technological and domain knowledge still does not guarantee a successful career. Business organizations are concerned with a graduate’s communications skills, both written and oral, collaborative skills, an international awareness and an ability to do research. Trying to provide every opportunity for the student to obtain these skills and abilities, many business schools have undergone curricula revisions and redesign. This paper describes a redesigned undergraduate Information Systems course in the School of Business and Public Management at George Washington University that attempts to provide future technology users, in any functional area, exposure to and practice in these career enhancing skills and abilities.

The objective of this course is the integration of fundamental organizational social dynamics, with research and technical skills, in order to prepare graduates to meet the evolving challenges of their future careers.

There are many demands made upon the undergraduate business school curriculum. Business organizations and accrediting associations provide valuable input concerning curriculum content and focus. Not only are accounting and financial abilities required, but also collaborative - group work skills and communications skills. Additionally, as firms encounter global competition and the pressures to become global, there is a demand for graduates with an international understanding. Computers are ubiquitous in the business organization; connection to the Internet is becoming omnipresent. Linkage to the Internet allows organizations to advertise services and products, to research the competition and to reach many on-line consumers. A recent survey of Information Systems managers (Chow 1994) rated oral communications and interpersonal skills for participation in development teams the two most important abilities required by industry. At Marquette University, with help from the business community, faculty are “Improving the oral and written communications skills of students” and believe that “Today’s business schools also have to teach students how to use computers in business, how to compete in an international market and how to better motivate and manage people.” (Mullins 1995, p. 2A) Therefore, the responsive curriculum needs to prepare graduates not only through the course content, but with additional career enhancing abilities that will enable them to effectively demonstrate that knowledge. They are tomorrow’s business professionals, both domestic and worldwide.

The Data Processing Management Association (DPMA), the Association of Computing Machinery (ACM) and the IS’95 Curriculum Committee each provide a model curriculum that supports an introductory computer science or information systems course for majors and non-majors. This core or required course usually introduces productivity software, such as word-processing, spreadsheets, databases and presentation packages. The students are either at the freshman
or sophomore level. Although some students are comfortable with these software packages, most have limited exposure and some have none at all. Therefore, the challenge in the design of this course is not only to capture the interest of students with vastly different levels of expertise, but also to build a foundation of skills that are mandatory for the remainder of their university courses and for their business careers.

Accordingly, along with course knowledge, we desire our students to acquire collaborative skills, communications skills, an international awareness, a research ability using the Internet and the ability to use software productivity tools. Both business people and educators realize that students need to be provided with the opportunity throughout their four years to master these skills. Since the undergraduate business curriculum prepares the student for a career position in a business organization, it should stress the techniques and processes of the business organization. This paper describes a project in a redesigned undergraduate Information Systems course in the School of Business and Public Management at George Washington University. The project attempts to unite different abilities and prepare students to meet the evolving challenges of their future careers.

**Background**

Productivity software and research on the Internet are subjects that ordinarily fit into an IS concepts course. However, time spent on communications skills, collaborative work and an international awareness is more difficult to justify and often neglected. All of these capabilities are necessary not only for students throughout the rest of their college careers, but also for them to become productive participants in their future business careers.

Productivity software and research on the Internet are currently taught in most introductory Information Systems courses. The blending of communication and collaborative skills, along with an international awareness is also possible. The rationale for the integration of these proficiencies into the curriculum, through a sampling of proposals and implementations by other universities, follows.

**Productivity Tools**

Technology has become a necessary part of every student’s education. Understanding of software productivity packages is just the beginning of a lifelong learning process. Mastery of wordprocessing and spreadsheet packages is mandatory for everyone entering the business arena. There is an expectation that students will arrive at the university with a basic knowledge of these software packages, however, that is still often not the case. Those students that profess knowledge are often self-taught and may or may not have achieved the level of competence acquired through formal course work. They need to master more than the ‘keystrokes’ of the package; they need to view the software as a tool that enables them to produce useful products not only during their university careers but in their future business careers. As the Internet has grown so has the demand for using this facility and the logical place for inclusion is the introductory course.

**Research on the Internet**

“...we have learned that students need mentorship in order to use the tools of their trade effectively. The Internet is no exception; just connecting students is not enough. Pedagogy and curriculum will need to change in profound ways in order to make effective use of the Internet.” (Soloway, 1995, p. 17). Business professionals need to locate “data external to the organization and to become intelligent managers and consumers of such data.” (Lehman 1995) There are other online resources, however, the World Wide Web with improved navigational tools (Netscape and Internet Explorer), is the most popular. Granger and Schroeder (1994) provide examples of using the Internet throughout the curriculum to enhance the educational experience. Email, the most widely used feature of the Internet, promotes written communication skills.

**Communication Skills**

Good communications skills, written and oral, are a major requirement for success within a business organization. Students often take a communications course in their freshman or sophomore year and think that is the end of written and oral presentations. However, this is a skill that will be reinforced and practiced throughout their careers and the foundation is barely established during their early college career. Realizing the importance of communications, Southern Connecticut State University in New Haven (Gross, 1993) has developed a concentration in business communications. DePauw University (Weiss, 1993) has instituted a speaking across the curriculum program, while Clemson (Lovitt, 1992) advocates writing across the curriculum. In each of these attempts, it is suggested that all courses devote some obligatory portion to written and oral presentations. This repetition emphasizes the importance of these abilities and provides the practice and feedback necessary for improvement. In a business environment, this expertise is vital in a collaborative atmosphere.

**Collaborative Skills**

Recent AACSB guidelines (1993) emphasize team building and collaboration as a powerful learning experience. Establishing self-directed teams to work on either short term or semester-long projects places the responsibility for learning on the students, with faculty providing a minimum of guidance (Dutt, 1994). “An old Chinese proverb has become the guiding philosophy of facilitators and conference centers that offer team-building programs: ‘What I hear, I forget; what I see, I remember; what I do, I understand.’” (Fryberger 1995, p. 118) Computer Supported Cooperative Work (CSCW) is being implemented in many businesses (Goya 1995) and is being implemented in some undergraduate business curriculums. Since business issues require collaboration of many
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