Chapter 6.7

Developing an Innovative Curriculum to Prepare Networking Professionals for the Global Marketplace

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INTRODUCTION

The need for business managers with strong information technology (IT) skills in general, and data communication and networking skills in particular, is now high and will be even greater in the years to come. According to the U.S. Bureau of Labor Statistics (2007), occupations in the area of network systems and data communications analysis are projected to increase 55% by 2014. Given the trend in business to leverage information technology to decrease costs and increase efficiency in all functional areas, this demand is understandable. What is more difficult to understand is the lack of response to this demand by university IT departments as reflected in their curriculums (Hawk, 2005). In this article we describe how one information and technology management department has attempted to meet the challenge of integrating networking skills in a coordinated fashion over a wide variety of courses to, at least in part, better prepare their students for the demands they are certain to face when they graduate.

BACKGROUND

During the 1990s, dot.com companies, spawned by the meteoric rise of the Internet, spearheaded a period of frantic growth in IT throughout the economy. No functional area of business was unaffected. E-commerce was predicted to replace traditional methods of merchandizing, entire companies underwent radical business process reengineering, and functional areas such as accounting, sales, and human relations were all affected by new technology-driven processes. As a consequence, the enrollment
of students across computing disciplines grew rapidly with computer science departments reaching an all-time high of over 22,000 undergraduates nationwide in 2001, compared to only 10,000 in 1995 (Zweben, 2007). The growth in information systems programs paralleled that of computer science (Shah, Martain & Mehta, 2006).

The dot.com bubble burst in 2000, which combined with the impact of a recession, led to a drop in demand for IT professionals nationwide. Many companies turned to outsourcing in an effort to meet IT demands while reducing costs. Outsourcing, and in particular, offshore outsourcing, has its greatest impact in the areas of technology support, application development and IT related financial, marketing, and e-HR business processes. It has relatively little impact on basic IT infrastructure services, such as network management, server maintenance, and PC support (Gartner Group, 2003).

The decline in demand for IT professionals nationwide, coupled with the effects of offshoring, are reflected in a drop in enrollment of IT undergraduates of over 40% over the last 5 years (Zweben, 2007), with enrollments in some information systems programs declining as much as 70% (Shah et al., 2006). As the economy began to pull itself out of the recession, the number of IT jobs started increasing, especially in the areas of networking and e-commerce (Minch & Tabor, 2003). During this same period, the nature of IT within corporations and organizations has undergone rapid and profound changes to the point that “today it is hard to distinguish between business and technology at all, given that nearly all business transactions are enabled by technology” (Andriole, 2006, p. 3).

Unfortunately, business college curriculums have been slow to respond to these changes (Andriole, 2006; Mehic & Al-Soufi, 1999). In a 2003 survey of 244 CIOs and IT managers, Hoffman (2003) found that 75% of these professionals felt that colleges and universities were not preparing students for the IT jobs of tomorrow. A similar study reported by Andriole (2006) also found a disjoint between what was being taught and what industry needed. Accordingly, a number of researchers have endeavored to create new curriculum models more in tune with the demands of business (Ehie, 2002; Noll & Wilkins, 2002). Today, most IT programs adhere in some form to the IS 2002 Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems (Gorgone et al., 2002), which has an applications development orientation and less of an emphasis on managing and implementing IT. Other researchers have proposed integrating IT within other areas of the business curriculum such as marketing, finance, and human resources. Hempel (2004), for example, argues that the HR curriculum needs to be redesigned to include hands-on HRIS (human resource information systems) and e-HRM (electronic human resource management) applications such as Internet-based systems, online self-service systems, and the basics of data communications.

Curriculum however, is not only the only aspect of IT education that requires changes, but the method of teaching these courses also needs to evolve to meet the expectations and abilities of a new generation of technology-savvy students (Laurillard, 2002), what Hoffman (2003) refers to as Generation Z or the Millennials. Students today are more comfortable with IT applications than earlier generations and seem to perform better in situations that offer a blend of theory and “hands-on” experience (Baker, Matulich, & Papp, 2007; Minch et al., 2003). Accordingly, the IT curriculum needs to adapt itself both to the needs of its new users and to the requirements of a changing workplace.

In discussing the gap between what IT curriculums offer and what industry currently requires, Andriole (2006) points out that “business technology optimization is an area for educators. More and more companies are struggling to optimize the performance of their software applications, networks, data base management platforms, and