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# **Adopting Information Technologies for Instructional Environments**

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## **INTRODUCTION**

The introduction of new information technologies has created a turbulent environment for change in higher education; this has caused institutions, faculty and administrators to rethink their roles, teaching venues, and delivery options in markedly new ways than those currently available. The promise that accompanies any such remarkable change also brings with it some realities as these ideas are tested, implemented and adopted. Neal (1998), an outspoken critic of the unbridled enthusiasm of technology, advocates investigating experiences of individual faculty members since they are the end-of-the-line implementers of technology in higher education. He says that their opinions about the benefits of technology should be of ultimate value in discovering useful and effective strategies that have the capacity for long-term survival.

This case study presents a synthesis of data derived from interviews with six faculty members in an urban public institution of higher learning. These innovators, who have been implementing information technologies in their teaching, provide valuable information about the possibilities and the restrictions, and discuss support structures that are needed to advance the adoption of this innovation on a larger scale. This chapter addresses four core areas of concern relating to the integration of IT in higher education. The first is to understand the factors that led faculty to adopt IT in their teaching. The second is to explore the interplay between particular technologies and teaching practice. The third to ascertain the relationship between teaching architectures and learning outcomes.

### **CASE QUESTIONS**

- What factors influence the early adoption of technology by faculty?
- How can technology be used to create student-centered learning environments?
- What are the unintended consequences of using technology in teaching and learning?
- What are the rewards for using technology in the classroom environment? Does it reduce or increase the amount of time spent?

## **BACKGROUND**

Urban Public University (UPU) is a state-supported public university located in a large urban city in the southern part of the United States that prides itself for its capacity to enroll and

educate a diverse student body. It is a doctoral degree-granting institution, the largest in a system that includes three other universities. It offers 103 bachelor's degree programs, 119 master's degree programs, 53 doctoral degree programs and three professional degree programs through its 14 colleges. The teaching faculty in this university consists of 856 ranked faculty.

Six faculty members at this university were interviewed to address issues of integrating technology in higher education at a public university. They were identified through a search of the university's Web site for faculty who had won teaching awards, through Internet courses, from personal knowledge about those who have a reputation for innovation, and from recommendations of other faculty.

The faculty members interviewed for this chapter represent diversity in terms of academic disciplines and professional rank. To preserve confidentiality, only collective descriptions of the group are provided. These members include two associate deans of colleges who continue to teach. The other four include one tenured associate professor, one assistant professor seeking tenure in the year 2000, and two visiting assistant professors, one of whom has been recently promoted to an associate professor.

These faculty have been employed at this institution between four to 17 years and represent the winners of a number of teaching and distance learning awards. Many of these faculty members are also involved in an informal group, formed in 1994, that meets regularly to discuss and showcase integration of information technology (IT) into education. Those who do not teach entirely online are involved in integrating information technologies consistently into their courses. Some have participated in funded projects that resulted in technology-enriched learning resources. One faculty member is the editor of a journal that focuses on the integration of technology in his discipline. Four of the six have participated in Interactive Television (ITV) courses. Only one has never taught a completely online course.

Excerpts from the interviews are intertwined throughout this chapter. Each excerpt is preceded by FM1 (Faculty Member 1), FM2 (Faculty Member 2) to represent the person from whom that quote originated so that readers, if they wish to do so, can easily decipher whether or not the excerpts emanate from the same individual.

### **Factors that Led to the Adoption of Information Technology for Teaching**

One of the much-touted benefits of IT is the potential for implementing new and highly flexible combinations of technologies to serve specific teaching needs of the instructor. The sophistication and level of IT implementation depends both on prior expertise with technologies, the operant teaching philosophy, unfulfilled teaching needs, and expressed student needs. This section explores these issues and "technology readiness" as a factor that prompted faculty to integrate IT into their teaching. Although "readiness" was inherent in these early adopters, this issue needs to be understood in context as institutions create support systems for other faculty. It is presented here to instigate a discussion about how to create effective systems of support for those who may not be "technologically ready" or "inclined."

A background in, facility with, and interest in computing were factors that led them to be poised and ready to adopt IT in their teaching. Five out of the six faculty members indicated a history of computing that formed the basis for and propelled them to use these newer information technologies. When technology teaching innovations arose in their own disciplines, they had an affinity to the technology and developed practical experience with implementation in teaching. The focus of the implementation was always how to use the technology as a teaching tool.

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