

# **A Longitudinal Study of Technology Infusion in a Major Teaching Institution**

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**Abstract:** The results of a three-year study of technology infusion in the College of Education of a major Southwestern University are presented. During the period of the study, the institution established a significant online teaching program, including both hybrid and fully online courses. The study provides statistical data on the impact of a wireless networking and multimedia classroom technology initiative, and examines staff and faculty technology adoption and implementation rates.

## **The Need For Technology Enhancement in the College of Education**

The need to embed technology into teaching and learning is both a pedagogical, social, and political reality today. Technology is effecting many aspects of our society and as such it is a transforming force in education, particularly higher education. Technology leadership is especially significant for Colleges of Education that serve traditionally disadvantaged populations such as are found in the Southwestern border regions of the United States. Because technology is not as widespread in the surrounding community, and because the relative isolation of the region results in an extremely high rate of teacher-candidates teaching in the surrounding districts, effective models of pedagogy that incorporate technology into teaching and learning are vital. Since higher education faculty prepare future teachers, faculty face a challenge to teach with current and emerging technologies

## **Overview of the Study**

The technology study began in Fall of 2002 when, as part of the technology infusion initiative, a planning team was formed for the College. This team was made up of faculty members from each of the departments, the Dean, and the College Technology Coordinator. Their task was to formulate a multi-year program for expanding the technology infrastructure, to develop a training and support plan, and to study the effectiveness of the initiative. The study is now in its third year, and its focus is on the change in faculty adoption and use of the technology, as well as changes in the way faculty use technology in both personal and professional pursuits.

The technology changes did not occur in a vacuum. The College of Education had previously been engaged in a decade-long community based series of technology enrichment activities, including a series of department of Education Challenge Grants, and University-wide technology upgrades. The State of Texas, through its Telecommunications Infrastructure Fund (TIF) had given substantial monies which provided the basis of college-wide expansions, enabling over half of the classrooms to become multimedia "smart" classrooms, and instituting Wi-Fi access to the Internet from all points in the college. In order to ensure that these extensive physical changes were translated into teaching and learning outcomes, a yearly survey was conducted, first to establish a baseline in personal and professional use of technology by the faculty, and second to identify how technology affected teaching in terms of strategies, administration, and student outcomes. This survey took place at the same time, in the first few weeks of class each year, and its results are used to guide further technology purchases, training approaches, and infusion strategies.

The population of our study are 69 full-time faculty, divided among three departments: Teacher Education, Educational Leadership and Foundations, and Educational Psychology and Special Services.

Data from the three years of the study include the results of the thirty-six question faculty surveys, as well as follow-up interviews with both faculty and students. The survey was adapted from an instrument previously developed by Ron Aust (2002). Questions were designed to determine respondents' self-reported knowledge and use of technology both inside and outside the classroom, as well as questions about their use of web-based tools. Particular

note was given to how the initiative was impacting the results of the state initiative in technology standards for all beginning teachers. Statistical data and lessons learned are discussed, with recommendations.