Chapter 4.30
Examining Perceptual Barriers to Technology:
A Study on the Diffusion of Educational Technology and Education Reform

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ABSTRACT

This study examines educators' perceived barriers to technology integration and the relationship to education reform. Educators and administrators from four elementary schools in Washington State were interviewed in their classrooms during a three-month period. The schools differed in size, location, and social economic status and reported variances in their Washington Assessment of Student Learning (WASL) scores. While all of the schools reported similar barriers to the use of educational technology, distinct differences appeared between those schools that had done long-range planning during the reform process and those that had not. Specifically, staff in the two schools that coordinated curricula, performance standards, and a variety of assessment tools while simultaneously allowing teachers the flexibility to alter the curricula, were more likely to state personal responsibility for student learning, and they also were more likely to have overcome barriers to the use of technology.

BACKGROUND

In a recent campaign commercial, a candidate spoke of the need to improve education and to create quality schools. Lined up along a white wall behind him were rows of computers with elementary students quietly absorbed in the computer screens. The message to the public was clear: computers and computing technology are not only necessary for quality schools, but

they are indicative of good teaching and student learning. If the state was to have youth who would eventually be competitive in a global economy, technology would need to be at the forefront of funding and government support.

Computing technology has been marketed as the current solution to education's problems (Rockman, 2000), and the quest for technologically equipped schools has grown dramatically. In 1996-1997, an estimated $4.3 billion was spent by school districts in order to upgrade and incorporate computing technology in classrooms (Healy, 1998). In the year 2000, the number of computers in schools numbered over 10 million (Becker, 2000).

PURPOSE

Research in the integration and institutionalization of educational technology was limited in scope in 1994 (Seels & Richey, 1994), and although educational technology is available, it is not integrated into classrooms today (Becker, 2000; NCES, 2000). Only 43% of elementary classrooms surveyed used computers on more than 20 occasions during the school year (Becker, 2000). Nationwide, districts are grappling with education reform and accountability while simultaneously attempting to financially support computing technology and encourage integration by classroom teachers. Currently, there is no clear rationale that explains the apparent difficulty with incorporating the use of educational technology and whether or not there is a relationship between the level of technology integration and the pressure teachers experience as a result of education reform efforts. The purpose of this study was to examine how educators in several schools in Washington state were responding to the pressure to integrate technology while simultaneously being accountable for student achievement.

REVIEW OF THE LITERATURE

In January 2002, President George W. Bush reauthorized the Elementary and Secondary Education Act. This bill contained an even larger allotment of money and support for technology from the federal government than previous education bills did (Fletcher, 2002). Currently, 48 states have adopted or are developing assessments that align with standards-based reform efforts (Stecher & Chun, 2001). Reform and standards have impacted classroom practice, and schools and teachers have responded in multiple ways (Adcock & Patton, 2001). Often, technology reform and education reform have paralleled each other as opposed to being incorporated (Peters, 2000), meaning that in many instances, the purchasing of computing tools and related technology, as well as a plan for staff development, were not coordinated with a building's reorganization and examination of the curriculum and instructional processes. When both education reform and technology integration have been combined fully with curriculum reform, which includes examining pedagogy, positive results have been found for students (Bain & Smith, 2000).

BARRIERS TO TECHNOLOGY USE

In spite of significant pressure to integrate the use of technology into the curriculum, the presence and accessibility of computers in the schools has not shown that the technology is being used by educators or that students actually can or do use it (Cuban, Kirkpatrick & Peck, 2002; Kalkowski, 2001). Although they are accessible, computers have not transformed the practices of a majority of teachers (Becker, 2000; Labbo & Reinking, 1999), and Willis, Thompson, and Sadera (1999) have pointed out that integration of computers into the classroom has actually been a slow process.

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