Factors Determining Elementary Teachers’ Use of Computers

Throughout the past few decades, technology has been viewed as a lodestone for improving student academic performance and for increasing the flexibility of public schools. As a result, computer availability and use have increased and programs addressing educational technology have gained attention. Despite the access to equipment and the Internet, relatively few teachers feel well prepared to integrate educational technology into classroom instruction. The National Center for Education Statistics (NCES, 2000, 2005) reported that only about one-third of elementary teachers in the U.S. felt well prepared or very well prepared to use computers and the Internet for classroom instruction, and less experienced teachers felt better prepared to use technology than their more experienced colleagues. Research on the use of computers in elementary schools indicates that elementary teachers use computers primarily for administrative and preparatory tasks and not for instructional activities with students, causing computer use to be less frequent and effective than it could be in instruction (Becker, 2000; Cuban, 2001; NCES, 2000, 2005). Lack of teacher preparation is cited as one of the factors that hinder computer use by elementary teachers (Guha, 2003; NCES, 2000). By investigating computer use of novice teachers, I sought to understand if teacher preparation and training is the critical factor to classroom use of computers or if other factors outweigh teacher preparation and training. I studied more than 100 elementary teachers throughout their first five years of teaching—all of whom considered themselves well prepared to integrate technology into classroom instruction as a result of their teacher preparation program and inservice professional development. The findings of this longitudinal study indicate that teacher preparation focusing on integrating technology into curriculum and instruction does, in fact, matter significantly. These teachers used technology for instruction more frequently and in more diverse ways than the majority of elementary teachers in the U.S. and were able to overcome barriers to technology use (Franklin, 2007).

“**When principals believe technology to be important to teaching and learning, they tend to impart this belief to their teachers.**”

**How Elementary Teachers Use Computers**

Elementary teachers use computers most frequently for noninstructional activities, like administrative, preparatory, and communication tasks, and least often for classroom instruction (Becker, 2000; NCES, 2000). The teachers I studied used technology for instruction significantly more than the national trends, and sought out and used in-class computers, LCD projectors, SmartBoards, and the Internet as common tools in their classrooms. In most instances, they had to reserve and transport the hardware into their rooms and signed up for computer lab time as often as possible.

Although access and availability to the Internet and computers have increased at elementary school sites, the average elementary classroom has only two computers. This does not mean, however, that the computers are relatively new, that they work, or that they are compatible to the existing software. The availability of classroom technology correlates to teacher use of computers, and teachers who had more computers available in the classroom more often assign activities in which students used technology (NCES, 2005). **Teacher preparation and training.** Teachers who feel better prepared to use technology are more likely to assign students to use it than those teachers who feel unprepared. If technology integration into curriculum at the elementary school level is desired, teachers must know how to integrate curriculum and technology. The National Educational Technology Standards (International Society for Technology in Education, 2000, 2002) provide sound guidelines for teacher preparation. **Leadership.** A strong community of leadership within elementary schools is vital to technology implementation. When principals believe technology to be important to teaching and learning, they tend to impart this belief to their teachers (Evans-Andris, 1996). These
principals tend to acquire hardware and software for their schools, encourage teachers to take leadership roles in teaching and supporting technology use, and provide an environment that supports technology integration. These principals help create a climate in which experimentation with technology is looked on with favor and given encouragement.

Time. Teachers need time released from their classroom duties in order to learn, practice, and plan ways to integrate technology into curriculum. There also needs to be time in the daily schedule for students to use technology.

How Principals Can Make a Positive Impact
Knowing the factors of access and availability, time, leadership, and, most importantly, teacher preparation and training, are vital to administrator support of technology integration into curriculum and instruction. School administrators can do much to positively influence technology integration into elementary classroom instruction, including keeping schools technologically current, emphasizing the importance of technology integration via professional development activities, providing opportunities for preservice teachers to teach with technology, and encouraging veteran teachers to develop technology-infused teaching practices.

References

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