

Chapter 5.8

Narrowing the Digital Divide: Technology Integration in a High-Poverty School

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ABSTRACT

Empirical data from a secondary school that took steps to increase technology integration in its classrooms with the long-term goal of raising student achievement are presented. Results from the analysis of this data indicate positive effects from the implementation of two grants designed to bridge the digital divide. Research confirms that the results from this case study are consistent with the methods for success in implementing technology as a tool to improve student achievement. Future study should involve further data collection via teacher evaluations of the professional development process and the analysis of the results from standardized test scores to confirm the positive impact of technology on student achievement.

INTRODUCTION

In December 2000, former U.S. Secretary of Education Richard Riley released the new educational technology plan, *eLearning: Putting a World-Class Education at the Finger Tips of All Children*. This report was a result of an 18-month study by educators, administrators, policy-makers, and the private sector to rethink and revise the national strategy for the effective use of technology in elementary and secondary education. The

report outlined five national goals for technology education which include:

Goal 1: *All students and teachers will have access to information technology in their classrooms, schools, communities, and homes.*

Goal 2: *All teachers will use technology effectively to help students achieve high academic standards.*

Goal 3: *All students will have technology and information literacy skills.*

Goal 4: *Research and evaluation will improve the next generation of technology applications for teaching and learning.*

Goal 5: *Digital content and networked applications will transform teaching and learning.* (U.S. Department of Education, 2000, p. 4)

While these goals are certainly worthwhile, the question arises, “Are they attainable for all students and all teachers?” According to Brogan (2000, p. 57), “Many teachers did not grow up with computers and are not receiving the training they need to operate them. Some children do not have a computer at home whereas others may have several.” This fact is corroborated by Lori Meyer (2001), who reports that 82% of teachers surveyed by the National Center for Education Statistics (NCES) indicated they were not given enough time outside their regular teaching duties to learn, practice, or plan how to use computers and other technologies. This same study also revealed that the more hours teachers had spent in training, the more prepared they felt to use computers and the Internet for instruction.

In addition to insufficient teacher training, another concern is availability of technology to students and teachers at different schools. The lack of technology based on socioeconomic level known as the “digital divide” has changed its focus in recent years. What used to be considered as simply the difference between those who had computers (the wealthy) and those who did not (the poor) is now changing to focus on how the technology is used in the classrooms. Bushweller and Fatemi (2001) report that in high-poverty communities, schools have one computer for every 5.3 students. This is slightly above the national average of one computer for every 4.9 students. However, this same study found that in schools with fewer than 11% of the students qualifying

for free/reduced lunch, 74% of the classrooms had Internet access, while in schools with 71% of the students qualifying for free/reduced lunch, only 39% of the classrooms had Internet access. Also of concern was the fact that teachers tended to infuse technology into lessons much less with low-achieving students than with high achievers. The teachers cited tight time constraints, which made it difficult to cover the prescribed curriculum—an even more difficult task with students who have weaker skills or less motivation (Bushweller & Fatemi, 2001).

Clearly it is necessary for all educators to understand not only the importance of technology integration in raising student achievement, but also the methods for breaking down the barriers to this integration in schools on the “wrong side” of the digital divide. Previous research has focused on state or district measures to address these issues. What is needed is an in-depth look on how a high-poverty secondary school moved toward narrowing the digital divide during a two-year period, and the empirical evidence gathered on the issues of staff development and accessibility to technology.

BACKGROUND

The issue of technology implementation and its effect on student achievement has received much publicity in recent years. As schools are being held more accountable for meeting state and national standards through their performance on standardized tests, the focus on improving student achievement through technology becomes an even greater issue. The question arises, “What factors impact the effectiveness of technology as a tool to raise student achievement?” Archer (1998) believes that computers can raise student achievement and even improve a school’s climate. Levinson (2000) agrees, but adds that many factors, such as staff development, infrastructure, and effective instructional materials, influence

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