How Technology Is Changing Education

"Almost every time I visited classrooms where the teacher, or someone else, had boasted that great technological learning was going on, the actual exercises staged were nearly empty of intellectual content." (Oppenheimer, 2003, p. 159)

Technology is constantly evolving, affecting the way we function at home, work, and school. To that end, it's important to remember that technology encompasses more than just the computer. From e-mail to cell phones and from chalkboards to smart boards, "technology" is any digital medium used to enhance the learning environment.

In his article "Teaching the iGeneration," Larry D. Rosen proffers, "to members of the iGeneration, a phone is not a phone. It is a portable computer that they use to tweet, surf the web, and, of course, text, text, text" (Rosen, 2010, p. 13).

Indeed, learning has gone mobile—so much so, in fact, that students are constantly connected to information and stimulated with the latest gadgets, and often feel as though they must "power down" when entering the classroom (Prensky, 2008). There's a nexus, however, between powering down technologically and powering down academically. Clearly, learning should occur, regardless of whether technology is used. But technology enhances learning—just as a chef enhances even the most basic meal with a variety of spices.

Why Use Technology?

Technology is also important in education because it leads us to closely examine how people learn. Although good teaching is rooted in sound pedagogy, technology is an assistive tool educators should employ. When used purposefully, computers allow teachers to differentiate instruction by "providing a wider variety of avenues for

learning that reach students of divergent readiness levels, interests, and learning styles" (Pitler, Hubbell, Kuhn, & Malenoski, 2007, p. 3).

A 2008 report from the National Center for Education reveals: "An estimated 100 percent of public schools had one or more instructional computers with Internet access" (NCES, 2008, p. 2). Although half of all education dollars are spent on technology, according to William Pflaum (2004), the average student "spends about an hour a week with a computer at school" (p. 5).

Prensky (2008) emphasizes that even the youngest students enter the classroom now with a greater frame of reference about the world around them than ever before in history. He points out that constant exposure to information in the form of media and technology gives students a tremendous amount of information about the world. According to Prensky, "the world is no longer a dark unknown place for today's school kids. Kids are not intellectually empty. Even though some of what they know may be incomplete, biased, or wrong, students arrive at school full of knowledge, thoughts, ideas, and opinions about the world and their universe" (2008, p. 42). Therefore, technology used to enhance learning and differentiate instruction offers substantial benefits, considering that it's an engaging, and natural, part of kids' world today.

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The Big Question

The question then becomes, why are students spending so little time using computers in the classroom when the research and spending suggest substantial benefits when technology is incorporated into instruction?

Curriculum is the foundation of good instruction, and technology is a means to help learners access content—not the purpose of the lesson. Take, for example, PowerPoint, a common presentation tool used to deliver information. When using PowerPoint software superficially, however, the teacher runs the risk of oversimplifying complex ideas, limiting the opportunity for students to demonstrate higher-order thinking skills. This oversimplification will eventually backfire in unexpected ways because employers are increasingly looking for specialists who can problem-solve at high levels (Wenglinsky, 2005/2006).

In addition, our global economy is best suited for tech-savvy workers who can meet the demands of the 21st century. If our students are going to be economically successful in an increasingly competitive job market, they will need to be computer literate. So it works to educators' advantage to recognize the role technology plays in the lives of students. To ensure this outcome, educators need to change the technology paradigm—and their comfort zone—from one of knowing how to use specific software to one of choosing the right technology for effective learning. Through the readings in this module, we will take a close look at some ways technology and computers affect instruction.