OLD SCHOOLS, NEW CHALLENGES: Technology can improve education, save money

STACY BECKER, Guest Columnist
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In a recent review, Minnesota failed to rank among the top 25 states for the use of technology in K-12 education. Should Minnesotans care?

Yes! For two reasons: One, technology *will* transform our educational system and we better be prepared. Second, if we are prepared, technology can bring about exciting and long sought-after results.

Whether technology will reform K-12 education is fiercely debated. But if technology has the power to revolutionize everything from retailing to warfare, why wouldn't it also change education?

Early indicators of this power are already visible. First, technology is changing the very purpose of learning. Getting information today is no longer dependent on access to teachers or books. The *world's* information is virtually at one's fingertips, instantaneous and essentially free. More than 550 billion documents are available through the World Wide Web. The problem for education has been turned on its head: the issue is no longer one of imparting information, but helping students make sense of a glut of information.

Second, technology is changing students' expectations of school. For young people today, technology is an integral part of the way they live. Asked if they could choose only one communications medium, 33 percent of children ages 8-17 chose the Internet, followed by television (26 percent) and telephone (21 percent). Seventy-eight percent of middle and high school students use the Internet.

The classroom is not keeping up with students' skills and expectations, however. A Michigan study of 90,000 teachers showed that most do not yet know how to integrate technology into their teaching.

In another study by Pew Internet & American Life, American teenagers claim that educators often don't have the knowledge or interest in using online tools to help students learn. According to the study, "Educators have a choice: Either they need to adapt or they will be dragged into a new learning environment."

Third, the Internet breaks down time and place as organizing principles for education, giving competition a foothold. A private sector marketplace for educational services is emerging strong.

Learning companies — such as FamilyEducation Network, SmarterKids.com, Blackboard, ZapMe!, SchoolCity.com, Hungry Minds, Apex, Project Achieve, Lightspan, and bigchalk.com — are on the scene. In 2001, the for-profit education industry captured $113 billion in revenues and was expected to grow at 5 percent in 2002, well ahead of the economy as a whole.

The result of these combined forces? Expect education to change in a big way. As John Chambers, CEA of Cisco remarked, "The next big killer application for the Internet is going to be education.

Education over the Internet is going to be so big it is going to make e-mail usage look like a rounding error."

But will technology necessarily bring about positive changes? That depends on how we respond. There are three major unmet challenges in K-12 education: (1) lagging student achievement; (2) the achievement gap between white students and minority students, and (3) rising, uncontrollable costs. Technology has the potential to address all three.

Technology has the ability to improve student learning through customization and new multimedia products. Much has been learned over the past decade about how people learn. Some people are more visually oriented; others are more verbal, social or kinesthetic. But the classroom has failed to adjust — education is still mass-produced, relying primarily on written text.

New technologies will enable students to customize learning to their learning styles, schedules, pace of learning and interests. New tools will improve students' ability to grasp difficult concepts. For example, Enablearning Inc. is developing animation and simulations to help students visualize difficult concepts in math and other subjects.

As instruction develops the capacity to be delivered anytime and anywhere, there will be profound implications for how "equality" in education is delivered.

During arguments before the Supreme Court in Brown vs. Board of Education, Thurgood Marshall was asked what "equal" meant. He replied, "Getting the same thing, at the same time and in the same place." For the first time ever, technology has the power to unbind impoverished students from the limited resources available in their immediate communities — by opening the world's resources to *all* students.

K-12 education absorbs about 40 percent of our state general fund budget. Recurring budgetary problems suggest that financing the current education system is not sustainable. By uncoupling learning from time and geography, technology offers ways to improve cost-effectiveness.

Some students could move through the system more quickly. Many have this potential, because each year roughly 17,000 11th and 12th graders are enrolled in post-secondary options in Minnesota; more than 2,000 of these students participate full-time. New technology-based assessment techniques can lead to more effective teaching, thus making better use of education dollars. It also can change the cost structures in rural schools, helping them survive without consolidation.

Forget the top 25. Let's move Minnesota into the top 10 states that smartly use technology in education.

Becker (e-mail: stacymb@attbi.com), an independent consultant, is a former budget director and public works director for the city of St. Paul.