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# The Future Is Flat

**For students to have the necessary skills to succeed in a global world, districts must embrace technology—now**

**Victor Rivero**

**H**ave you heard that the world is flat? It's in the news. It's on the lips of politicians, business leaders, and journalists. CEO-in-transition Bill Gates, Intel Chairman Craig Barrett, bestselling author and *New York Times* columnist Thomas L. Friedman, and even President Bush are talking about globalization and its effect on our communities.

For educators, the talk has dramatic consequences. Our education system is not producing mathematicians, scientists, or engineers at the same rate as our global competitors. Friedman and others predict we'll soon pay the price unless schools change because China, India, and even Russia are eager to take those high-tech jobs we can no longer fill.

It's not just math and science education that is under scrutiny. High school graduation rates are being hotly debated; the statistics, depending on which side of the educational spectrum you fall, range from 65 to 80 percent. And business leaders continue to shout that the majority of students are not graduating with the skills necessary for post-secondary success—another source of contention educators must deal with daily.

The bottom line, according to the Partnership for 21st Century Skills, is this: U.S. students should be well prepared for citizenship, work, and postsecondary education. And one thing is certain: Technology—not the tools, but knowing how to use them—will play a critical role.

## DAUNTING STATISTICS

As schools struggle to meet the require-

ments of No Child Left Behind and do more with less money, they could be forgiven for not immediately heeding the call for 21st century reform. But they should.

Bob Hughes, a retired Boeing executive and member of the Lake Washington School District Board of Directors, says schools "must be encouraged to shift to new forms of teaching and learning that will give students the skills to meet the higher skill levels required in the higher-paid job markets.

"America is facing a choice," Hughes says. "How do we challenge people and systems to overcome their resistance to change and ensure our students develop 21st century skills? What we do from here is going to make all the difference."

One thing districts must do is combat a number of daunting—and often contradictory—statistics published by education researchers. Among them:

- More than 80 percent of employers say K-12 schools are not doing a good job of preparing students for the workplace, according to a 2005 survey by the National Association of Manufacturers. Of those, 55 percent say schools are deficient in preparing students with basic employability skills (such as attendance, timeliness, and work ethic) and 51 percent cite math and science deficiencies.

- According to a 2003 study by the Manhattan Institute, only 32 percent of all students leave high school academically prepared to attend college. While it may be splitting hairs to some, noted economist Lawrence Mishel, president of the Economic Policy Institute, a labor-oriented Washington think tank, hotly contests the numbers offered by the Manhattan Institute and instead sees a general trend of improvement.

- Nearly 40 percent of high school graduates feel inadequately prepared for college or the workplace, according to a 2004 report by the American Diploma Project.

Many leaders in and around education are fighting back with statistics of their own and solutions for school districts to use. The National School Boards Association's Web-based Center for Public Education ([www.centerforpubliceducation.org](http://www.centerforpubliceducation.org)), for example, has posted a detailed summary of how various researchers compile graduation rates and student preparedness, along with advice for local school districts.

## TAPPING STUDENTS FOR HELP

What both sides seem to agree on is that the keys to change aren't complicated. In fact, many districts already are doing a lot of them, including revamping teacher training and updating technology. Another key source, education technology experts say, is to work with the students themselves.

"We know that today's students as digital natives are more advanced and sophisticated in using technology than many of the adults

in their educational world,” says Julie Evans, CEO of Project Tomorrow/NetDay, a national nonprofit that promotes research-based uses of science, math, and technology resources to develop critical thinking, problem solving, and creativity skills in K-12 students. “We should tap into this resource of students’ ideas to better learn how we can leverage technology more effectively.”

At the same time, Evans says, adults could “engage students in real problem-solving and critical thinking experiences that would benefit their school community.” Her organization has created a national network of school-based “Student Technology Advisory Councils” that provides students with a structured way to share their ideas. The network also gives educators a forum for engaging students in local problem solving, planning, and decision making about how to better leverage technology for learning.

“Students are frustrated by the limits on their tech use at school and have many good

ideas of ways that technology could be better used within their education,” she says.

### PARTNERSHIP LEADS TO PROGRESS

Perhaps the most powerful advocate for developing flat world schools is the Partnership for 21st Century Skills, a national advocacy group focused on infusing work-force-relevant skills into American education. The group, which draws support from the U.S. Department of Education, is comprised of many of the nation’s leading technology companies and education publishers, as well as national associations.

The group’s focus is on infusing a skill set into American education, a set identified by those who would employ America’s youth in the ultra-competitive global economy of today and tomorrow. The skills include:

- Mastery of core subject areas
- Learning skills such as critical thinking and problem solving, and interpersonal and

self-directional skills

- Using 21st century tools such as communication and information technologies to develop learning skills
- Learning global awareness, and business and civic literacy.

“We have a framework that lays out the skill set that we believe high school graduates need to have in the global economy,” says Ken Kay, president of the Partnership for 21st Century Skills. “The difference in the 21st century, in our view, is that these skills need to be integrated into a student’s understanding of his or her core subjects.”

Hughes agrees with the partnership’s list, but he adds a few others that districts should consider. Among them:

- Scientific and technological literacy
- Visual and information literacy
- Cultural literacy
- Adaptability/managing complexity
- Curiosity, creativity, and risk taking
- Sound reasoning
- Prioritizing, planning, and managing results.

For schools to be successful, both Kay and Hughes say, administrators and teachers should demonstrate and be comfortable with these skills themselves.

Critical thinking and problem solving were once a luxury for some teachers in some classes with some students, Kay says. But in the 21st century, it’s required of everyone—students, teachers, administrators, and board members.

“How do you effectively teach critical thinking and problem solving to every student? This challenge requires a major shift in our thinking about how we’re going to teach and assess,” Kay says. “School leaders need to look at what they need to do to bring their administrative and teaching staff up to the point that they’re able to teach the necessary skills.” ■

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## Survey looks at future of digital schools

Schools will see a rapid transition from desktop to mobile computing over the next five years, and online learning is expected to grow exponentially during that same period, according to a national survey of 2,500 districts.

*America’s Digital Schools 2006*, a survey of superintendents, curriculum directors, and technology directors representing more than 11 million students nationwide, predicts that more than half of all student computing devices will be mobile by the year 2011. Online learning is expected to grow at a compound annual rate of 26 percent over the next five years.

Fueling the rapid growth is one-to-one computing, in which each student and each teacher has one Internet-connected wireless computing device for use both in the classroom and at home.

Among the study’s key findings:

- Almost 90 percent of schools offering one-to-one computing report substantial academic improvement where results were tracked.
- Superintendents rank low TCO (total cost of ownership) as the single most important factor in one-to-one computing implementation.
- Many school districts are unaware of a looming bandwidth crisis resulting from the growing number of student computers and applications.

The study, released at the National Education Computing Conference in July, was conducted by The Hayes Connection and The Greaves Group and sponsored by Discovery Education and Pearson Education.

For more information about the study, visit [www.ads2006.org](http://www.ads2006.org).

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