Foreword

Jack Welch, CEO of GE said, “If the rate of change inside an institution is less than the rate of change outside that institution, then the end is in sight.” Many would agree that this echoes the sentiments of education technology enthusiasts, those people who are committed to real transformation in our public school classrooms. These are the same individuals who have broken new instructional technology ground through effective deployment and utilization of information communication technologies.

There is no shortage of commentary about U.S. schools lacking focus on the needs of a digital generation and beginning down a path of irrelevancy. Elected officials have responded with urgent calls to develop 21st century skills and drive an information economy—thereby securing the future of not just our kids, but our nation.

We are a long way from meeting the needs and interests of the millennial generation and the post-millennial generation after them. The millennials—touted by many as the next “great generation” because of their similarities to those in the World War II generation—have high-minded values and are keenly interested in social issues and technology. They are exceedingly entrepreneurial, preferring to own their own business rather than working their way toward an executive role in a company.

You may recall that under Jack Welch’s leadership, GE grew in value from around $13 billion to several hundred billion dollars during his 20-year tenure. He instituted a culture of change and performance. GE managers were assessed on their ability to change and to be profitable.

He was famous for saying things like, “My main job was developing talent. I was a gardener providing water and other nourishment to our top 750 people. Of course, I had to pull out some weeds, too.” He also was quoted as saying, “An organization's ability to learn, and translate that learning into action rapidly, is the ultimate competitive advantage.”

What must we do in our schools today to create a competitive advantage for our students, for our communities and for our nation? To plan for this kind of future, we must be prescient to what the future holds. Issues and opportunities facing the world today and the not-too-distant future are complex and exciting. How will problems of energy and the environment be solved? What will farming look like in 10 years? How will health and medicine progress, and in what ways will these two fields merge with information technology? Will vacation options include global high-speed rail routes and space travel? Consider these future trend predictions from the World Future Society (http://www.wfs.org/forecasts.htm):

Tomorrow’s inventors will spend their days writing descriptions of the problems they want to solve, and then letting computers find the solutions. Invention programs like Gregory Hornby’s “evolutionary algorithm” have been used to invent real-world objects, such as a special space antenna, based entirely on engineering specifications. Continued advances will increasingly rely on cross-fertilization between the fields of biology and computer science. As a result, we will develop not only software that can pro-
duce better inventions but also inventions that are able to adapt to their environments. —Robert Plotkin, “The Automation of Invention,” July-Aug 2009, p. 24

Ammonia may become the fuel of choice for cars by 2020. As a candidate source for hydrogen used in fuel cells, ammonia (comprising one nitrogen and three hydrogen atoms) is plentiful, easier to liquefy than methane, and emits nitrogen rather than carbon, thus having fewer negative impacts on the climate. —J. Storrs Hall, “Ammonia, the Fuel of the Future,” Sep-Oct 2009, p. 10

Algae may become the new oil. According to researchers at a Department of Energy plant in New Mexico, single-celled microalgae, grown in pond water, produce a biofuel that is lead-free and biodegradable, emits two-thirds less carbon dioxide and other pollutants than gasoline, and can run any modern diesel engine. Even better, algae require only a fraction of the land area of biofuel-producing crops. —Robert McIntyre, “Algae’s Powerful Future,” Mar-Apr 2009, p. 25

Radical methods of altering the planet may be the only way to prevent the worst effects of climate change. Geoengineering may be inevitable because, even if humans could instantly end all greenhouse gas emissions, global temperatures would continue to increase for the next 20–30 years, triggering feedback loops and more warming. Potential megascale geoengineering projects include sending space mirrors into orbit, sequestering carbon in the ground in biomass charcoal, and increasing the amount of carbon that the ocean can absorb by forcing plankton blooms in the seas. —Jamais Cascio, author of Hacking the Earth, reviewed by Bob Olson, July-Aug 2009, p. 51

The World Future Society predicts that the most important job skill for this century is foresight—the ability to see what lies ahead and plan for it. How can we orient our school classrooms to develop foresight in our students? How do we equip teachers and school leaders to lead and plan using foresight?

It doesn’t take a special set of skills to know that technology is part of our world’s future landscape. It is logical, then, to conclude that technology should be part of the classroom experience. Conversations today must swiftly shift to a serious and focused path, broadly and systematically embracing information communications technologies throughout every student’s educational career.

Social networking, mobility, online learning, gaming, peer-to-peer mentoring and tutoring are all part of a rich technology learning environment. Many leading educators have blazed a trail in the practical and appropriate utilization of instructional technology and it’s easy to follow in their footsteps.

The answer to Jack Welch’s call for a competitive advantage in our schools and for our nation lies in the speed with which we stop talking about “why” we should do things differently and begin diving into “how” we get started.

Marina Leight
Vice President of Education
Converge Media Platform and the Center for Digital Education