

The Unfinished Business of Education and Technology

I. The Problem(s)

For a decade, millions has been spent on the promise of education technology changing the way young people learn, faculty get trained, and how knowledge passes to both from research. With the advent of digital technology and media, cell phones, and the Web, there has been a concerted effort to match society's grip on those technologies with education's need to engage students and inspire better teaching in the field. What has resulted, unfortunately, is a hodge-podge of very good projects, programs, and products that are a) disconnected from each other and b) in competition with the state juggernaut of school and state bureaucracies and c) out of sync with the uninspiring education programs at colleges and universities.

While this effective stalemate continues decade after decade, the world of young and old people and technology, cell phones and the Internet has changed mightily who and what we are and what we do globally. From Facebook and MySpace to Expedia, eTrade, eBay, Google and Amazon, we have all found ways to accommodate various mixes of online and in-person activity. This is certainly so on college campuses world-wide for college students. Yet schools, school students and states are left out of this picture. Why, and to what consequence?

If the basic version of schooling had succeeded on the whole, there might be little argument, but the fact is that it has not, at least in the last decade. Students, when asked to respond with the first word that comes to mind when someone says "school," will invariably respond with "boring" and, in doing so, add extra "o's" to the word in the process.

It is clear that "schooling" was designed for an industrial society, where regiments and punctuality and movement at the sound of a bell was what helped create workers and supervisors for American industry. However, that notion of schooling is badly out of touch with today's information society and the global knowledge economy, which knows no national boundaries and can easily educate a child in Jakarta to compete with one from Des Moines. Yet technology can take the positive aspects of schools and blend them with the incredible reach of the Web and the ability to socialize learning in new and powerful ways. All of this has been demonstrated and has succeeded in pockets around the country (and the world) in the last five years.

So, what is stopping us from bringing together powerful technology assets and communication strategies and learning science to revamp education on a larger scale? The answers are at least seven persistent, interwoven, and durable problems or obstacles that unfortunately are not governed by logical problem solving. They are, for starters:

1. institutional inertia
2. the inability to see the big picture
3. deeply vested interests
4. competing interests
5. nostalgia
6. fact that no one person or entity is "in charge"
7. non-involvement of students in designing solutions

II. The Separate "Camps"

There is a shameful and unseen element in the larger universe of education. Adults and organizations many times fail to see that it is their interests that are often being served first in many education settings (except those on the frontlines) and children somehow come later in the design of the system. This has been demonstrated conclusively by the rather flat line of student achievement over the years and the astronomical growth of administrative and other staff in schools, in districts, etc. In a typical state, the list of people and entities that don't work directly for student success and do not work collectively on common goals far outweighs the list of those that do. We all know this. Yet, we seem frozen, unable to move.

In most states, colleges and universities preparing teachers and doing research on learning and development rarely ever speak with each other, or collaborate across institutions, or look for common solutions for common problems, or enter policy dialogues with legislators or governors' staff. Instead, each professor, department, grant recipient, textbook author, or institution seems to be working on their own piece of a giant puzzle without much regard for whether the student succeeds or not. Imagine if medical research, diagnostic work, drug development, and healthcare practice were completely disconnected from each other.

The central problem, in the US, is that there is no one person or entity looking at all of the pieces and wondering how they go together, and to what end. There is no sense of a need to consolidate what we are learning and doing, to focus those efforts on common well-known problems. Instead, the silos persist. The answer has to be an effort at sufficient scale that involves technology and the Web alongside of school practice and traditions.

In other countries, ministries of education, and even technology and innovation ministries, proliferate. They fund education, learning research, policy formation and practice guidance as a single set piece, or a series of pieces. Now those in the education business in other countries with ministries may complain about centralization as an issue, but, nonetheless, they can a) define problems and get agreement, b) go after big problems in a systematic way, and c) analyze the results in order to constantly improve education if they want to. It's happening all over the world now - the UK, Netherlands, Finland, Portugal, Singapore and Korea are but a few where the efforts are singular and persistent.

III. Who Is In Charge?

By contrast, the U.S. is subdivided by 50 states, the District of Columbia, and the large US territories. Each has a superintendent of education, but this should not be confused with a ministry of education. The differences are subtle at first, but profound later. This is because of the distributed nature of governance in US schools - from school district boards, to county or regional boards, to state boards of education, much of education is in lay, or non-professional hands. The state legislature and the state education bureaucracy create and implement laws and regulations that the boards then have a varying degree of what they can do. The boards in turn, make decisions locally that define or segregate practice, with no hope of uniform practice. This made sense years ago when life was much more local, but makes much less sense in a very mobile society.

Finally, there are no bodies of expertise to advise boards at any level or to help state agencies research what should go into policies that change the nature of schooling, determine how students learn best, or teachers can be trained best. In fact, there are no departments in our great colleges and universities that do this either. Thus, education in America is essentially education by committee and the committees are largely composed of lay people expressing their opinions, using their personal judgments. We lack the science of education, the ability to construct a bigger picture and to act on it.

If ministry officials from any of the countries mentioned above came into any of our board deliberations, they would be dumbfounded, literally. We are trying to run the most advanced nation in the world with a prairie school mentality and nobody ultimately in charge on a daily basis. This will not work in the long run. It is already not working in our urban areas and in many rural areas where there is an inadequate amount of staffing for good teaching and management.

Other countries and some governors have spoken about a human capital development approach to producing students who become productive workers and prop up state, regional and national economies and create a social consciousness. This can only happen if someone takes charge of education as large-scale project that has the knowledge, experience and analysis, not opinion, necessary to make informed judgments about building a new education scaffolding.

The size and complexity of the problem keeps people away, yet that did not stop the founders of Amazon, Google, Yahoo!, INTEL, Microsoft, Cisco or the other giants who have changed the world, literally, almost singlehandedly from two localities in the US – Silicon Valley CA and Seattle, WA . Those world-changing operations had to routinely look for competent employees overseas and, eventually, outsourced operations because a lack of trained people any where in the U.S. Those communities are constantly trying to figure out where to education their own children.

IV. Who Can Take Charge?

In the US, given our distributed education governance, there is only one person who can make a profound and lasting effect on education and he or she can only do so with the assistance of one other person and several other institutions or organizations. What is the equation? A state governor is the only one who can say "the education buck stops here." They can only do this, for real, if their legislature can and will listen and if the President of the United States has made education a national priority and rallied the country. And then the expertise to do the planning will have to come from a mix of individuals, institutions of higher education and research, people from our technology companies and, possibly, an accommodation with the powerful textbook publishers.

It is a tall order, but what are the consequences if we don't? They are immense. They can be felt at three levels: individuals going into the workforce, individuals in the workforce, and retired individuals. In the first category, there may not be (and are not many now) jobs for recent college grads because of the economic slow down. In the second category, keeping a job and finding a new one is increasingly difficult because of foreign competition and economic shocks in the US. Finally, retirement is no longer secure. If the stock market is not producing gains, 401 K accounts are not paying well and receipts into the Social Security system slow down. It is all connected which is why, outside of the U.S., education has morphed into human capital development on the policy front, and not schooling alone.

Study after study shows that more college educated students equals better pay at an individual level, better economic performance and innovation in the overall economy, all of which could contribute to better performance in the stock market. Education is a deciding factor. |

Education is the only renewable resource that can keep giving. But it cannot keep giving if dropout rates are at 40% or above in urban schools, or at unacceptable rates in public colleges and universities. Education has to be seen as an investment with defined goals and measurement and improvement strategies. It cannot be seen as hundreds of distinct programs and very raw data feeds. The use of systematic technologies, common content development, and data and measurement tied to improvement has to evolve on to more powerful state networks, as a statewide mechanism linked to national policy.

In 2009, after the elections, it would be the hope that strong leadership can focus on education at the state level and that at the national level that an effort will be mounted to establish countrywide movement to make the US the most educationally productive and innovative nation in the world using the tools at our disposal that are nowhere else in the world -- Silicon Valley, Hollywood, Seattle, New York City, for example.

VI. Why Do We Use Technology So Inefficiently?

The U.S. almost single handedly created the technology revolution that has led to the Internet, cell phone networks, cable and satellite radio and television, and an unparalleled media and film business. We know how to interact online, to build global technology businesses, produce and distribute film, media, books, television and music. Yet the benefits of what we do in our daily lives as children and adults rarely, if ever, reaches the classroom.

There is a missed connection between what we do with technology, communication and media and the structure of our traditional classrooms. There is also a huge missed connection between what our lead researchers are doing in industry and university and what filters down to the schools.

The United States took a very bold step in education globally that has been badly misinterpreted in practice, but gives the foundation for fundamental change. The enactment No Child Left Behind (NCLB) was a bi-partisan success to introduce a culture of measurement and performance into our schools, school districts, and states. The idea and the law that we would be able to chart and measure progress openly is necessary to every human endeavor, especially those that utilize tax dollars, hard earned tax dollars.

Unfortunately, measuring success has been confused in many places with lowering the bar in order to report success. Yet, success in American education is not universal, no matter the intent or the rhetoric. Because of our distributed education nature, there are many successes, but most are local, few are statewide and none is national. Unfortunately, success does not travel or propagate, but failure does.

VII. What Have We Done Well With Technology and Media?

One of the benefits of having 50 states, the District of Columbia, and a number of territories is that there is a great deal of experimentation and re-invention in education already occurring all round the United States. One of the benefits of having a Federal Department of Education, a National Academy of Science, a National Research Council, a Department of Energy, having NASA for space, NOA for the oceans and the list goes on is that there are exceptional resources being created for learning at the cutting edge on a national level. Many of these, if not most, are already on the Web, but few flow in any organized way to states or schools.

Around the states, we have amazing online education resources that are well developed, funded by progressive state legislatures and governors. In the states, we have pioneering school districts that are setting examples globally. This is education capacity designed to encourage and reward learning, exploration and deeper thinking. But the hard truth is this – it does not get to

most schools, into most classrooms or homes and often it is seen as getting in the way of teaching to the test, to the bad side of NCLB.

Let’s review what is happening in pockets in the United States that has no parallel anywhere else in the world, a glimpse of what is possible.

Michigan, Florida, Illinois, West Virginia, Colorado, California and a handful of other states have state-funded virtual schools. Approximately 30 states (Keeping Pace) have some online courses available to schools or students. The larger efforts routinely provide online courses, online instruction, and teacher development from certified teachers to do the following things:

- REMEDIATION, to provide access to remedial courses and tutoring, especially in math, reading and writing.
- COLLEGE PREP, to provide access to Advanced Placement and Honors courses, especially because these types of courses are not available in any depth in many of our schools, handicapping students who are intent on college.
- UNIVERSAL ACCESS, to provide access to the full high school and some middle school curriculum for homebound, home-schooled, incarcerated, traveling or schedule impacted students. These online courses, by the way, are basis for any-time, any-place teacher professional training.
- TEACHER DEVELOPMENT, provide ubiquitous teacher development opportunities online and have those connect into continuous improvement cycles in the classroom.

There is no Federal grant system, nor a national virtual school, to guarantee that every student in America can have access to first rate teachers, top level curriculum, and counseling wherever they are, no matter their locality or personal situation. In Florida and Michigan, such help is merely a phone call or an email away. While there are arguments about the appropriateness and effectiveness of learning fulltime or partially online, there can be no argument if there are no Advanced Placement courses in a small school or an impacted urban school for a student who is ready and willing to learn, eager to go to college, desirous of a challenging career. Access in the information age should no longer be an issue.

The states that provide such services have not gone it alone. The NSF, NOA, NASA, the Hewlett, MacArthur, and Gates Foundations and others have joined the committed educators and subject experts to build this 21st Century expertise, to provide widening access to high quality education to bolster schools and students. It is American made, but right now it is only available to those who know about these resources who are in school districts that allow the use of

online courses from state or other providers.

Kentucky and recently New Mexico under Governor Richardson have created statewide online learning and professional development networks, making software, content, assessments, and training available to all school districts. This is not technology for technology sake. It is technology integrated into academic life, essentially education modernization. Modernization with technology is something we have done throughout society, but not yet in our schools in a systematic way. Young people, upon whom we will all depend as they enter the job market, should not be shut out.

At the school district level similar pockets of excellence exist and flourish. Take the Fairfax County, VA, the San Jose Unified School District, CA, Broward County, FL or the Traverse City, MI school districts to name a few. Over half of all school districts now report having one or more online courses available (NCES, Sloan Foundation).

- If your children go to a Fairfax County school, they have access, and so do parents, to their full school and class schedule down to the hour of the week via the Web. If a student needs a special course, it can be had online or in person. As a parent, if you have children in three schools, all you need to do is log on once to see what is occurring with each of your children and to communicate with the teacher.
- Michigan, by the way, was the first state to require that high school students must have an online course or online experience in order to graduate from high school. Why, because college and the world of work use online courses. Michigan is suffering from layoffs in the automotive world. Retraining is critical to the state’s employment base. Governor Granholm, like Governor Richardson, knows that education is the centerpiece of growing an economy. That is why every teacher in the state has a laptop and training is provided by the state.
- Going even further, Michigan’s State Superintendent, Mike Flanagan, avoided a new school buildings budget crisis by allowing the Traverse City, MI school district to free up 25% of the student base from the “seat-time” requirement, meaning that students could learn online, full or part time, from their homes or jobs instead of being in their seats in class for 180 days a year. Not only will Traverse City avoid building new buildings that will be used for only five years as a population bubble moves through the schools, it will innovate and experiment with an education system that stimulates individual learning, inside and outside of the formal structure of schooling. That’s modernization.
- In Broward County, FL teachers for almost ten years have used the Web and laptops for continuous teacher development and improvement.

- If you are a teacher or principal in San Jose Unified in California you are in a district with the most sophisticated “data warehouse” to diagnose learning problems down to the student and to address them with a variety of on-going interventions. A handful of districts in the country use data very well. In other words, they use technology to gather student scores and to analyze them to see who is succeeding at what and to then design systematic responses. This is modernization and clearly way to the future. It is American made, with local innovation and determination.

VIII. What is at the Center of the Necessary Change?

We must move from advancing classrooms to advancing individual students. This is the heart of modernizing education whether it is in the inner city of Los Angeles, California or the inner city of Jakarta, Indonesia, or the rural stretches of Montana or the deserts of Iraq.

We have individualized much else in American society – bank accounts, email addresses, cell phone numbers, drivers’ licenses, health care plans. Why is schooling about classes and not about students? Parents and students understand all too well. Students, who are reported disengaged and reporting boredom in school, routinely use the Internet and social sites to accomplish “work-arounds” to the classroom, they have cell phones, they use FaceBook and MySpace. In short, they are acting as individuals who are defining themselves within larger communities, virtual and physical. Why should they not expect the same or their education?

The center pieces of change have to be:

- Recognition and definition of common problems
- Collaboration on developing common approaches to common problems
- The utilization of technology to coordinate and deliver uniformly
- The utilization of technology to assess and enact constant improvement
- The continual two way linkage of schools and higher education
- Developing individualization strategies that tie into overall policy

All of this will require a larger commitment to a larger problem instead of a thousand different projects, programs and products, we need to consolidate and collaborate to solve common problems, and we need to bring students into the process systematically.