ALLIANCE FOR EXCELLENT EDUCATION

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The Online Learning Imperative: A Solution to Three Looming Crises in Education

By Governor Bob Wise with assistance from Robert Rothman

In his blockbuster best-selling book, writer Malcolm Gladwell identified a phenomenon called "the tipping point." This point marks the level at which the momentum for change becomes unstoppable and something happens that, in either large or small measure, turns the world on its axis. For those who have been working to improve education, it appears that the tipping point may have finally arrived.

Currently, K–12 education in the United States is dealing with three major crises, each of which on its own is capable of wreaking havoc on schools and communities around the nation, but together are an all-out perfect storm. Simultaneously, the U.S. education system is facing

- **global skill demands vs. educational attainment**;
- **the funding cliff; and**
- **a looming teacher shortage**.

These three factors have brought our education system to a point where the need for change and innovation is no longer something to be researched and discussed. We must do what people have done for centuries and turn crisis into opportunity, somehow making progress in the face of enormous challenges.

To do that will require us to look at our nation's long-standing beliefs and practices about how best to educate students. Perhaps more than most sectors of society, the education sector has been slow to evolve and adapt to the new global economy. American classrooms are not significantly different than they were in the early part of the last century. If you think about how much the world around us has changed just in the last twenty years, it becomes clear that the education sector is like a massive mainframe computer trying to fit itself into a smartphone world. The entrenched practices, governance structures, and low expectations are just not compatible with today's world. The educational needs and aspirations of both students and society can no longer be characterized as a simple call for action; it is a deafening scream to which attention must be paid.

Simply put, the current process and infrastructure for educating students in this country cannot sustain itself any longer.

In just about every other facet of society, at work and at home, technology has transformed the way Americans go about their lives. Yet schools have been slow to embrace the transformative power of technology. Although computers are pervasive in schools, they tend to be used more like electronic

textbooks—high-tech tools in a nineteenth-century system. Students know this: young people talk all the time about "powering down" when they enter the classroom. A Commerce Department study finds that education is the least technology intensive among fifty-five industry groups.[1] But the broad educational applications of technology—including active application of online learning, the use of the Internet for research and original-source documents, real-time chats with experts, social networking with peers around the globe, simulations, and much more—offer innumerable possibilities. The time for merely rethinking and upgrading the role of technology in education has passed; policy decisions today must embrace a dramatic transformation of teaching and learning. Technology can no longer be thought of simply as an "add-on" tool in education, but rather an integral part of the total educational environment.

CRISIS #1: Global Skill Demands Grow While U.S. College Graduation Rates Fall Behind

President Obama has set as a goal that the United States will be first in the world in college graduation rates by 2020. Similarly, the Bill & Melinda Gates Foundation has pledged to double the number of low-income Americans who attain college degrees, and the Lumina Foundation for Education has set a goal to increase the college-completion rate from 40 percent to 60 percent by 2025. These are noble and important goals, but they will be virtually impossible to reach without dramatic changes in how our nation educates its students.

Fifty years ago, the United States had the highest college-completion rates in the industrialized world. Now, even though the United States has increased its postsecondary participation rates, other nations have outpaced the U.S. in educational attainment. As a result, the U.S. college-completion rate is now fifteenth out of twenty-nine developed countries with membership in the Organisation for Economic Co-Operation and Development (OECD).[2] Demographic data suggests that the United States is falling further behind. Although the U.S. trails only Canada in the percentage of twenty-five to sixty-four-year-olds with at least an associate's degree—39 percent versus 47 percent, respectively—it is tenth among developed nations in the proportion of twenty-five to thirty-four-year-olds, meaning that other countries are graduating more youths. In order to regain the lead and ensure a productive future for all young people and for the nation, simply continuing along the same trajectory, or making incremental gains, is not adequate. The only hope for reaching both global and domestic goals is to rapidly accelerate the pace of improvement.

Underlying all the national cries for increasing college-completion rates is the recognition that the twenty-first-century economy requires all young people to develop higher levels of knowledge and skill. The gap between the income earned by those with a college degree and those with a high school diploma is large and growing, and almost 90 percent of the highest-paying and fastest-growing jobs require some postsecondary training.[3]

In part, this is because many low-skilled jobs have been automated or shipped overseas. The perennial truth is that labor migrates to the cheapest cost. Even more of a factor is that many jobs that once required relatively low skills are now more demanding. Where diagnosing automobile engine problems once required simple mechanical skills, today's service technicians must be able to work with computerized testing equipment and solve problems using complex digital models.

The presidential goal for greatly increasing postsecondary attainment rates is not simply lofty, it is also essential to our nation's continued economic security. Recent projections from the Georgetown University Center on Education and the Workforce project that by 2018, thirty million new and

replacement jobs will require some college or above. However, the report also notes that the current output from postsecondary institutions will not permit demand to meet supply.

A recent analysis by the Alliance for Excellent Education of high school graduation rates in the forty-five largest metropolitan areas further illustrates this mounting challenge. The Alliance's analysis projects the likely economic and educational gains in each urban area as a result of cutting the high school dropout rate in half. While overall, almost two thirds of these new graduates moved to some level of postsecondary education, a surprisingly low average—17 percent—actually *finished* a two-year, four-year, or graduate degree program.

Increasing the high school graduation rate is a critical first step, but simply moving more people through the high school pipeline will not be sufficient to meet the nation's burgeoning skill demand or President Obama's postsecondary achievement goal. Although the college-enrollment rate among high school graduates in the United States remains high at 67 percent, the college-completion rate is low and stagnating. Only half of all college students—and 25 percent of low-income students—complete college within six years, and the graduation rate from community colleges is 38 percent.[4]

Increasing the supply of postsecondary certificate earners to meet the increasing demand for a skilled workforce requires addressing three prevalent shortcomings in the current education process.

1. Significantly raising graduation rates from high school so that young people graduate ready to commence their next education experience, whether in college or a career.

2. Assuring that the new high school diplomas truly reflect the necessary measure of learning and attainment. Almost one-half of current high school graduates earn a diploma but are not college or career ready. High rates of remediation occurring in postsecondary institutions illustrate this problem.

3. Recognizing that many adults are balancing families, work obligations, and finances. The more flexible and accessible the education experience, the more likely that adults will be able to participate.

CRISIS #2: The Funding Cliff—Declining Local, State, and Federal Revenues Mean Changing the Education Content-Delivery Model

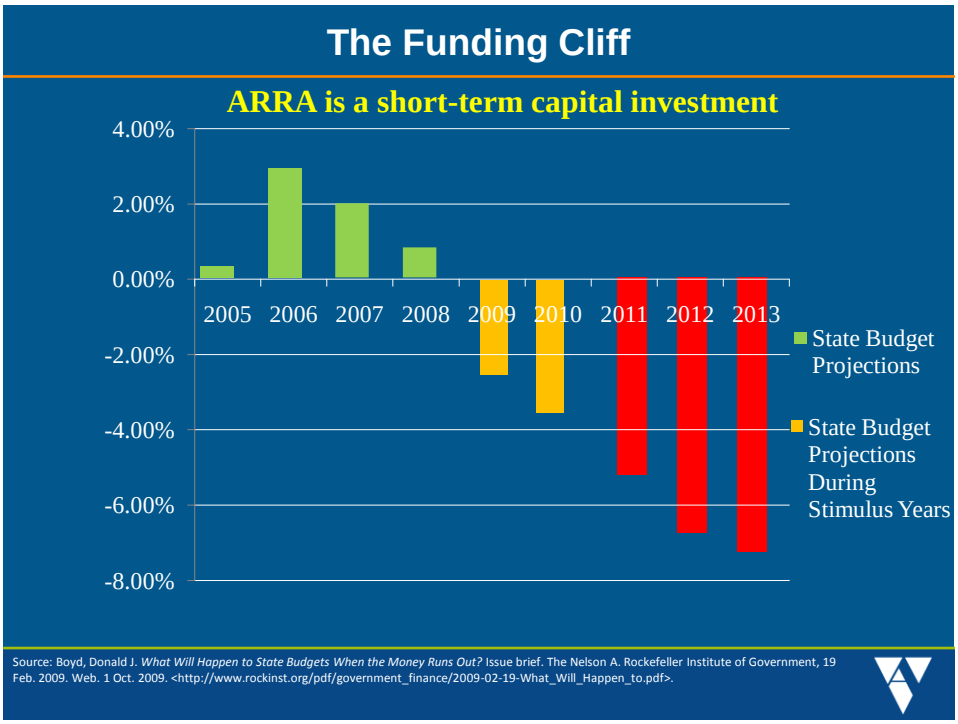
Faced with a declining revenue base, any enterprise must make a choice: continue doing the same with less and hope to weather through, or innovate and institute changes that result not only in survival but in growth. Public education and the U.S. automobile industry face a common challenge: declining revenues and lackluster results. In the case of the auto industry, the consumer has finally said that the end product is not acceptable. This raises the bar even higher, forcing companies to operate with less revenue while also improving outcomes.

Some might argue that a rapid expansion of education funding could accelerate improvements in outcomes. The reality is that the current economic recession has taken the issue of continually increasing revenues off the table. The only issue for policymakers is how to apply limited funding in a more cost-effective manner that also boosts student outcomes—in short, a reengineering of how education is delivered.

The precise relationship between spending and educational outcomes is murky, but there is considerable evidence that money *invested strategically* can produce results. The federal American Recovery and Reinvestment Act (ARRA), or "stimulus package," with its competitive "Race to the Top" fund and innovation grants, is just such an attempt to drive reform and improve student outcomes through targeted investments. Certainly, the nation has increased spending considerably on schooling in the past decade. In constant dollars, K–12 expenditures increased from $7,609 per pupil in 1996 to $9,969 per pupil in 2008, or about $90 billion in additional funds.[5]

This increased funding produced some results, though certainly not as much as many had hoped. Student achievement in reading and mathematics has increased, most notably in the elementary grades and somewhat at the middle school level, but achievement at the high school level has been flat.[6] The graduation rate has nudged upward only slightly, from 71.7 percent in 2001 to 73 percent in 2006. During this same period, the performance of U.S. fifteen-year-olds declined on the main international examination administered to the world's most developed nations.

The Great Recession of 2008–09 has closed off the possibility of spending increases for education. "The Funding Cliff" graph below displays the aggregate dilemma faced by all fifty states (each state's individual financial situation varies). From 2006 through 2008, states maintained surpluses, but in 2009 and 2010, states faced budget gaps of 2 percent to 4 percent—even with the stimulus funds provided by ARRA. Beginning in 2011, when the stimulus funds run out, states are projected to run deficits of between 5 percent and 7 percent of their budgets.[7]



Joint projections recently issued by the National Governors Association (NGA) and the National Association of State Budget Officers (NASBO) predict continued shortfalls into 2012. Scott Pattison, the executive director of NASBO, observed, "These are the worst numbers we have seen in the decades of putting together this report."[8]

Longer-term forecasts also do not provide any basis for believing that education funding will return to former patterns. Early signs of a tentative recovery being heralded in Wall Street boardrooms will not be reflected for years in budget deliberations in most states' legislative committee rooms. The Nelson A. Rockefeller Institute of Government predicts per capita revenues will not return to pre-recession levels of 2007 until 2014. According to Mark Zandi, chief economist and cofounder of Moody's Economy.com, state revenues will not return to the real levels of 2008 until 2013. Even with the final spendout of the federal ARRA, the Center on Budget and Policy Priorities projects that states will have to close $260 billion in shortfalls for 2011 and 2012 combined.

Even when the worst of the state budget shortfalls begin easing, the cuts that states have had to make in the past two years will continue to reverberate. As of 2010, thirty states have been forced to reduce K–12 expenditures, according to the NGA and the NASBO. These cuts in education were necessary even with the influx of almost $246 billion in ARRA funding, which meant that states did not have to face the full measure of necessary spending cuts or tax increases.[9]

However, when the economic recovery occurs, states will continue to grapple with the lingering safety net expenses such as Medicaid and unemployment. As a recent NGA report observes, "Even when recovery begins, states will continue to struggle because they will need to replenish retiree pension and health care trust funds and finance maintenance, technology and infrastructure investments that were deferred during the crisis. They will also need to rebuild contingency or rainy day funds. *The bottom line is that states will not fully recover from this recession until late in the decade*" (italics added for emphasis).[10]

CRISIS #3: The Looming Teacher Shortage: The Growing Challenge to Bring Quality Content and Effective Teaching to Every Classroom

As both the amount of knowledge and the technological means of accessing it explode in the twenty-first century, the role of the teacher—particularly in secondary grades, with the emphasis on content acquisition—also changes. No longer are teachers the sole repository of content in classrooms; in a world of Wikis, open-source learning, and online and virtual courses, they are the guides and facilitators.

The changing role does not lessen the importance of the teacher to improving student outcomes. In fact, this changing role will require higher levels of effectiveness to ensure that teachers can enable all students to learn what they need to become successful in college and the workplace.

There is a growing recognition that teacher effectiveness is the most important school-related factor in student achievement. Unfortunately, evidence also reveals that teacher effectiveness is widely uneven and inequitable. Low-income and minority students are much more likely than their more affluent and white peers to have teachers with less experience and fewer skills.[11]

There simply are not enough highly skilled teachers in the schools and challenged classrooms that need them the most. Given the current aging of the teaching workforce, the number of experienced teachers will be decreasing quickly.

Approximately one million teachers—almost one-third of current teachers—are eligible to retire in the next five to seven years. According to the National Center for Education Statistics (NCES), 29 percent of teachers in 2004 were between the ages of fifty and fifty-nine, and the NCES projects that public

schools will need to hire about 330,000 to 364,000 teachers a year between 2011 and 2017, compared with 316,000 this year.[12] The picture is even more dire in states that forecast high growth. In Florida, for example, state officials project that schools will need to fill more than 200,000 classroom positions between 2007 and 2017, or 120 percent of its current workforce.[13] Simply getting teachers into classrooms is only half the battle; almost one-half of new teachers leave the profession within five years of entering the classroom.[14] An already steep recruiting challenge will become even greater.

The problem becomes even more acute when federal and state legal requirements equate content knowledge certification with effectiveness in teaching. The most desirable element is having a teacher skilled in both content and pedagogy. However, the explosion of knowledge joined with the difficulty in recruiting the requisite numbers of content specialists, especially in STEM subjects (science, technology, engineering, and mathematics), will only increase this tension.

A BIG SCHOOL SHOWS A BIG CHALLENGE

To illustrate the problem, imagine constructing a giant secondary school for the six million students in grades 7–12 most at risk of dropping out of school. If, in this hypothetical school, every teacher averaged twenty-five students in a class, with each student enrolled in four classes, the school would need almost one million teachers. What is the likelihood that such a school, representing only 25 percent of the total secondary school population, could attract and retain one million highly effective teachers in all subject areas?

The challenge is particularly evident in rural schools, which enroll about 23 percent of students in U.S. schools. Rural schools and many of their urban counterparts have long had difficulty attracting enough teachers with content knowledge to staff their schools; the state of Georgia, which has 440 high schools, *has only eighty-eight qualified physics teachers*. As their teaching force nears retirement, these schools will be hard-pressed to find a sufficient number of well-qualified teachers with content background to staff their schools, let alone to accelerate improvements in achievement and attainment.

Taking Action and Avoiding the Point of No Return

The three looming crises—the mismatch between future workplace needs and current levels of educational achievement, the state funding cliff, and the upcoming teacher shortage—have clearly led us to the point where we need a new way of thinking about how the nation's education system is structured.

When looking to other sectors to see how they have adapted to the dramatic changes in the world economy, most research would focus on new technologies as a vital element of change. In almost all aspects of American life, technology has been a catalyst in transforming the way we live and work. Integrating a system of efficient technology applications into an effective school model can similarly transform education and enable communities to deal with looming global challenges.

With funding increases out of the question, states, districts, and schools have only one choice: they must do more with less. One way to meet this challenge is to be more thoughtful about spending; dedicating funds to programs that will provide the greatest return on taxpayers' investments. Even as they concentrate on fiscal austerity, states and schools must dramatically improve productivity. Here the effective application of technology can provide major assistance: technology accounted for two thirds of the total growth in productivity in the U.S. economy between 1995 and 2002 and all of the growth in labor productivity during that period.[15]

For states and school districts striving to raise student outcomes without additional dollars, there is steadily growing evidence of the cost-effectiveness of online learning, whether used in a virtual school or in a classroom, "blending" a classroom teacher with online material. A 2009 report by the U.S. Department of Education concluded, "In recent experimental and quasi-experimental studies contrasting blends of online and face-to-face classes, blended instruction has been more effective, providing a rationale for the effort required to design and implement blended approaches."[16]

As a business must often make a capital investment to install processes that ensure cost-effective gains, so must policymakers and school system administrators recognize that quality online learning cannot be started on the cheap. The state virtual school system in Wisconsin calculates that the average per-pupil cost is $6,500 in the virtual system. This contrasts with the current national average of almost $10,000 per pupil in a traditional system. A recent study of virtual schools concluded that "the operating costs of online programs are about the same as the operating costs of a regular brick-and-mortar school."[17]

However, cost-effective gains soon become evident. Now schools can offer courses that many local schools could not previously afford to offer. Schools can now meet the unique interests and needs of students and parents who previously would have been shut out. Cost efficiencies soon manifest themselves in many other ways. As noted in a 2006 Southern Regional Education Board report, "States can realize significant cost efficiencies over time by creating and managing a state virtual school, because as each online course is developed or acquired, the state can copy and reuse the course with other teachers. In addition, the state can exercise quality control over all aspects of the online courses, creating course content, evaluating online teachers, and monitoring student success."[18]

Another cost efficiency is spreading similar costs over multiple learning sites. With online learning, one teacher in a complex subject can be "shared" across many schools. For instance, rather than three schools each trying to recruit and retain a Chinese or Advanced Calculus instructor for a limited number of students, online education permits one teacher to reach all the interested students regardless of their location.

As a report by the Information Technology & Innovation Foundation states, information technology boosts productivity in several ways:

> *IT lets companies automate tasks, freeing workers up to create value in other tasks. IT also has widespread complementary effects, including allowing companies to fundamentally re-engineer processes and let[ting] companies more efficiently use capital and natural resources. IT also has a number of indirect effects, which in turn spur higher productivity, including enabling larger markets and better organizational decision-making.*[19]

In education, this might mean redesigning schools to redefine the roles of teachers and administrators. It might mean restructuring secondary school classrooms so that the traditional model of one teacher in front of twenty-five students no longer applies. Whatever the configuration, innovative technologies offer the potential to improve productivity in schools just as it has in other sectors.

Online Learning: Bringing High-Quality Content to Every Classroom

Modern technology can also help schools deal with the projected shortages of a skilled workforce, funds, and effective teachers. Through online and other digital means, students can have access to teachers with content knowledge and expertise who live in other parts of the state, the country, or even the world. These teachers, moreover, can be available at any time of the day for questions and advice. Now, time becomes a variable rather than a constant for student and educator. No longer locked into a

forty-five-minute class at a set time every day, students are able to learn and interact on a twenty-four-hour, seven-day-a-week basis.

The number of students taking advantage of this learning opportunity is growing rapidly; K–12 online learning enrollments in school districts was 1,030,00 in school year 2007–2008, up from 700,000 just two years earlier.[20] The authors of *Disrupting Class* predict that even without policy direction, one half of high school classes will be online within ten years.[21]

The use of such technology will require a shift in the teacher's role; he or she will no longer be the sole or major source of the knowledge imparted to students. Rather, students will take more responsibility for their own learning, and teachers will serve as facilitators and guides to the high-quality educational content that is now coming into the classroom from many sources.

Online technology can also help strengthen the teaching force. Expert teachers can provide support and coaching for teachers in any part of the country and at any time. While the actual process is not new, the widespread application will be. The Center for Teaching Quality, an organization based in Chapel Hill, North Carolina, has created a program that enables expert teachers who have earned certification from the National Board for Professional Teaching Standards to serve as "virtual coaches" in North Carolina schools. The program began in 2008 with twelve National Board–certified teachers serving 150 teachers in four districts, and is expected to expand to other states in the coming years.

The experience of online education suggests that the use of this technology also has the potential to accelerate learning and enable the United States to reach President Obama's goal of raising the college-graduation rate. Students can learn at their own pace, receiving the individual attention and feedback that is critical to understanding. Students are more likely to be motivated to learn via technology, since so many young people are accustomed to using technology outside of school. Technology also offers the opportunities to create simulations and environments that are nearly impossible to create in conventional classrooms, thus paving the way for projects that enable students to apply their knowledge and develop a deeper understanding of the subject matter.

It is important to note that realizing these large-scale possibilities requires favorable actions in both policy and practice. As with conventional instruction, the quality of online coursework varies widely, but the growing body of research suggests that the virtual programs that are already in place at high school and postsecondary programs are at least as effective as conventional programs.[22]

As technology-based education programs spread, states and districts must monitor quality and hold virtual schools accountable for improvements in learning, just as they do brick-and-mortar schools. Indeed, quality online learning offers the opportunity for higher learning expectations than currently exist in most traditional systems. Operating in an environment where time can be variable and learning constant, online learning is in the unique position to focus on outcomes rather than inputs. Assuming that quality data systems and assessments are in place, state and school district funding can be based solely on student results and mastery. Effective online instruction joined with a data rich environment is an important step to bringing accountability for student outcomes to a much higher and meaningful level.

The goal of enabling all young people to gain the knowledge and skills they need to succeed—resulting in much higher high school and postsecondary school graduation rates—requires the United States to think creatively and expand the use of online technology in education. As technology has revolutionized the way Americans get news, communicate, listen to music, shop, and do business, now is the time for American students in thousands of underperforming classrooms to realize the same gains.

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About the Alliance for Excellent Education

The mission of the Alliance for Excellent Education is to promote high school transformation to make it possible for every child to graduate prepared for postsecondary learning and success in life.

The Alliance for Excellent Education is a national policy and advocacy organization, based in Washington, DC, working to improve national and federal policy so that all students can achieve at high academic levels and graduate from high school ready for success in college, work, and citizenship in the twenty-first century.

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