



Strengthening Standards-Based Education: Recommendations to Policy Makers on 21st Century Skills

by Jim Stergios and Jamie Gass

In May of 2008, then-Board of Elementary and Secondary Education (BESE) Chairman Paul Reville named more than 20 individuals from education, not-for-profit organizations, and business to a task force on “21st Century Skills.” He charged the task force with finding ways to better integrate so-called 21st century skills into the public school curriculum. According to Patrick administration officials, this effort is tantamount to a manifesto that will move Massachusetts into the next phase of Education Reform.

Mr. Reville, who is now Massachusetts’ Secretary of Education, asked task force members to consider how the Board, which by law develops and establishes policies on standards, assessment, teacher education, accountability, and professional development, could encourage school districts to provide its students with these 21st century skills in order to succeed in the global economy. These skills—enumerated by the Partnership for 21st Century Skills, a national advocacy organization founded almost a decade ago by high technology companies and related organizations to infuse technology into public education through professional development—include oral communication, information processing, critical thinking, problem-solving, teamwork/collaboration and self-directed learning and leadership, as well as

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The Center for School Reform seeks more school choice for parents and an accountable system of public education for all students. The Center’s work builds on Pioneer’s legacy as a leader in the charter public school movement and champion of greater academic rigor in Massachusetts’ schools. Current initiatives promote choice and competition, school-based management and math and science education.

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other less easily defined or measurable “skills” such as creativity/innovation, media literacy, global awareness, and cultural competency.

Interestingly, in April of 2008, the BESE was presented with and approved a revision of the 2003 *Massachusetts Technology Literacy Standards and Expectations* (<http://www.doe.mass.edu/edtech/standards/itstand.pdf>) for K-12, with the new goal of “focus[ing] on 21st Century Skills; and devot[ing] more attention to digital citizenship, ethics, society, and safety.” The Reville-appointed task force, led by Board member and *Year Up* founder Gerald Chertavian, has been examining existing literature to identify ways these skills could be integrated into the curriculum. It will present a white paper at the November meeting of the Board of Elementary and Secondary Education that suggests what actions this Reville-appointed task force thinks the Board and Department of Elementary and Secondary Education (DESE) should take.

The purpose of Pioneer’s policy brief is to spell out the successful standards-based reforms that have made Massachusetts the highest performing K-12 state in the country, and to suggest how the BESE and the 21st Century Skills Task Force can strengthen the state’s nationally recognized curriculum frameworks, student assessments, educator licensure regulations, and teacher subject area tests. Clearly, the maintenance of Massachusetts’ and the United States’ economic leadership in the 21st century and readying the next generation of students to be informed participants in civic life will require stronger, not weaker, academic preparation.

The Massachusetts Curriculum Frameworks and Standards-Based Education

With the passage of the Massachusetts Education Reform Act (MERA) in 1993, the Commonwealth sought improved academic student performance in return for \$40 billion in state aid matched by another \$40 billion in mandated local funding. However, it could not assess statewide progress until it established a comprehensive set of statewide standards on which to base its assessments and with which local districts could align their curricula. Prior to MERA, curriculum development varied widely among the Commonwealth’s school districts. In those districts with sufficient resources, teams of teachers were paid to write curricula. Other districts provided funding only for curriculum directors, while some districts left curriculum development to individual classroom teachers, resulting in a lack of consistency. Moreover, the state had tried out statewide testing of “basic skills,” or “minimum competencies” during the 1980s, a testing program aimed at determining whether all students had minimal reading, writing, and mathematics skills. MERA authorized the development of much higher expectations expressed as standards, not minimum competencies, although the cut scores for passing future state tests based on the new standards might be interpreted as minimum competencies depending on where they are set.

MERA assigned the Massachusetts Board of Education the following role in establishing state standards:

Section 1D. The board shall establish a set of statewide educational goals for all public elementary and secondary schools in the commonwealth. The board shall direct the commissioner to institute a process to develop

academic standards for the core subjects of mathematics, science and technology, history and social science, English, foreign languages and the arts. The standards shall cover grades kindergarten through twelve and shall clearly set forth the skills, competencies, and knowledge expected to be possessed by all students at the conclusion of individual grades or clusters of grades.

Section 1E. The board shall direct the commissioner to institute a process for drawing up curriculum frameworks for the core subjects covered by the academic standards provided in section 1D. The curriculum frameworks shall present broad pedagogical approaches and strategies for assisting students in the development of the skills, competencies, and knowledge called for by these standards.

It took over six years for curriculum frameworks in the English language arts (ELA), mathematics, science and technology engineering, and history and social science to gain statewide approval by teachers, scholars, and others. Experts (e.g., Achieve, Inc., the American Federation of Teachers, and the Fordham Institute) agree that Massachusetts has the most academically rigorous set of K-12 standards in the country. The state's clear and detailed academic standards, which have provided the basis for the state's equally lauded MCAS assessments, educator licensure regulations, and teacher subject area tests, have fueled steady increases in student achievement, as demonstrated by not only MCAS tests, but also independent national tests (e.g., NAEP, SAT). This steady improvement in student achievement can be seen not only among Asian and white students, but also among African-Americans and Hispanics. In fact, the mathematics scores of Massachusetts' low-income students are tied for first place on state NAEP tests for grades 4 and 8 when compared

with the scores of low-income students in other states.

As each curriculum framework was developed, so was an appropriate test based on its standards. Each MCAS test is part of the larger standards-based state assessment system. The individual MCAS tests are given each year in particular grades for ELA, mathematics, reading, science and technology/engineering, and history and social science. Beginning with the class of 2003, the state required students to score no lower than the 'Needs Improvement' category in the grade 10 ELA and mathematics tests to earn a high school diploma. Beginning with the class of 2010, students must also pass one end-of-course science test, and the class of 2012 must also pass a United States history assessment that is based heavily on knowledge of this country's democratic principles, procedures, and institutions.

Alignment with the state's current K-12 standards is the first and most important step school districts need to take to promote higher academic achievement among Massachusetts' students. The second step is a careful analysis of the information provided each year by MCAS test results. The outstanding NAEP results speak for themselves: standards-based education reform grounded in demanding academic standards and tests for both students and teachers has been the recipe for increasing academic achievement in the Bay State.

As the task force moves to complete its work, Pioneer Institute's Center for School Reform offers the following recommendations to the task force, the Board of Elementary and Secondary Education, and state policymakers on ways to strengthen effective components of Education Reform in the state:

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1. Promote and strengthen the most rigorous set of curriculum frameworks in the nation, a set of frameworks that provides an authentic liberal education for all students.

In our increasingly diverse and multi-lingual society, it is imperative that children and citizens are educated for common purposes through a common body of knowledge in the core academic content areas. This is especially true, for educating students not only in the humanities, but also in mathematics and sciences, so they will be able to compete in the 21st century. For generations, wealthy families have had access to this core knowledge through private and parochial schools, or by virtue of the affluent communities in which they live.

Noted educator E.D. Hirsch lauded Massachusetts' approach in a February 2008 op-ed in *The Washington Post*: "Consider the eighth grade NAEP results from Massachusetts, which are a stunning exception to the nationwide pattern of stagnation and decline," he wrote. "That is because Massachusetts decided...students (and teachers) should learn explicit, substantive things about history, science, and literature, and that students should be tested on such knowledge."

The state's curriculum frameworks can be further strengthened by the inclusion of even more substantive details, especially in the English language arts. They can also be strengthened by the provision of standards for end-of-course tests in all major subject areas, including foreign languages at the high school level. The worrisome inability of many American students to speak, read, and write a foreign language at a level of skill and cultural knowledge that would command respect from an educated speaker, reader, and writer of that language deserves far more attention than it has received.

2. Ensure that objective testing remains the primary instrument for signaling authentic growth in students' academic achievement and increase the score needed for being placed in the 'Needs Improvement' category.

• **Rigorously test the mastery of United States history as planned, in 2009, for the high school graduation requirement for the class of 2012.** History provides context as students observe how our nation, the world, and its leaders change. In fact, many of the skills identified as 21st century skills are based on a firm knowledge of history; for example, media literacy, global awareness, cultural competency, and critical thinking. As Thomas Jefferson noted, mastery of history is elemental to understanding how to learn from the vice and virtue of political leadership and human action, as well as how to navigate toward practical solutions. In other words, the capacity to govern oneself based on hard-won human facts and truth.

As the late standards-based historian, Paul Gagnon, wrote of education in history, "Nothing less than people's freedom is at stake—freedom to choose their own way in politics, and to choose their own mode of private culture, not to be indoctrinated by the fashions of their moment and milieu, but free to confront the entire, multifarious range of options emerging over 3,000 years, from the Ancient Israelites and Greeks to the 20th century." In the 21st century, now more than ever, our schools need to promote student mastery of the historical skills and enduring knowledge already embedded in the state's 2003 History and Social Science Curriculum Framework.

- **Rigorously test the mastery of one physical or life science for the high school graduation requirement and ensure that it remains a requirement for the class of 2011.** Explore the possibility of a laboratory-oriented section on the test if funding allows it. Science is a prerequisite for understanding the natural world and an increasingly important ingredient for success. Again, many of the 21st century skills are those that are related to scientific inquiry, including oral communication and critical thinking (logical argument), information processing and problem-solving, teamwork/collaboration, self-directed learning and leadership (scientific curiosity), and creativity/innovation. It goes without saying that mastery of the basic elements of scientific inquiry ready students to understand the media, global questions, and an increasingly science-savvy culture. And while science is based on the language and basic concepts of mathematics, so too are the skills of any era based on a core scientific knowledge that serves as a building block for all rigorous education. In fact, the goal of universal proficiency in the fundamental content areas is impossible when vague, short-term skills replace knowledge of more enduring academic subject matter.
- **Regularly increase the passing score for each MCAS test over time.** In order to meet the federal goals of proficiency by 2014, Massachusetts needs to increase the MCAS test passing score expectations. Specifically, the state needs a plan for increasing all MCAS passing scores by perhaps 10 points every three to five years.
- **Provide full funding for MCAS test remediation programs.** In recent years, there have been cuts to the MCAS test remediation program, which has been reduced by as much as 80 percent. As a consequence, the state has

developed what Education Reform architect and former Senate President Tom Birmingham has called “a triage system for students.” The MCAS test remediation money needs to be directed towards at-risk high schools whose students are in imminent danger of not passing the MCAS test, and therefore, not graduating. It is imperative that funding for MCAS test remediation be restored to its peak appropriation levels of \$50 million, spread over all grades, not just for 11th and 12th grade students who failed their 10th grade (high stakes) assessments.

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- E.D. Hirsch

3. Attract more academically able teachers to the profession and prepare them effectively.

- **Eliminate “program approval” to open up teacher recruitment beyond the narrow pipeline provided by our schools of education and create a vendor-client relationship between higher education and school districts.** Also, eliminate the statutory requirement of a two-stage licensure process. In other words, teachers should no longer be required to complete a master’s degree program in education or its equivalent to be fully certified. Reforms should be enacted to allow prospective core subject secondary teachers to be eligible for full licensure if they pass the state’s teacher tests, pass the Criminal Offender Record Information (CORI) check, and have three years of successful teaching experience. Alternative programs such as Teach for America, Math for America, UTeach, and The New Teacher Project should be encouraged and welcomed.

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- **Increase the pass score for all our subject area teacher tests on a regular basis.** Massachusetts has some of the most academically rigorous teacher tests in the country. But just as with our MCAS tests, passing scores are not as high as they could be. They were set by volunteer committees consisting chiefly of licensed teachers in each subject area, working in conjunction with a small number of faculty in higher education. Because the higher education faculty tended to come from our schools of education, rather than from the arts and sciences, the committees were not as focused as they should have been on the level of academic knowledge that new teachers should have in order to address the full range of students in their classrooms.

- **Pilot test the teaching of “21st Century Skills” to prospective teachers in four or five schools of education over the next five years to determine how teachable and measurable they are.** Provide for an independent evaluation of how successfully these skills have been taught to the prospective teachers in their licensure programs before these teachers begin teaching and use this information to decide whether all pre-service programs should be charged with teaching 21st century skills to prospective teachers.

- **Reduce excessive professional development costs by enhancing academic requirements for prospective teachers and implement a meaningful form of professional development that highlights academic coursework related to the subject area taught.** The state and local school districts should allow teachers to pursue professional development in the form of authentic academic coursework in areas such as English, mathematics, science, and history. That is, state-funded professional development should

be focused on the academic content areas that form the basis for the state curriculum frameworks. Teachers’ plans should be approved by the teacher’s principal, who should ultimately be held accountable for the academic growth and performance of his or her faculty. Local professional development requirements can address pedagogical concerns raised by MCAS data and should also be approved by the principal.

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- **Implement differential pay for mathematics, science, special needs (SPED), and English as a second language (ESL) teachers.** As a recent Pioneer report, *Differential Pay for Math and Science Teachers*, highlights, about 43 percent of middle school mathematics teachers do not possess a major or a minor in mathematics. The “wage gap” between salaries in the private sector and those of teachers in public education makes recruitment and retention of highly qualified mathematics and science teachers extremely challenging. Initial wage enhancements of \$3,000 to \$4,000 for these subjects would be sensible.

- **Implement merit pay for performance, preferably on an individual basis.** A growing body of research has documented that there is a wide range in the effectiveness of individual teachers as measured by improving student achievement, and that performance-based compensation can raise student achievement. The design of merit pay plans should address incentives for both group and individual

performance, the involvement of relevant teachers, calculation of student achievement changes based on value-added models, and emphasis on changes in performance so as not to simply reward only schools with high current scores.

4. Ensure that we have an objective, rigorous, and data-driven school and district accountability system.

In effect, the state has not had an accountability office since the winter of 2008, when the Office of Educational Quality and Accountability (EQA) was essentially shuttered. The new agency should resemble EQA in its independence and in its evaluation of how districts use MCAS test data to drive reforms and innovative management practices, leadership, curriculum and instruction, and business and financial operations. The new agency should be paired up with a revamped DESE that is able to provide districts with the technical assistance tools outlined in recommendation 5 below.

5. Provide innovative tools to troubled urban districts so that core knowledge and skills that have long been unavailable on an equal basis are made available to all students irrespective of economic station, family background, or zip code. Pioneer believes that this goal can be achieved by the following:

- **Have the DESE provide assistance and oversight so that all schools and districts implement the current state curriculum frameworks--the academic standards on which MCAS is based.** According to Pioneer's analysis of EQA performance assessment data from 2003 to 2005, 58 percent of the 76 EQA Sample districts received a 'Below Satisfactory' performance rating by the EQA for curriculum alignment and implementation.

Within Pioneer's EQA Sample, Fall River was rated 'Below Satisfactory,' Springfield was rated 'Below Satisfactory,' Cambridge was rated 'Below Satisfactory,' Chelsea was rated 'Below Satisfactory,' Lowell was rated 'Below Satisfactory,' and Worcester was rated 'Below Satisfactory' for their combined curriculum alignment and implementation. In the largest, low-performing urban districts, significant work remains in aligning locally developed curricula with the state's academic standards.

- **Have the DESE establish an effective district and school-based data management system and work with teachers and administrators to improve academic instruction based on student assessment data. Such an undertaking will require funding.** According to Pioneer's EQA performance assessment research between 2003 and 2005, 58 percent of the 76 EQA Sample districts received a 'Below Satisfactory' performance rating by the EQA for student assessment and evaluation. For example, within the EQA Sample, Fall River was rated 'Below Satisfactory,' Springfield was rated 'Below Satisfactory,' Boston was rated 'Below Satisfactory,' New Bedford was rated 'Below Satisfactory,' Lowell was rated 'Poor,' and Worcester was rated 'Poor' for their combined student data assessment and evaluation. In low-performing urban districts, significant work remains in using MCAS test data to drive improvements in management and the instructional practices of teachers.

- **Provide an expanded portfolio of school choice options available to poor, minority, and special needs students, including charter schools, METCO, autonomous vocational-technical schools, and pilot schools.** The state should not wait even five years to provide alternatives to parents and children in school

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districts where 60 percent of the students score in the ‘Needs Improvement’ and ‘Warning/Failing’ categories on MCAS tests. It should immediately raise the cap on charter schools, incentivize school-based management, allow the creation of pilot schools, grant autonomy to urban vocational-technical schools (in a manner similar to the autonomy of the regional vocational-technical schools), and work to expand the METCO program to all of our urban districts.

The recommendations in this policy brief are meant to help the Governor and Board of Education ensure that Massachusetts’ economy remains competitive and that all of our students are ready to succeed in the marketplace and effectively function as citizens in a democratic society. Such an effort will require that the state maintain rigorous academic standards by resisting the temptation to substitute vague, short-term skills for the enduring academic subject matter that is the foundation for economic success and effective exercise of the rights of citizenship.

Specifically, the state should fully implement the current academic standards upon which the MCAS test is based. The state should also redouble efforts to implement the state frameworks in urban districts as was mandated in the 1993 Education Reform Act. To ensure that we attract and retain quality teachers, the state should expand the pipeline for new teachers, insist on higher standards for teacher testing, and allow differential and merit pay. Finally, the state needs to reinstate a strong district accountability system to ensure that we can measure progress and provide targeted help to districts.