

THE NEW ENGLAND COUNCIL

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This piece appeared in:



Mass High Tech: The Journal of New England Technology

Region depends on student readiness in math, science

By James T. Brett, President and CEO, The New England Council

August 15, 2008

Gov. Deval Patrick and his Readiness Project team are right to address the importance of a STEM (science, technology, engineering and math) education in the governor's Education Action Agenda. The Readiness Project report discusses Massachusetts employers' challenges in finding the skilled workers necessary for the state's ever-expanding technology sector.

But producing enough STEM-educated graduates has become a national challenge. Statistics regarding the future of our nation's work force are sobering.

The National Science Board notes that South Korea — with one-sixth of our population — already graduates as many engineers as the United States. Only 15 percent of American undergraduates receive their degree in natural science or engineering, compared with 67 percent in Singapore and 50 percent in China. U.S. universities award 34 percent of natural science Ph.D.s and 56 percent of engineering Ph.D.s to foreign-born students.

The number of high school seniors planning to pursue engineering degrees has decreased some 36 percent since 1996, with nearly one-third of those students switching majors before graduating. The nonprofit education group Project Tomorrow's recent survey indicated that many younger students with a strong interest in math and science began losing interest from the third grade on. In fact, fewer than one-third of American fourth- and eighth-grade students performed proficiently in math, while one-third of the fourth- and one-fifth of the eighth-graders could not perform basic math. Perhaps Microsoft's Bill Gates put it best: "When I compare our high schools to what I see when I'm traveling abroad, I am terrified for our work force of tomorrow."

These concerns are even more pressing in New England. Unlike other regions that depend on natural resources or geography, one of our region's greatest economic strengths has been its highly educated technical work force. New England is a world leader in areas such as IT, defense and biotech, environmental services, health care and research. These industries drive the regional economy and are dependent on workers with superior STEM skills.

National Science Foundation research demonstrates that satisfactory math and science elementary education, early exposure to STEM careers through role models and mentors, and effective college retention programs are all critical factors in developing the STEM-educated workers of the future.

Accordingly, the New England Council, with the New England Board of Higher Education, has urged the federal government to adopt a long-term strategy to promote STEM education. Our recommendations include incentives to boost the number of qualified STEM teachers, increasing investments in university programs that retain and attract students in STEM fields, increasing investments in technology-based educational tools, and encouraging businesses to partner with schools — by providing tax incentives for teacher externship programs, for example.

And we have seen some success. With strong support from New England's delegation, Congress enacted the America Competes Act, which establishes training programs for K-12 teachers in STEM fields and provides educational incentives for graduates with STEM degrees to teach. The council will continue to lobby for fully funding these programs, but much more needs to be done. New England's economy depends on a steady supply of highly educated and skilled workers. Our work force has long been a major resource for attracting and keeping companies in the region, creating new jobs and driving economic growth.

The number of jobs requiring technical training is growing at five times the rate of other occupations. Yet the number of graduates to fill those positions is on the decline. This is a quiet crisis that threatens a sector that has a significant impact on our standard of living and way of life. It's time to refuel the pipeline and significantly increase our support for quality STEM education.

James T. Brett is president and CEO of The New England Council, the nation's oldest regional business organization.

http://www.masshightech.com/stories/2008/08/11/editorial2-Region-depends-on-student-readiness-in-math_-science-.html