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How I See It

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Tapping Massachusetts' STEM education potential

A few years ago, Raytheon Co. conducted a study that found 84 percent of U.S. middle school students would rather clean their rooms, take out the garbage, or go to the dentist than do their math homework. At a time when our state and national economies are shifting to be more globally competitive, this finding, while amusing, is also troubling.

The countries with which we compete for workers, ideas and innovations are identifying their best math and science students, nurturing them, and educating them in STEM (science, technology, engineering, math) fields so they are prepared for a global marketplace. To remain competitive in the future, we need to be making similar investments in the United States and Massachusetts. Right now, we are not.

In 2005, 15 of America's most prominent business organizations formed the Tapping America's Potential (TAP) Coalition to voice the business community's deep concern about sustaining U.S. scientific and technological leadership into the future. The group identified the cultivation of skilled scientists and engineers to create tomorrow's innovations as a necessary strategy for the United States to maintain its competitiveness.

A similar effort is under way in Massachusetts. Given the underpinnings of the Massachusetts economy, and projections for its future growth, a public policy focus and investment in the STEM fields are of primary importance for many of the state's employers. In a new report, "Tapping Massachusetts Potential: The Massachusetts Employers' STEM Agenda," 15 of the state's leading business and technology organizations have formed a unique, collaborative call-to-action to make STEM a statewide policy priority. The coalition — convened by the Massachusetts Business Roundtable — has challenged state government, industry and educational institutions to double the number of STEM bachelor degrees and double the number of STEM teachers, grades 7 through 12, by 2020.

The report cited recent studies, including the 2007 Trends in International Mathematics and Science Study (TIMSS), which showed that Massachusetts students not only outpace the nation but most of the world in math and science proficiency. Massachusetts students and teachers should take pride in these achievements. However, while showing aptitude in STEM

fields, Massachusetts students pursue studies in these fields at alarmingly low rates. In 2008, the national average of SAT exam takers who indicated an interest in a STEM career was 26.3 percent, compared to 20.5 percent statewide. In fact, the number of students from Massachusetts colleges and universities studying in STEM fields declined from 1993 to 2008, while rising nationally.

This trend is alarming to Massachusetts employers, which depend on a consistent pipeline of well-trained and innovative workers.

There has been much written on the state's inability to keep young residents — particularly those who come to study here. Stricter federal limitations on foreign-born workers have further shrunk the skilled work force pool. While we must address these migration and immigration issues, the first step must be to create policies that generate more homegrown tech workers. The TAP report calls for an integrated strategy to build the talent infrastructure based on three categories: build public support for making improvement in STEM performance a statewide priority; motivate Massachusetts students and adults, using a variety of incentives, to study and enter STEM careers and remain in the state after graduation; and improve K-12 STEM teaching to foster student achievement and meet increased demand, including differentiated pay scales for mathematics and science teachers.

The business STEM coalition is committed to work with all stakeholders to both support existing efforts and identify specific vehicles to move the agenda forward. We echo the sense of urgency, expressed by state and national business leaders, in realizing that for the security and continued prosperity of our nation and state, we can no longer delay action.

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