

Editorial: A Lack of Sustained Focus on STEM Education in the US

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“American pre-eminence in STEM will not be secured or extended without concerted effort and investment. Trends in K-12 and higher education science and math preparation, coupled with demographic and labor supply trends, point to a serious challenge: our nation needs to increase the supply and quality of “knowledge workers” whose specialized skills enable them to work productively within the STEM industries and occupations. It will not be sufficient to target baccalaureate and advanced degree holders in STEM fields. Our nation’s economic future depends upon improving the pipeline into the STEM fields for sub-baccalaureate students as well as BA and advanced degree holders, for youth moving toward employment and adults already in the workforce, for those already employed in STEM fields and those who would like to change careers to secure better employment and earnings.” *The STEM Workforce Challenge* (April 2007, US Dept. of Labor).¹

We, citizens of the United States have slowly backed ourselves into a tight corner. Today Americans consistently rate among the second rank of developed nations in measures of public science and mathematics knowledge—and in the percentage of college graduates in STEM areas.

National concern with this state of affairs has been on-going, but sporadic, for more than 50 years. In 1958 the *National Defense Education Act* provided assistance to state and local school systems for strengthening instruction in science, and mathematics. In 1984, the *Education for Economic Security Act* added new science and mathematics programs for elementary, secondary, and postsecondary education. The *Excellence in Mathematics, Science and Engineering Education Act* of 1990 was established to promote excellence in American mathematics, science, and engineering education by creating a national

mathematics and science clearinghouse, and creating several other mathematics, science, and engineering education programs. The *Taxpayer-Teacher Protection Act of 2004* increased the amount of loans that can be forgiven for borrowers who are highly qualified mathematics, science, and special education teachers who serve in high-poverty schools for 5 years. Most recently, the 2007 *America COMPETES Act* [America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act] attempted to promote new STEM education programs in federal agencies, including the Department of Education.

According to the Congressional Budget Office: “On average, the private rate of return on investment in education is estimated to be about 10 percent. In addition, as with other forms of capital, investment in education can produce benefits for the larger economy and for society that exceed those to the individual student...increasing the educational attainment of the population fosters productivity growth—for example, by increasing the body of knowledge that makes up modern science, technology, and management...such effects could provide an economic rationale for investments in education.”²

So, what should we do—or do differently? STEM college faculty members are often already engaged in outreach to schools and community groups. More help must come from universities: they should actively promote STEM by supporting and expanding successful university outreach programs. This will take resources, and other academic areas might ask, “Is this fair?” No, *but it is necessary if we are to build a better and more prosperous society.*

1

http://www.doleta.gov/Youth_services/pdf/STEM_Report_4%2007.pdf

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<http://www.cbo.gov/ftpdocs/91xx/doc9135/AppendixA.4.1.shtml>