



## **Business-Higher Education Forum**

# Systematic Failures in U.S. Math and Science Infrastructure Threaten Global Leadership

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### ***Top Business and Higher Education Leaders Review Latest Education Data; Issue Warning About Future Impact on the Bottom Line***

**WASHINGTON, DC – February 16, 2005** — Armed with one of the most comprehensive and current review of data available, top business and higher education leaders today said that the United States' lackluster performance in science and math has placed the country in grave danger of losing its competitive edge in the global marketplace.

The data – presented in a new report by the Business-Higher Education Forum ( BHEF ) – are part of a joint effort of the business and higher education communities to objectively analyze the most recent and up-to-date information available on America's performance in math and science education.

“The most recent data about the performance of United States students in math and science is cause for deep concern,” said William H. Swanson, Chairman and CEO of Raytheon Company and Co-Chair of the BHEF 's Initiative on Mathematics and Science Education. “Technology is the lifeblood of our country because innovation builds prosperity and good, quality jobs for our increasingly diverse workforce. If we don't invest in and improve student achievement in math and science, there are serious implications for the business community, the US economy and our quality of life.”

*A Commitment to America 's Future: Responding to the Crisis in Mathematics and Science Education*, warns that if current trends continue the United States will lose its preeminence in science and technology and its leadership position in innovation. Among key data cited in the report:

- The 2004 Program for International Student Assessment showed that the problem-solving skills of American grade 10 students are significantly lower than their peers in 25 countries. Specifically, the performance of only 42 percent of

U.S. students was above the lowest of the Program's six levels of problem-solving achievement.

- Even though the U.S. is in the midst of an undergraduate enrollment boom, enrollment rates in countries with emerging economies and populations are growing even faster at startling rates, similar to those of the United States after World War II. In China, enrollment rates are expanding at ten times the rate of the U.S. Two-thirds of all Chinese students earn math, science or engineering degrees compared to about one-third of American students.
- The U.S. Department of Labor predicts that, over the decade ending in 2008, jobs requiring science, engineering, and technical training will increase by 51 percent, a rate four times faster than overall job growth. In addition, by 2008, some six million job openings for scientists, engineers and technicians will exist.

The report notes that the one source of American inefficiency in math and science is the lack of holistic, system-wide solutions. For example, the supply and demand statistics on math and science teachers are not encouraging. The report indicates that 260,000 to 290,000 new high school math and science teachers will be needed in the 2008 school year. Yet, even with years of advance warning, coordinated action is not being taken to recruit and retain quality teachers.

“Research repeatedly has pointed to teachers as the key to improving student achievement,” said Dennis Smith, President Emeritus, University of Nebraska and a Co-Chair of the BHEF Initiative. “To create a highly qualified teaching force, institutions of higher education must raise the preparation of mathematics and science teachers to a central role in the mission of their institutions.”

The BHEF report recommends cohesive long-term tactics to alleviate pressing systematic problems such as the teacher shortage. Specifically, the report challenges business, education, and policy leaders to commit to new and collaborative roles that will advance the development of seamless state systems of education – systems that extend from pre-kindergarten to higher education and the workplace.

“One of the most important tools recommended by the BHEF report is the establishment of state-level P-16 councils that include leaders from business, education and government. These councils, guided by the considerable existing body of work related to course content, curriculum and standards, will support school districts in implementing new and innovative strategies to improve the math and science achievement of *all* students,” said Warren Baker, President of California Polytechnic State University and the third co-chair of the BHEF Initiative.

The full report, *A Commitment to America's Future*, can be downloaded from [www.bhef.com](http://www.bhef.com)

The Business-Higher Education Forum (BHEF) is a non-profit membership organization of leaders from American businesses, colleges and universities, museums, and foundations. The purpose of the group is to join together to examine issues of national importance and, when appropriate, to speak with one voice by issuing reports, white papers, and policy positions, and by sponsoring roundtable discussions with elected

public officials, representatives from both the corporate and the academic communities, and with the general public.