Why we need more mathematicians, scientists and engineers to win the global economic battle

By Sen. Mary Landrieu (D-La.)

The U.S. is locked in a fierce competition with other nations to remain the world's scientific leader. To succeed, we have to play to win. And that means producing more American mathematicians, scientists and engineers.

It's long past time we made a serious national commitment to global economic competitiveness. Every day we delay making – and acting – on such a commitment, American workers lose more jobs overseas and more doors close on our children's futures.

It's well-documented that U.S. students are falling behind in math and science, and competition from abroad is intensifying. Our students rank 24th in the world in math literacy by the time they get to high school. In the decade between 1995 and 2005, the percentage of U.S. high school students interested in studying engineering dropped by nearly 35 percent. All the while, China is graduating more than four times as many engineers as the U.S. South Korea, with one-sixth of our population, graduates as many engineers as we do. Within five years, it has been predicted, more than 90 percent of all scientists and engineers will live in Asia.

Compounding this predicament is the fact that federal investment in basic research has dropped significantly in the U.S. Funding for physical science research as a percentage of GDP has fallen by one-half since 1970. As a result, worthy research proposals are being turned down. The jobs they could be generating in my state of Louisiana, and throughout the other 49 states, are lost.

Every indicator shows, with clarity and force, that those who pursue degrees in technical fields will get the jobs of the future. Science and engineering jobs will increase about 70 percent faster than the rate for all occupations. Underscoring this trend is the unemployment rate for experienced engineers and computer scientists, which is significantly lower than the national average for all occupations.
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Closing America’s work force gap is vital for our entire nation, but it’s especially critical for states that are struggling to diversify narrow economies, replace lost jobs, build global markets for local businesses and entice newly-minted graduates to stay home with abundant career choices. In Louisiana – which has needed for decades to broaden its economic base and, more recently, has had its hands full rebuilding over 20,000 businesses devastated by hurricane damage – we understand only too well why it’s so important to erase that gap and to do it quickly.

Though the federal government has yet to take decisive action, our nation’s business community is moving ahead. The Business Roundtable is working with the U.S. Chamber of Commerce, the Council on Competitiveness, the National Association of Manufacturers and a host of other organizations to improve educational performance and workforce competitiveness as part of its Tapping America’s Potential (TAP) initiative. Their goal – a worthy one we should all take to heart – is to double the number of science, technology, engineering and mathematics graduates with bachelor’s degrees by 2015.

In addition to these business groups, individual companies – from Apple to Lockheed Martin, from Caterpillar to IBM – have launched their own programs.

It’s time for Congress and the president to tackle this issue, a consequential matter that has less to do with the next election and everything to do with the next generation. Incubating more American mathematicians, scientists and engineers is the perfect common ground on which we can unite, pulling the nation’s private and public sectors together behind a meaningful, nonpartisan objective.

One example of what can be done is the proposed “Protecting America’s Competitive Edge (PACE) Act,” sponsored by Republicans Pete Domenici and Lamar Alexander and Democrats Barbara Mikulski and Jeff Bingaman, along with myself and other senators. This legislation would create incentives to help states set up public math and science specialty high schools and authorize new fellowships and tuition support. It would open Centers of Excellence in Mathematics and Science and internships at national laboratories, strengthen training for K-12 math and science teachers, jumpstart independent research and encourage distinguished scientists to promote scientific education. It would also start the Advanced Research Projects Authority in the Department of Energy to support ground-breaking, and much needed, research.

It’s time we do everything – whatever it takes – to arm America to win this quiet, but momentous, global battle. Our children’s futures, our economic muscle and our security as a nation rest upon us acting – and acting now.

*Landrieu is a member of the Small Business and Entrepreneurship; Appropriations; and Energy and Natural Resources committees.*
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