Critical countdown for science and math

COMMENTARY

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Today, our nation has lost the advantage in science and math to other countries.

FIFTY YEARS ago, on October 4, 1957, the former Soviet Union launched Sputnik 1, the first artificial earth-orbiting satellite. Barely the size of a basketball, Sputnik caught the world's attention and created alarm in the United States, where the Cold War bred suspicion and distrust.

The anniversary compels us to re-evaluate Sputnik's impact, not only on our national security, but also on the state of our math and science education, which is tied to national security.

To be sure, the political climate of the post-World War II era was different than it is today. Sputnik compelled government officials to ask themselves the disturbing question: "If the Soviets possess the technology to launch a satellite, how much longer would it be before they had the capability to launch ballistic missiles that could carry nuclear weapons from Europe to the United States?"

Before the Eisenhower administration could regroup, the Soviets struck again. On Nov. 3, 1957, Sputnik II was launched, carrying a heavier payload. The United States responded on Jan. 31, 1958, when it successfully launched the Explorer I satellite, the first in a series of lightweight, scientifically useful spacecraft.

The Sputnik launches also led to the creation of National Aeronautics and Space Administration and sparked a much-needed revolution in science and math education to produce more American scientists and engineers.

The late 1950s and early '60s witnessed the beginning of a new era of federal involvement in education.

When Congress passed the National Defense Education Act in 1958, it appropriated more than a billion dollars for a new, more rigorous science curriculum to be implemented in the nation's schools, colleges and universities.

The following year, Congress appropriated $134 million for the National Science Foundation, nearly $100 million more than the agency's budget the previous year. Science fairs became major events in high schools, attracting thousands of students. Test scores in algebra, geometry and calculus began to rise.

There was a noticeable spike in the number of engineering and science majors at national universities.

Our nation's investment in math and science education had a profound effect on winning the Cold War and in achieving technological superiority over other nations, which in turn led to economic prosperity in the United States.

Today, our nation has lost the advantage in science and math to other countries. The warning signs are not as visible as they were 50 years ago when Sputnik was launched, but they are just as disillusioning:

- The National Academy of Sciences reports that in the most recent international comparison of mathematical achievement, U.S. 12th-graders scored near the bottom, being outperformed by such countries as Lithuania, Slovenia and the Czech Republic. Only Cyprus and South Africa scored lower.
- U.S. students ranked 24th out of 29 industrialized countries in science, according to the Program for International Student Assessment.
- Many states are only producing half of the secondary school mathematics and science teachers it requires.
- The "Chronicle of Higher Education," reports that tight budgets, a shortage of academic jobs, and intense competition for research grants are contributing to "push students away from scientific careers."

If nothing else, these findings reveal that our nation must do a much better job in educating the next generation of scientists and engineers.

Our schools must revive their focus on science and math by:

- Developing programs to encourage more high school students – male and female – to enter those fields.
- Creating more public high schools that specialize in science and math, like the Bronx High School of Science, whose graduates include several Nobel Prize winners in physics.
- Changing the popular culture, which only celebrates successful high school athletes and rewards them with college scholarships and ostracizes successful math and science students.
- Having professional scientists mentor promising students by visiting schools or granting summer internships to work in their laboratories
- Training more science and math teachers who know and love their subject and can explain it in a dynamic way.

Only by taking science and math education more seriously will our nation be able to maintain the national security and economic prosperity we've enjoyed in the past.

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