

July 21, 2008

A Silent Crisis: The Underrepresentation of Latinos in STEM Careers

By Stanley Litow

There is much worry today about America's competitiveness and the future of the U.S. economy. The real wealth generator in the current global economy is innovation, and the high-technology jobs that flow from innovation. Indeed, a recent report from the U.S. Department of Labor suggests that over the next 10 years, the country's need for people with technical expertise is going to grow by 50 percent.

At the same time that our technological needs increase, however, there is a serious shortage of professionals and students studying the fields of science, technology, engineering, and mathematics. If the United States is to remain competitive, we need children from every ethnic and economic background prepared for jobs and potential careers in these disciplines.

That's why the lack of Latino participation in science, technology, engineering, and math is so worrisome. American ingenuity, the foundation for our economic strength, has always been the product of our rich and diverse heritage. With the country's growing Latino population, we have the classic paradox of challenge and opportunity. Let's look at the numbers.

Over the next 40 years, the United States will be the only developed country that will grow its population. Much of that growth will come from the Latino community. It's estimated that Hispanics will constitute 25 percent of the total U.S. population by the

middle of this century—their numbers tripling in that period. This segment of the population will certainly be relied upon, heavily, to help drive the nation's economic future and pace of innovation.

But the current numbers of Latinos earning science, technology, engineering, and math degrees and pursuing careers in these so-called STEM fields amount to a gross underrepresentation. This lack of participation could be a proverbial ticking time bomb for the nation's future. According to the National Action Council for Minorities in Engineering, Latinos accounted for only 4.2 percent of engineering degrees awarded in 2005, and a scant 1.5 percent of those awarded doctoral degrees. Dropout rates for Latino youths are the largest among minority populations, at 24 percent (compared with 12 percent for African-Americans and 7 percent for non-Hispanic whites).

American ingenuity, the foundation for our economic strength, has always been the product of our rich and diverse heritage. With the country's growing Latino population, we have the classic paradox of challenge and opportunity.

The reasons behind these statistics are complex and deeply entrenched, but a solution is central to America's competitiveness.

We need more teachers who are qualified to teach math and science. The nonprofit research group Education Trust found that 44 percent of math courses in high-poverty-level high schools—those schools where there are large

concentrations of underrepresented groups—were led by teachers without any mathematics certification. It's no surprise, then, that these schools are not offering the challenging math and science preparation students need if they are to make it to the next level.

But it's not just an educator problem. The absence of role models for Latino students is also a major inhibitor, according to a survey of Hispanic leaders conducted by **Public Agenda**. So, too, is the lack of adequate parent involvement. Immigrant parents often face obstacles—long work hours, language barriers, lack of sufficient formal schooling, and cultural attitudes carried over from home countries, to name a few—that may hinder them in assuming the role of advocate for their children.

That is why my company, IBM, has made a commitment to focus a variety of education initiatives on schools and communities serving Latino students. These efforts include, for example, offering free automatic translation software to school districts and increasing our own mentoring programs. But the problems cannot be solved by any one company, or by one segment of the economy alone. The private sector, no matter how much it contributes, is only one part of the solution.

Larger coalitions are beginning to take shape. In May, IBM joined with Exxon Mobil, Lockheed Martin, and 150 leaders from education, business, and the community to convene the

EDUCATION WEEK

July 21, 2008

America's Competitiveness: Hispanic Participation in Technology Careers Summit. The objective was to address this once-hidden, but now clearly visible crisis by taking concrete action to solve it. Four key recommendations came out of the meeting.

The first is to take stronger action to recruit, prepare, and retain qualified math and science teachers. We need to create and fund new career paths that encourage the best and brightest to leverage industry experience to enhance classroom skills. And, to do this successfully, we must develop more-competitive salaries.

In the short term, we need more second-career teachers from the ranks of our math and science professionals. The private and public sectors must collaborate to develop financial incentives for tuition, in-service professional development, and competitive salaries. At the same time, we need to redesign current teacher-preparation programs, encouraging—indeed, demanding—that universities, state education departments, school districts, and teacher unions work together to prepare and support more excellent teachers in these fields.

The second recommendation is to find ways to reduce undergraduate attrition rates for Hispanics in science, technology, engineering, and math majors. We need to focus on those young people who have expressed an interest in innovation careers and make it as far as a community college, college, or university program. We should surround them with the necessary mentors, support services, and financial aid to help them stay the course and succeed.

The third recommendation is to increase the awareness and popularity of STEM-related careers

in the Hispanic community. The public and private sectors should sponsor a major marketing campaign that educates the Latino community about these exciting and lucrative careers.

The fourth recommendation is to increase the Hispanic high school graduation rate. Every high school must offer the same challenging curriculum that is offered at the most successful schools, and all of the students must participate. It's unacceptable for Latino students to be absent from such programs.

As part of this, we must ensure that science and math education starts early and continues throughout a student's schooling. One compelling idea is to establish a formal certification for schools that offer an effective program in these areas and meet a standard for student achievement across all socioeconomic and ethnic groups. Public recognition and financial incentives would encourage all high schools to strive to secure the certification.

Middle and high school students also should have mentors from industry who embody the best that science, technology, engineering, and math have to offer. And they should be offered internship opportunities that encourage them to dream big and work hard.

Finally, we must find ways to eradicate cultural barriers—such as language—that prevent Latino parents from participating in their children's education.

America's goal must be to raise the standard of living for all our children, not just some of them. To do this, we must take aggressive action. We must capture more minds and hearts, generate more passion for innovation, and produce the kinds of academic programs that will not only convey the wonder of

science, but also help even the most disadvantaged students grasp its intricacies.

This is a moral imperative as well as an economic one. Whether one is in business, education, or community leadership, the time to join this effort is today.

Stanley Litow is the president of the IBM International Foundation and is IBM's vice president for corporate citizenship and corporate affairs. Before joining the company, he served as the deputy chancellor of schools for New York City.