Understanding America's science and math literacy crisis, FierceTelecom, Octob

A. Michael Noll
Columns · 2009
Original: http://www.fiercetelecom.com/story/understanding-americas-science-and-math-literacy-crisis/2009-10-27
Archived copy, Internet Archive snapshot 2010-07-30

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by A. Michael Noll

President Bush in a State of the Union address a few years ago called for an initiative in mathematics and science education, and President Obama has reiterated this call. But in the end will this all just be rhetorical fizzle?

Many people indeed do believe as I do that knowledge of the very basic principles of mathematics, science, and technology is essential in today's world. How can one consider oneself an educated cultured person without such literacy? But the real challenge is how to achieve science, mathematics and technological literacy on a national level.

None of this is new nor are the solutions. Dr. William O. Baker (former chairman of the board of Bell Labs, now deceased) deplored the lack of basic skills in the United States and advocated mathematics and science education as corrective action.

Clearly the problem is not in the hard sciences and engineering but in the humanities. In 1991, Baker asked: 'Will math, science and technology become accepted components of the humanities?' [William O. Baker, 'Science and Learning for All Americans,' presented at the American Philosophical Society, November 7, 1991.] To be really educated, a student of the liberal arts and humanities should have a basic literacy of the scientific and mathematical principles underlying today's technology.

The solution proposed by Presidents Bush and Obama is to train more teachers on the supply side. But the real problem is on the demand side--students have little interest in science, math, and technology. The attention should be on how to motivate students to want to learn math, science, and technology. This will not happen until scientists, mathematicians and engineers are as glorified on television dramas as are lawyers, physicians and crime-scene investigators.

I spent years at the Annenberg School teaching the basic fundamentals of communication technology to graduate and undergraduate students. But over time, these courses had ever-decreasing numbers of students, until finally a few years before my retirement there were no graduate students interested in taking such courses.

Although knowledge of algebra and calculus might be nice, math literacy is really a competency in basic arithmetic. Nearly one-quarter of my students at both the undergraduate and graduate levels

believed that 1 divided by 5 = 5.

The simple fact is that most students believe that science, mathematics, engineering and technology are difficult and incomprehensible topics.

Students fear that which they do not know, or have had scary experiences with in the past. Thus the real challenge is how to motivate students to want to study and learn these topics, and how to teach them in a stimulating and understandable manner.

This nation responds only to crises and the lack of math and science is not yet such a crisis. It takes a Pearl Harbor or a Sputnik to wake our nation into action. Otherwise, complacency, mediocrity and illiteracy in science and mathematics will continue to flourish.

Presidents Bush and Obama are quite correct in identifying this national challenge. In today's highly competitive global markets the countries with the labor forces that best comprehend science, technology and mathematics will be the winners. The illiterate will be the losers.

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