

#### EDUCATION NATION

"AH, YES," say those who are more worried, "but you are looking at a snapshot of today. The United States' advantages are rapidly eroding as the country loses its scientific and technological base and suffers from inexorable cultural decay." A country that once adhered to a Puritan ethic of delayed gratification, the argument goes, has become one that revels in instant pleasures; Americans are losing interest in the basics—math, manufacturing, hard work, savings—and becoming a society that specializes in consumption and leisure.

No statistic seems to capture this anxiety better than those showing the decline of engineering in the United States. In 2005, the National Academy of Sciences released a report warning that the United States could soon lose its privileged position as the world's science leader. The report said that in 2004 China graduated 600,000 engineers, India 350,000, and the United States 70,000—numbers that were repeated in countless articles, books, and speeches. And indeed, these figures do seem to be cause for despair. What hope does the United States have if for every one qualified American engineer there are more than a dozen Chinese and Indian ones? For the cost of one chemist or engineer in the United States, the report pointed out, a company could hire five Chinese chemists or 11 Indian engineers.

The numbers, however, are wrong. Several academics and journalists investigated the matter and quickly realized that the Asian totals

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included graduates of two- or three-year programs training students in simple technical tasks. The National Science Foundation, which tracks these statistics in the United States and other nations, puts the Chinese number at about 200,000 engineering degrees per year, and the Rochester Institute of Technology's Ron Hira puts the number of Indian engineering graduates at about 125,000 a year. This means that the United States actually trains more engineers per capita than either China or India does.

And the numbers do not address the issue of quality. The best and brightest in China and India—those who, for example, excel at India's famous engineering academies, the Indian Institutes of Technology (5,000 out of 300,000 applicants make it past the entrance exams)—would do well in any educational system. But once you get beyond such elite institutions—which graduate under 10,000 students a year—the quality of higher education in China and India remains extremely poor, which is why so many students leave those countries to get trained abroad. In 2005, the McKinsey Global Institute did a study of “the emerging global labor market” and found that 28 low-wage countries had approximately 33 million young professionals at their disposal. But, the study noted, “only a fraction of potential job candidates could successfully work at a foreign company,” largely because of inadequate education.

Indeed, higher education is the United States' best industry. In no other field is the United States' advantage so overwhelming. A 2006 report from the London-based Center for European Reform points out that the United States invests 2.6 percent of its GDP in higher education, compared with 1.2 percent in Europe and 1.1 percent in Japan. Depending on which study you look at, the United States, with five percent of the world's population, has either seven or eight of the world's top ten universities and either 48 percent or 68 percent of the top 50. The situation in the sciences is particularly striking. In India, universities graduate between 35 and 50 Ph.D.'s in computer science each year; in the United States, the figure is 1,000. A list of where the world's 1,000 best computer scientists were educated shows

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The United States' advantages today are in large part a product of immigration.

that the top ten schools are all American. The United States also remains by far the most attractive destination for students, taking in 30 percent of the total number of foreign students globally, and its collaborations between business and educational institutions are unmatched anywhere in the world. All these advantages will not be erased easily, because the structure of European and Japanese universities—mostly state-run bureaucracies—is unlikely to change. And although China and India are opening new institutions, it is not that easy to create a world-class university out of whole cloth in a few decades.

Few people believe that U.S. primary and secondary schools deserve similar praise. The school system, the line goes, is in crisis, with its students performing particularly badly in science and math, year after year, in international rankings. But the statistics here, although not wrong, reveal something slightly different. The real problem is one not of excellence but of access. The Trends in International Mathematics and Science Study (TIMSS), the standard for comparing educational programs across nations, puts the United States squarely in the middle of the pack. The media reported the news with a predictable penchant for direness: "Economic Time Bomb: U.S. Teens Are Among Worst at Math," declared *The Wall Street Journal*.

But the aggregate scores hide deep regional, racial, and socioeconomic variation. Poor and minority students score well below the U.S. average, while, as one study noted, "students in affluent suburban U.S. school districts score nearly as well as students in Singapore, the runaway leader on TIMSS math scores." The difference between the average science scores in poor and wealthy school districts within the United States, for instance, is four to five times as high as the difference between the U.S. and the Singaporean national average. In other words, the problem with U.S. education is a problem of inequality. This will, over time, translate into a competitiveness problem, because if the United States cannot educate and train a third of the working population to compete in a knowledge economy, this will drag down the country. But it does know what works.

The U.S. system may be too lax when it comes to rigor and memorization, but it is very good at developing the critical faculties of the mind. It is surely this quality that goes some way in explaining why the United States produces so many entrepreneurs, inventors, and risk

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takers. Tharman Shanmugaratnam, until recently Singapore's minister of education, explains the difference between his country's system and that of the United States: "We both have meritocracies," Shanmugaratnam says. "Yours is a talent meritocracy, ours is an exam meritocracy. We know how to train people to take exams. You know how to use people's talents to the fullest. Both are important, but there are some parts of the intellect that we are not able to test well—like creativity, curiosity, a sense of adventure, ambition. Most of all, America has a culture of learning that challenges conventional wisdom, even if it means challenging authority." This is one reason that Singaporean officials recently visited U.S. schools to learn how to create a system that nurtures and rewards ingenuity, quick thinking, and problem solving. "Just by watching, you can see students are more engaged, instead of being spoon-fed all day," one Singaporean visitor told *The Washington Post*. While the United States marvels at Asia's test-taking skills, Asian governments come to the United States to figure out how to get their children to think.