



The Economic Imperative for Improving Education

Issue Papers The High School Leadership Summit

A nation's store of human capital—the knowledge and skills of the workforce—increasingly determines its well being in the modern world. The creation of human capital depends more and more on a country's ability to educate its population. Yet, American schools are not keeping pace with this economic imperative. With the *No Child Left Behind Act of 2001*, the nation has made a commitment to raise the proficiency of students to ensure that every student is prepared for postsecondary education or training.

No Child Left Behind offers a major opportunity to mobilize high schools to address the economic imperative for a more rigorous education system in the United States. If the nation's youth are to have a future with promise, the nation now needs to take bold and comprehensive action to reshape our high schools. Such improvement depends on the quality of curriculum and instruction the schools provide, the environment they create for learning, and the signals they send to students about what matters.

The Global Economy, Technology, and Jobs

The well being of the nation increasingly depends upon U.S. high schools rising to the challenge of preparing all students for a new economic reality. Prior to the mid-1970s, it was economically sufficient to provide an excellent education to an elite group of students and a basic education to the rest of the population. No longer. Students need to stay in school, take challenging courses, and be prepared for further education or training. But this has not been happening.

In a world where financial capital, technology, information and goods flow freely across borders, economic advantage goes to the educated and entrepreneurial.¹ Once, when communications and transport were slower, nations with great stores of natural resources, proximity to markets, and other physical advantages had an economic edge. Now the race goes to the educated, trained, and motivated — wherever they are.

Twenty-first century high-tech firms in the United States look to software developers in India and well-educated office workers in Ireland, while British firms interested in establishing market leadership in biotechnology recruit American scientists. At the same time, production processes that require workers with only modest knowledge and skill often move to countries where labor is cheap.

Aside from rearranging the global marketplace, advancing technology has boosted productivity and allowed domestic firms to run their businesses with fewer workers. Gone are the days when workers in a plant or office focused on one rote task, leaving all the critical thinking and decision-making to managers. If the work is routine it will probably be automated.

These changes have increased the skill and knowledge requirements for most workers. Today's flexible workplaces rely on people who can handle multiple tasks, interact well with their colleagues, respond to varying customer needs, identify problems and make quick decisions about how to fix them. This is true not only of manufacturing but also in a wide range of services, such as finance, insurance, telecommunications and other industries where advances in computing and communications have accelerated the pace of change.

The marketplace increasingly provides companies with incentives to be as lean and flexible as possible. It also encourages them to adopt policies that attract and hold highly capable workers who enable the firm to function as an organization that is constantly learning.

Knowledge Workers for the 21st Century

All of this does not necessarily mean fewer jobs, if the workforce is properly prepared. It is just that the jobs are, and will be, different. Modern firms seek employees whom management expert Peter Drucker calls “knowledge workers.”

Admittedly, not every workplace demands such qualifications. Baggage handlers and taxi drivers may not see their job requirements change much at all. But there will be fewer low-skill jobs with family-supporting wages. This reality is borne out in projections from the U.S Department of Labor, which identify the fastest growing jobs from 2000 to 2010 (see Figure 1).

Eight of the ten occupations listed in Figure 1 require some form of postsecondary education, and this trend will continue. According to Labor Department projections, jobs requiring postsecondary education will experience above-average growth, while those requiring only on-the-job training or work experience will grow at less than the expected 15 percent average projected by the Bureau of Labor Statistics in the first decade of the new millennium (see Figure 2). Although such jobs will continue to make up a large share of the labor market, they will pay much less than the jobs that require postsecondary education or training.

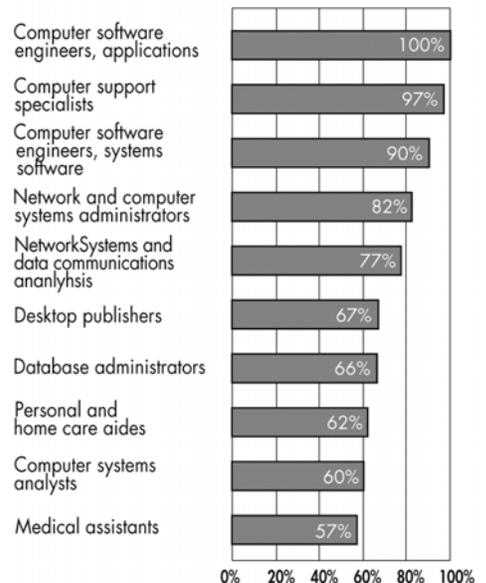
These requirements for more skilled workers continue a shift in education requirements that has been evolving for years. In 1997, 53 percent of employers reported that the skills required for production and support jobs increased in the previous three years. Only 6 percent indicated that skill requirements were declining.²

A growing gap. Greater educational achievement has long been linked to greater income (See Figure 3). In recent years, however, the gap between those who have more education and those who have less has grown. The relationship between education and income for working men and women 25 years old and over is abundantly clear (See Figure 4).

In the year 2000, female and male college graduates earned 60 and 95 percent more, respectively, than those who had not gone beyond high school.³ High school dropouts faced even more difficult circumstances, as they earned 27 and 30 percent less, respectively, than their male and female counterparts who completed only high school or a GED. Of the 50 best-paying occupations in the country, only 2 (air traffic controller and nuclear power reactor operator) do not require a college degree.⁴

Figure 1

Fastest Growing Occupations
Percentage Change in Employment in the Ten Occupations Projected to Grow Faster, 2000-2010



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, 2000-2010 Employment Projections, 2001.

Figure 2

Job Growth Tied to Postsecondary Education

Percentage Change in Number of Jobs by Most Significant Source of Education or Training, Projected 2000-2010

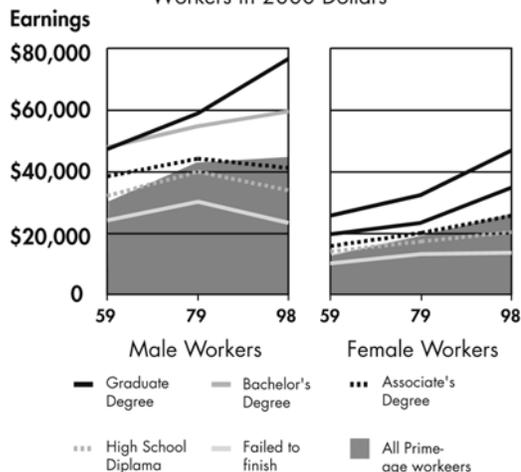


Source: U.S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Jobs Bulletin 2540-1, 2002.

Figure 3

Earnings Depend Increasingly on Educational Attainment

Earnings of Prime Age (30-59 years old) Workers in 2000 Dollars



Source: Carnavale, A.P., and Desrochers, D.M. (2002). *The Missing Middle: Aligning Education and the Knowledge Economy*, Princeton, NJ: Educational Testing Service.

The Challenge for High Schools

American business leaders have been among the strongest advocates for school improvement. They understand that their own long-term success is tightly linked to the quality of individuals entering the labor market each year from our schools. A recent survey highlights this concern about workforce quality.⁵ Eighty percent of responding businesses said they had a “moderate to serious” shortage of qualified job candidates. They cited poor reading, writing, math, verbal communication and English language skills as issues. The survey noted that the lack of an adequately skilled workforce could “drive a business, already operating on a competitive edge, out of the global game.”

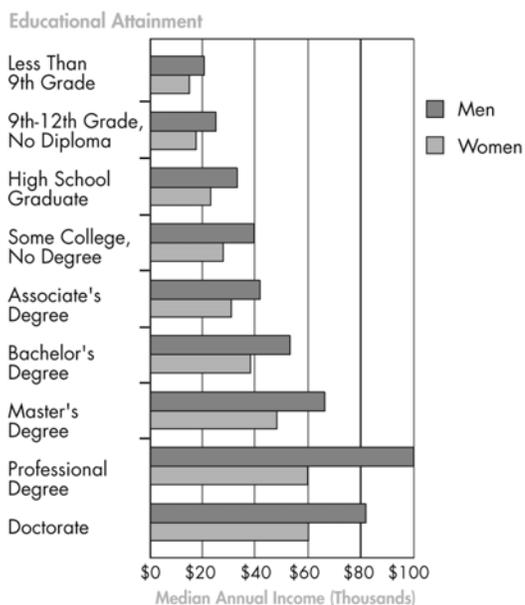
Dropping out. Young people can’t prepare for further education and training if they haven’t finished high school. In 2000, there were 3.8 million 16–24-year-olds who were not enrolled in school and who had not yet completed a high school program.⁶ The rate has remained at about 11 percent since 1992.

For minority students, especially Hispanics (nearly 30 percent in 1999) the rates are higher; in many urban areas the rates are higher still. While the quality of their schooling may be only one of many reasons students drop out, it is essential to address this issue. For young people growing up in difficult circumstances, a good high school can mean the difference between a promising future and no future at all.

Figure 4

Income and Education

Median Annual Income of Year-Round, Full-Time Workers 25 years old and Over, by Level of Education Completed and Sex: 1999



Source: U.S. Department of Education, NCES, (2002). *Digest of Education Statistics 2001* (NCES 2002-130). Washington D.C.

Not measuring up. Where proficiency and excellence are required, students are struggling to attain even basic skills. In the latest National Assessment of Educational Progress (NAEP) (see Figure 5), for example, only 40 percent of 12th graders test as proficient in reading. The figure for other subjects is worse: 21 percent in writing, 17 percent in math, 19 percent in science, and so on.

The United States also ranked near the bottom on achievement in math and science of 21 countries participating in the Third International Mathematics and Science Study (TIMSS) in 1995. These results were little different from those achieved during earlier evaluations in the 1960s and 1980s.⁷ These are not the marks of a world-class workforce or a world-class education system.

A significant and troubling achievement gap also persists between White and minority students. As measured by the latest NAEP results, the gap is largest between White and African American students: 26 percentage points in reading, 43 in mathematics and 40 in science. The gap is only slightly smaller between White and Hispanic students. With minorities making up a growing segment of the labor force, this gap not only poses difficult issues for social progress but is likely to have adverse economic consequences as well.

Lack of Academic Rigor

The NAEP test scores in part reflect the course-taking patterns of high school students. Research has shown that students who take a more demanding high school curriculum are more likely to enroll in college and complete a postsecondary degree. Taking more rigorous courses also can help close the achievement gap.⁸

Too few students have taken the courses they need to be adequately prepared for postsecondary education.⁹ For example, 43 percent of 1998 graduates still followed the discredited “general” track, with its less than rigorous curriculum that typically falls far below the knowledge and skill required to prepare students for college-level work, whether at community colleges, technical colleges or four-year institutions.

Almost one-third of new college entrants take one or more remedial courses.¹⁰ When gaining basic knowledge and skills is postponed until entry into postsecondary education, students and colleges wind up spending time and money that could be devoted elsewhere and can diminish a student’s commitment to pursuing a college credential. With so many students entering college not prepared for its demands, it is no surprise that so many never earn a degree.

Although by the late 1990s signs of more students choosing demanding secondary courses were encouraging, overall performance levels still indicated that the nation had a long way to go before all students leave high school prepared for college and high-skilled work.¹¹

Taking Action: Preparing America’s Future

The United States has been fortunate to have enjoyed success in the international marketplace even as far too many American students leave high school with the most minor of accomplishments and less prepared for the world than students in many other countries with advanced economies. Analysts who have carefully examined this issue believe we have fared as well as we have in recent years because of our size, the flexibility of our labor markets, and the ease with which we have been able to tap the talents of professionals from other nations, whether as immigrants or as “off-shore” employees.¹²

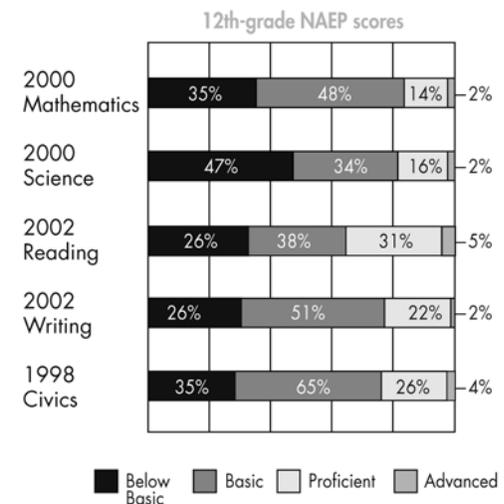
But other nations are not standing still, and there is no guarantee that today’s advantages will be permanent. In time it is likely that others will learn from our example, as American firms learned valuable lessons from Japanese manufacturers in the 1980s. When that day comes, the quality of our human capital will be more important than ever. So while the nation has enjoyed great prosperity in the past decade in spite of the performance of our schools, our future rests on doing much better.

Many high school educators across the country have shown that young people who others thought could not achieve could indeed excel. Yet, too many schools give up on certain students or hold others to the most modest of expectations. If schools that provide an excellent education for all their students are to become the norm, then fundamental change in expectations and in policy and practice must be the order of the day.

Endnotes

¹ Carnavale, A. and Desrochers, D. *Standards for What? The Economic Roots of K-16 Reform*. (Princeton, NJ: Educational Testing Service, 2003).
² University of Pennsylvania, National Center on the Educational Quality of the Workforce. 1997. *1997 National Employer Survey, Phase II*. Philadelphia, PA.
³ U.S. Department of Education, NCES. 2002. *The Condition of Education 2002 (NCES 2002-025)*. Indicator 16. Washington, DC.
⁴ U.S. Department of Labor, Bureau of Labor Statistics. 2002. *Tomorrow’s Jobs (Bulletin 2540-1)*. (Reprinted from the *Occupational Outlook Handbook, 2002-03 Edition*). Washington, DC.
⁵ National Association of Manufacturers, Andersen, and Center for Workforce Success. 2001. *The Skills Gap 2001*. Washington, DC.

Figure 5
NAEP Scores
 Percentage Distribution of the Scores of 12th-Graders in Selected NAEP Tests, by Proficiency Level: 1998, 2000 and 2002



Source: U.S. Department of Education, NCES. (2001). *Mathematics Highlights 2000 (NCES 2001-518)*; *Science Highlights 2000 (NCES 2002-452)*; *NAEP 2002 Reading (NCES 2003-521)*; *NAEP 2002 Writing (NCES 1999-464)*; and *The Next Generation of Citizens: NAEP Civics Assessments 1988 and 1998 (NCES 2001-452)* Washington, D.C.

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- ⁶ Kaufman, P., et al. *Dropout Rates in the United States: 2000 (NCES 2002-114)*. (U.S. Department of Education, NCES, Washington, DC, 2002).
- ⁷ U.S. Department of Education, NCES. 1998. *Pursuing Excellence: A Study of U.S. Twelfth-Grade Mathematics and Science Achievement in International Context (NCES 98-049)*. Washington, DC.
- ⁸ Horn, L. and Nuñez, A. *Mapping the Road to College: First Generation Students' Math Track, Planning Strategies, and Context of Support (NCES 2000-153)*. (Washington, DC: U.S. Department of Education, NCES, 2000).
- ⁹ Levesque, K. *Trends in High School Vocational/Technical Course Taking: 1982—1998*. (Washington, DC: U.S. Department of Education, NCES, 2003).
- ¹⁰ Lewis, L., et al. *Remedial Education at Higher Education Institutions in Fall 1995 (NCES 97-584)*. (Washington, DC: U.S. Department of Education, NCES, 1996).
- ¹¹ U.S. Department of Education, NCES. 2000. *The Condition of Education 2000 (NCES 2000-062)*. Table 40-1 and Table 33-1. Washington, DC.
- ¹² Carnevale, A. and Desrochers, D. 2003.

This paper is one of a series produced in conjunction with the U.S. Secretary of Education's **High School Leadership Summit**. For more information about the U.S. Department of Education's work on high schools, visit <http://www.ed.gov/about/offices/list/ovae/pi/hsinit/index.html>.