

Jobs and the Skills Gap

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If the United States wants to remain competitive in a global marketplace where the majority of workers earn a fraction of the salaries paid in this country, we must have the most competent and innovative work force possible. Our K-12 education system is not getting the job done.

The academic skills demanded by many entry-level jobs today are at a higher level than the academic skills required for postsecondary education. Some of those skills are not only more rigorous but also *different from* the skills needed for success in postsecondary education. Yet, our schools continue to focus on getting students ready for college as the ultimate academic preparation, despite the fact that for two decades business has led the charge for higher academic standards because schools are turning out young adults without the academic skills to succeed in the workplace.

The *No Child Left Behind* (NCLB) legislation is a continuation of the push for improved academic achievement that began in 1983 with publication of the government report, *A Nation at Risk: The Imperative for Educational Reform*. This report concluded that our schools were in danger of not preparing students to compete in the 21st century. Reaction to that call for higher standards has taken many forms over the years, such as more academic requirements for graduation, more tests, and the standards and accountability movement of today.

In 1983, as now, the impetus for change came primarily from the business community, not higher education. And business continues to feel firsthand the skills gap between what students are learning in school and what they actually need to be competitive in the high-tech, global economy.

A Changing Concept of Literacy

More dialogue on how to educate the future U.S. work force is occurring between corporate leaders and politicians than is taking place among educators. Business does not necessarily know what or how schools should be teaching tomorrow's workers, but it *does* know that it is not getting what it needs in terms of entry-level worker skills.

Consider reading. The business community has long identified inadequate reading proficiency as a problem among entry-level employees. Educators have attempted to solve the problem from within their own paradigm, by teaching more of what they had always taught — literature. While reading literature is an important and culturally enhancing competency, it is not the same as informational reading.

The reading requirements for today's entry-level jobs are higher than they are for state tests or college, according to the International Center for Leadership in Education's evaluation of on-the-job reading materials using the Lexile Framework. Developed by MetaMetrics, the Framework uses a computer program to examine a whole text for such characteristics as sentence length and syllabic intensity.

So although reading skills do need to be improved, what students require to function in the 21st century workplace is better technical reading skills for understanding documents and quantitative material, not more reading of prose, poetry, and other literary forms. To acquire these other skills, students need to be taught reading in all content areas, not just in English language arts. A new definition of literacy is required.

The concerns that led to *A Nation at Risk* and subsequent school reform initiatives have not abated and may indeed have worsened over the last decade. While many college graduates cannot find good jobs, U.S. unemployment rates remain relatively low, businesses continue to give signing bonuses for entry-level and mid-level jobs, and Congress has responded to pressure from business by increasing the number of H-1B nonimmigrant visas issued annually to individuals in “specialty occupations” to 195,000 in 2000.

What is wrong with this picture? The problem is that our college graduates “do school.” The skills needed to do school do not necessarily connect well with the skill requirements of the 21st century workplace.

Economic Trends

The skills gap in this country has resulted from a shift in our economy. In 1900, the ten largest American companies were either agrarian or tied to an industrial base. In 1998, the ten largest companies were industrial, retail, or based in information technology.

Our economy is now driven by information technology, biotechnology, and nanotechnology. This signals a fundamental and irreversible structural shift in the employment sector. It took more than a century to move from an agrarian-based economy to an industrial base to an information-based economy. I predict that it will take only a decade to move from our information-based economy to an integrated nano/info/biotech-based economy.

In 1986, retailer Sam Walton (Wal-Mart) topped the list of the wealthiest people in the nation, with a net worth of \$4.5 billion. By 2002, software leader Bill Gates (Microsoft) led the list of wealthiest Americans, with a net worth of \$60 billion. Wealth is moving from retailing to information technology to a combination of info/bio/nano technology.

Labor economists predict that by 2010, we will no longer identify our largest companies by number of employees. For example, Sears Roebuck employed 326,000 people in 2002. E-bay, with 138 employees, has overtaken Sears in terms of sales and value on NASDAQ.

Technology, Employment Trends, and Global Competition

The number of jobs for the unskilled has declined steadily over the past several decades. Today we are witnessing an increase in semi-skilled jobs. In the next ten years, there will be a huge growth in skilled jobs. In addition, a shift has occurred from large to small companies. Employees in small firms often need to do a variety of tasks requiring a range of skills.

Forty years ago employment generally consisted of large numbers of low-skill, some semi-skilled, and fewer high-skill jobs. By the 1990s, technology, with its high degree of reliability and lower cost, had taken over many routine low-skill jobs, some of which had paid high wages. This shift in the labor market will continue as more semi-skilled jobs are automated, thus saving employers expensive salaries and fringe benefits.

As more jobs require higher-level skills, an interesting dynamic is occurring in postsecondary education. The American Association of Community College Trustees reports that in many regions of the country, more students with Baccalaureate degrees are enrolled in community colleges than there are students with Associate degrees attending four-year colleges. Community college has become the new graduate school for many liberal arts majors.

While we cannot know for certain which technical skills will be most in demand for the jobs of the future, we can identify the academic skills that underpin our technological world. Those skills include technical

reading and writing across the curriculum; integrated science instruction, especially chemistry and biology; statistics; and entrepreneurial skills.

But our schools remain deeply entrenched in teaching discrete subjects, while the real world requires the ability to apply interdisciplinary knowledge. Students need to be taught how to access, evaluate, and synthesize information. Yet, schools typically have no structure that allows teachers to do interdisciplinary planning.

Moreover, technology has made it possible to move work to the worker almost anywhere in the world. For example, since 1999, many U.S. health insurance forms have been processed in Ireland because of its high literacy rate and less expensive salary structure.

In many European and Asian nations following World War II, preparation for employment took precedence over preparation for higher education. In contrast, United States citizens saw college as the ticket to a better standard of living. But only excellent students could go on to college because of limited seats: the large state university and community college systems of today did not exist. So parents put pressure on elected officials to increase the postsecondary educational opportunities for their children.

European and Asian nations post-WWII did not focus on sending their children to college. They worried about rebuilding their homes, factories, and communities. This imperative resulted in a different culture than developed in the U.S. While Americans saw school as a means to prepare students for the next grade and the next level of education, Europe and Asia viewed school as preparation for the workplace and society in general.

Some Trends in the U.S. Work Force

Trend: The 12 fastest-growing occupations in the country are technology based and/or tied to the health-care industry, according to *Employment Outlook 2000-2010*, published by the U.S. Department of Labor's Bureau of Labor Statistics. These occupations include computer software engineers and support specialists, network and database administrators, physician's assistants, home health aides, and occupational and physical therapists. The fastest declining occupations include secretaries and typists, telephone operators, tellers and clerks, computer operators, and farmers/ranchers. We must stop to consider how well we are preparing students to function and survive in the 21st century workplace.

Trend: In the next eight years, there will be a 1.7 million decline in the number of people between the ages of 25 and 34. This "baby bust," combined with retiring "baby boomers," will greatly impact the American economy. We must find a way to prepare all our young people, including those with disabilities and limited English proficiency, to become contributing members of the work force.

Trend: Average longevity for Americans in 1900 was 47 years. Primarily due to medical advances, average longevity today is 77 years. Advances in biotech and genetics will continue to increase the life spans of Americans. If we continue to experience a comparable increase in lifespan in the next 100 years, people will live to 124 in 2100.

What Students Need

In addition to the skills listed above, students must be taught how to *apply* their knowledge to solve real-world problems. The best way to do this is by appealing to a student's interests, learning style, and aptitudes. Unfortunately, most American schools are not organized for application or contextualized instruction, even though we know that when we teach students how to apply knowledge, they retain it and perform well on tests. If career and technical education and the arts, for example, can incorporate more

academics in their courses, they can have a profound impact on students' academic skills and better prepare them for state tests and for the work force of the 21st century.

Conclusion

This country needs *No Child Left Behind* so we will leave no future adults behind in the workplace.

- Jobs for the unskilled are declining as technology increasingly replaces those workers.
- Technology allows work to move to workers anywhere. We must use our human and technological resources more effectively to be more productive in the face of global competition.
- With more workers retiring than entering the labor market, this country will need every person of working age able to contribute to the economy.

The base of the U.S. economy has changed over time from agricultural to industrial to information and now, at lightning speed, to infotech, biotech, and nanotech. New skill sets and high-level academics are required for the new technological workplace. What are our schools doing to prepare students for their future?

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