Work Smarts Life Smarts

HOW EDUCATION'S SOCIETAL MISSION AND BUSINESS'S HUMAN RESOURCE NEEDS ARE CONVERGING

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In today's economy, access to postsecondary education or training has become the threshold requirement for individual career success. And successful business organizations now depend on employees with at least some education or training beyond high school. The increasing economic value of postsecondary education is good news in a society that strives to make economic opportunity subservient to individual merit, rather than family background. Unlike the European welfare states that guarantee access to income and benefits irrespective of individual educational performance, our increasing reliance on education as the arbiter of economic opportunity allows us to expand opportunity without surrendering individual responsibility. As a result, we emphasize equality of educational opportunity rather than equality of economic outcomes. Ultimately, student performance is assessed individually and individual educational performance determines access to income and benefits in labor markets.

At the same time, the growing economic value of a postsecondary education is the source of new tensions among educators, government leaders and the business community. It has become increasingly apparent that with tight public budgets we cannot afford all the postsecondary education we need, especially given the growing costs associated with pre-K development and meeting new standards in elementary and secondary education. As a result, there are growing pressures to produce postsecondary education cheaper, faster and better. As one business leader puts it: "Higher education isn't really *higher*, it's just longer."

The relentless market pressures for more efficiency in higher education create inevitable tensions, because higher education is different from other economic commodities. Postsecondary education is about more than dollars and cents. It does more than provide foot soldiers for the American economy. Postsecondary education, more than K-12 education, has intrinsic as well as extrinsic value. College educators also have cultural and political missions to ensure that there is an educated citizenry that can continue to defend and promote our democratic ideals. Nevertheless, the inescapable reality is that ours is a society based on work. Those who are not equipped with the knowledge and skills necessary to get, and keep, good jobs are denied full social inclusion and tend to drop out of the mainstream culture, polity and economy. Hence, if postsecondary educators cannot fulfill their economic mission to help youths and adults become successful workers, they also will fail in their cultural and political missions to create good neighbors and good citizens.

Growing demand for postsecondary education

Postsecondary education will be a key ingredient in the 21st century recipe for a growing economic pie. In the 20th century, increasing educational attainment, principally improvements in the rate of high school enrollment and graduation, contributed about 25 percent to overall economic growth. Currently, high school completion rates—including students earning General Education Development (GED) certificates—are approaching 90 percent. In the future, the economic contribution from increasing educational attainment will have to come from increasing access to college. The economic returns from expanding access to college, persistence and graduation can be substantial. Increasing a country's level of schooling by one year can increase economic growth by 5 percent to 15 per-

cent—that means between $500 billion and $1.5 trillion added to U.S. economic output, including roughly $160 billion to $500 billion in new tax revenues.

While important to national wealth and competitiveness, the apportionment of economic opportunity among individuals and their families is also strongly influenced by access to college. Access to college has become the new threshold requirement for good jobs. Since the 1970s, the earnings of workers with at least some college relative to high school graduates (the so-called "college wage premium") has doubled from 35 percent to 70 percent, even though the overall supply of workers with at least some college has grown by 60 percent over the same period.

Since 1959, the fastest growth has occurred among jobs that require at least some college education. Jobs employing prime-age workers (ages 30 to 59) that require at least some college increased from 20 percent of all jobs in 1959 to 59 percent in 2000. And about three in 10 prime-age workers have at least a bachelor's degree.

Moreover, college requirements have increased across all occupations and industries. Consider:

• Office jobs, the fastest growing set of jobs in the economy, have grown from 30 percent of all jobs in 1959 to 39 percent today. About 50 million Americans work in these white-collar office jobs. Fully 69 percent of them have at least some college education, up from 38 percent in 1973.

• Education and health care jobs have grown from 10 percent to 17 percent of all jobs since 1959, and the share with at least some college has grown from 50 percent to 75 percent over the past 30 years.

• Technology jobs have doubled. They now account for 7 percent of all jobs, and 86 percent of the people working them have at least some college, up from 63 percent in 1973.

• Manufacturing jobs have declined from 32 percent to 17 percent of all jobs, mostly as a result of productivity improvements. At the same time, skill requirements in manufacturing increased dramatically. In 1973, more than half of line workers were high school dropouts. In 2000, only 19 percent were dropouts, and 36 percent had at least some college.

• Low-skilled service jobs accounted for 20 percent of jobs when Ike was president and still do. About one quarter of workers in these jobs are either in school or just passing through on their way to better jobs.

Complex skill requirements

Good jobs not only require higher cognitive skills, they also require a new set of problem-solving skills, interpersonal skills and "positive cognitive styles" that employers associate with college education.

The new applied skill requirements have emerged, in part, because of the changing occupational structure of the economy. Most new positions are in business services, education, health care and office jobs. Because this work entails relatively higher levels of human interaction and personalized responses to people's wants and needs, more general problem-solving and interpersonal skills are required. Broader and more general skills also are required because of the spread of "high-performance work systems" that push broader responsibilities down to work teams at the point of production and service delivery.

These same behavioral skills are also required in high-technology and manufacturing jobs, because the technology itself handles more of the rote, manual processing tasks, allowing for fewer, but more highly skilled, employees to interact more with each other in order to exploit the capabilities of new flexible technologies in providing higher quality, variety and speed of operations.

In both manufacturing and services, these new problem-solving and behavioral skills are also required to create new kinds of value-added. Unlike the old manufacturing-based economy where the paramount concern was simple productivity—high volume at low cost—the new economy demands new kinds of value, measured by a more complex set of performance standards and workers with the broad skills to meet them. These new kinds of value include: quality, variety, customization, customer focus, speed of innovation and the ability to add novelty and entertainment to products and services.

The inescapable reality is that ours is a society based on work.

For instance, companies that make or sell quality products or deliver quality service need workers with solid academic and occupational preparation. But good academic basics do not guarantee quality. Companies that meet quality standards require conscientious employees who are able to take responsibility for the final product or service—regardless of their position in the company. Variety and customization require workers who are creative and good at problem solving. Continuous innovation requires a general ability to learn and work in groups. Customer focus requires the ability to empathize with customers. To continuously improve products and services, institutions require employees, up and down the line, to have leadership and learning skills. Successful teamwork and good customer service require interpersonal and communication skills.

The most subtle behavioral quality in managing the complexity and pace of schooling, work and family life in the constant flux of postmodern times is "cognitive style." The notion, pioneered by the psychologist Martin Seligman, is more than "self-esteem" or "the power of positive thinking." Those are internal attitudes that persist irrespective of external experiences of success or failure. By contrast, cognitive styles refer to the various ways people process information gained from experience. Those with a negative cognitive style tend to see failure as a result of causes that are "permanent, pervasive and personal." They tend to discount successes as temporary, limited in scope and unrelated to personal merit. People with a negative cognitive style tend to

be less successful because they cede control over the choices in their lives to circumstances, reducing their ability to act and persevere. Cognitive style helps explain why some succeed against the odds and others fail in spite of their advantages.

The general reasoning, problem-solving and behavioral skills, as well as a positive cognitive style, are critical for lifelong learning and success in modern labor markets. Still, at some point, everyone has to put an occupational point on their educational pencil. For a small share of students, occupational preparation begins some time in high school—in vocational programs, career academies or cooperative education programs. But for most high school students, occupational preparation continues or begins after high school with enrollment in occupationally oriented training or in degree- and non-degree-granting college programs. A much smaller share, primarily liberal arts graduates, continue their education beyond college and get their professional credentials in graduate or professional schools. Irrespective of the type of degree held, the workers with the most educational attainment tend to get further training on the job.

The vast majority of college degrees come in occupational or industry-specific flavors. For instance, of the 1,238,000 bachelor's degrees conferred in 2000, only one-third were in the humanities or behavioral and social sciences. The remaining two-thirds of bachelor's degrees were conferred in more vocationally oriented subjects: 21 percent in business, 9 percent in education, 9 percent in computer sciences and engineering, 8 percent in natural sciences and 21 percent in an assortment of other vocational fields such as architecture, home economics and protective services. The same pattern is reflected in the growing number of associate degree, certificate, certification and customized training programs.

Demand will outpace supply

Looking to the future, there will be an overall shortage of workers in the American economy. Between 1980 and 2000, the U.S. labor force increased by 50 percent. There were 29 million native-born new entrants into the labor force and 9 million immigrants. David Ellwood, professor of political economy at Harvard University, projects that over the next 20 years, between 2000 and 2020, growth in the labor force will increase by only 16 percent. There will be *no* new growth in prime-age, native-born workers; two-thirds of the increase is expected to come from workers age 55 and over, while the remaining one-third is projected to come from immigration.

The most acute shortages will occur among college-educated workers. The share of American workers with at least some college education increased by 19 percentage points between 1980 and 2000—from 39 percent to 58 percent. But over the next 20 years, from 2000 to 2020, the share of college-educated workers is expected to only increase by 4 percentage points, to 62 percent. In the meantime, college-level jobs are expected to grow by about 22 percent over the foreseeable future.

The net effect of these trends is that we could see an overall shortage of 20 million workers, including 10 to 15 million college-educated workers.

Meeting the need

It is clear that higher education will feel extraordinary pressure to align its offerings with the demands of employers. We will not be able to afford all the higher education we need to satisfy these demands and meet the broader education needs of students. So there will be pressure to bring more accountability to higher education by improving basic efficiencies as measured by graduation rates, persistence and cost containment. A relative emphasis on higher education's economic role over its more traditional academic, cultural and political roles is implicit in these trends.

The challenge for higher education is to balance its charter to provide a well-rounded education while continuing to prepare the nation's workforce. The way forward is to emphasize the common ground among economic, cultural and political missions. Happily, the interests of business and educators are not all that different, although they differ in emphasis. Critical thinking skills, more general reasoning abilities and social skills are important components of work and life alike. Teaching these skills and the habits of mind they require serve the career interests of individuals, the competitive interests of business and the cultural role of educators.

Fortunately, the educators' broad societal mission and the employers' more narrow human resource needs are converging in a growing number of high-performance work systems, where workers are more autonomous, involved and broadly skilled, and where diverse workers and customers are valued. This convergence is strengthened further by new research on the way people learn. This new understanding suggests a reformed pedagogy that combines academic and experiential education in a system of lifelong learning in schools, in the community and at work. In addition, the growing interest in community service and the willingness of American employers to work with colleges and universities in order to get the employees they need offer the promise of ending American education's isolation from the community and the workplace. In combination, these convergent factors suggest a unique, historic opportunity to create a seamless weave of academic and experiential learning that will make our colleges and universities, communities and workplaces more accessible and effective venues for both human development and economic growth.

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