rom the Civil War until the 1970s, the United States was the
world’s most successful mass-production economy, the very best at
producing standardized goods and services at least cost and selling them at
the lowest price.

These mass-production successes required rigorous discipline and narrow
skill. Final products and services were broken down into their smallest repro-
ducible components and rigid single-pur-
pose machinery was built to mass-pro-
duce standardized components. A large
mass of unskilled labor was used to tend
the machines. A much smaller group
of broadly skilled and broadly assigned
white-collar and technical elites were
installed at the top of large-scale organi-
zational pyramids.

Market Forces
Something happened in the early 1970s.
Suddenly the United States’ mass-pro-
duction system seemed to lose its com-
petitive edge. People began to demand
more than mass-produced standard-
ized goods and services because often
they could afford more. Family income
doubled between 1946 and 1972 in the
United States, and America’s economic
“golden age” was mirrored in the rest of
the world.

As the world got richer, the appeal of standardized commodities and ser-

dices declined. Competition shifted rap-
idly to new kinds of value added that
required new kinds of skill. With added
wealth consumption shifted to services
like health care, education and media.

Service func-

tions even began
to dominate manu-
facturing where making
products became a simple parlor

tricks and more of the value added came
from marketing, financing, customer

del and managing quality, variety,
customization, innovation, convenience,

ovety and speeded operations.

In addition, as the rest of the world
dug out from the rubble of World War
II and began to prosper, they began to
compete with us at home and in world
markets. We are no longer insulated from

head-to-head global competition. The
increasing competition and the demand
for new kinds of value added have cre-
ated more intense, constantly escalating
and increasingly complex competitive
requirements. The traditional competi-
tion based on the ability to mass pro-
duce standardized goods and services and
sell them at low cost has been gradually
displaced by a competition based on a
diverse mix of requirements and new
kinds of value added, including:

- **Productive investment.** The new knowledge economy requires constant investments in human capital, technology and infrastructure, and if we don't invest to keep up and get ahead, our competitors will. The old-time religion of cost reduction does not work in the knowledge economy because it tends to reduce investments in the constantly flourishing mix of skilled employees, information-based technologies and flexible organizational formats necessary to meet new performance standards. In the knowledge economy, productivity is pursued through constant investments in the synergies between technology and skill that lead to institutions that are sufficiently robust to compete in modern markets. In the 21st century that means every child needs some postsecondary education or training.

- **Quality.** Quality is a primary standard for competitive success. Busy people have no time for products or services that don't work for them, and they can afford more. Quality requires lots of new skills up and down the line ranging from technical competency to the ability to take responsibility for the final product or service regardless of one's job description. In a quality workplace, “It's not my job” doesn't cut it anymore.

- **Variety.** As competition has intensified, plain vanilla is no longer good enough. To satisfy the growing diversity of demand in both domestic and global markets, the once-standardized offerings of mass production have given way to an explosion of choices. ABC, NBC and CBS were good enough in the 1950s, but nowadays there are 500 cable channels and people still complain there’s nothing worthwhile on TV and they need more choices. The ability to produce variety requires workers with the creativity and problem-solving skills necessary to provide more than one-size-fits-all products or services.

- **Customization.** One-size-fits-all standardization has been superseded by customized goods and services from clothing to health care, financial management, medicine and salad bars. Customization, like variety, requires the ability to be able to problem solve and empathize with customer wants and needs.
Convenience. Busy people crave convenience. Why drive anywhere or stand in line when you can get what you want 24/7 on the Internet. Convenience requires workers who can empathize with customer needs and use communication and listening skills necessary for good old-fashioned customer service.

Consistency. Meeting performance standards some of the time is not enough. Workers require dependability and commitment in order to meet efficiency, quality, variety, customization, convenience, speed, innovation and social responsibility standards all the time.

Speed and continuous innovation. Various benchmarks exist for improvements in speed or cycle time. The first is generating a new idea ahead of the competition. But getting ideas first is not enough. The only way to establish trust and an organizational brand name with clients is by getting new ideas off the drawing board and into the hands of customers. Improving or expanding value in products or services incrementally and continuously to stay ahead of the competition also is critical. There’s a Starbucks on every corner for a reason.

Social responsibility. As consumers are given more and more goods and services to choose from, the values associated with a particular brand can make a competitive difference. Consumers who become wealthier and have more choices tend to want to satisfy more than their material needs. Customers want products and services from organizations that, at least, do not violate their values and, at most, represent their values.

Employer Desires
The fundamental change in skill requirements in the American economic system has been due to the shift from the industrial era to the postindustrial era of the knowledge economy. The new knowledge economy that has emerged has replaced the rote skills of the assembly lines of yesteryear with flexible technologies and “high-performance work systems” that rely on more skilled and autonomous workers. In an era of flexible production and service delivery systems and more rapid economic change, workers not only need better technical preparation, they also need sufficiently robust skills to adapt to changing requirements on the job.

As the structure of the U.S. economy has shifted from an industrial economy to a postindustrial service economy, new skill requirements have emerged. In general, the demand for specific academic and vocational skills has been augmented with a growing need for general skills, including learning, reasoning, communicating, general problem-solving skills and behavioral skills.

“Workers who have ‘learned how to learn’ can achieve competency in other required workplace skills …”

The new postindustrial jobs in industries like business services, education, health care and office service require higher levels of interpersonal and problem-solving skills because the work entails higher levels of human interaction and personalized responses to people's wants and needs.

These same behavioral skills are required in high-technology and manufacturing jobs as well because the technology itself takes on more of the rote, manual processing tasks, allowing employees to spend more time interacting with each other to exploit the new flexible technologies in order to provide cutting-edge value added such as quality, variety, customization, convenience, speed and innovation.

Basic Skills
Most employers today cannot compete successfully without a workforce that can use solid academic skills in applied settings. Increased interaction with sophisticated computerized machinery requires good technical reading skills for efficient use. And writing is frequently the first step in communicating with customers, documenting competitive transactions or successfully moving new ideas into the workplace.

Employers need workers who have mastered reading processes that allow them to locate information and use higher-level thinking strategies to solve problems. Similarly, writing on the job often requires analysis, conceptualization, synthesis and distillation of information and clear articulation of points and proposals. In a work environment, math skills need to be contextual and rooted in problem identification, reasoning, estimation and problem solving.

Foundation skills, or knowing how to learn. Learning is now a fact of life if workers are going to keep up with the blur of change in modern workplaces. Workers who have “learned how to learn” can achieve competency in other required workplace skills, but for those who have not, learning is not as rapid, nor as efficient or comprehensive.

Communication skills: Listening and oral communication. Communication is central to the smooth operation of all work environments. Workers spend most of their days in some form of communication. They communicate with each other about procedures and problems, and they also relay and receive information to and from customers.

Effective oral communication also requires that workers have sufficient self-awareness to understand how they are perceived and what they hear. It is important for workers to understand and value communication approaches that are different in style from their own, as well as adjust their style when in communication with someone who has a style that is different from their own. Listening skills also affect the efficient transmission and receipt of information in the workplace.

Communication skills are at the heart of getting and keeping customers and gathering product feedback, as well as for participating in work teams and resolving conflicts on the job.

Adaptability: Problem solving and creative thinking. An institution’s ability to achieve its strategic objectives often depends on how quickly and effectively it can transcend barriers to improved productivity and competitiveness. These pressures put problem solving and creative thinking at a premium — at all levels of an organization.

Problem solving includes the ability to recognize and define problems, invent and implement solutions, and track and evaluate results. Cognitive skills, group-interaction skills and problem-processing
skills are all crucial to successful problem solving. New approaches to problem solving, organizational design or product development all spring from the individual capacity for creative thinking.

- **Group effectiveness: Interpersonal skills, negotiation and teamwork.** Interpersonal, negotiation and teamwork skills are basic tools for achieving the flexibility and adaptability that America’s workforce must have to remain competitive.

The use of workplace teams to meet complex sets of standards is now commonplace in many American businesses. Change strategies also are dependent on the ability of employees to pull together and refocus on the new common goal.

This pooling of resources, however, frequently requires team members to have an array of skills that individual or routine jobs do not demand. Quality teamwork results when team members know how to recognize and cope with various and unique personalities and when each has a sense of the cultures and approaches that other team members represent. Interpersonal and negotiation skills are the cornerstones of successful teamwork. Unresolved conflicts can sap productivity and short-circuit strategic plans.

- **Influence: Organizational effectiveness and leadership.** Both organizational effectiveness and leadership skills are essential to successful institutions. To be effective in an organization, workers need a sense of the cultural workings of the organization and how their actions affect organizational and strategic objectives. At the same time, organizational effectiveness requires that workers understand what organizations are, why they exist and how to navigate the social waters of varying types of organizations.

At its most basic level, leadership means that a person can influence others to act in a certain way. Organizational skills are the building blocks for leadership. Unaccompanied by them, leadership skills can be misplaced and even counterproductive. Every person may need, at times, to lead or influence a work group or provide a vision of what the organization as a whole requires.

- **Personal management: Self-esteem and motivation/goal setting.** In the past, employers viewed workers with solid occupational-specific skills as sufficient for success on the job. But as workers are increasingly called upon to make decisions at the point of production or point of sale and display good interpersonal skills when working in teams or with customers, the confidence that engenders success in these areas springs from a positive sense of self-worth or self-esteem.

Self-esteem is at the core of many other skills required on the job. Workers with a healthy self-esteem are able to recognize their current skills, be aware of their impact on others and understand their emotional set points and abilities to cope with stress, change and criticism on the job. They also are able to recognize their own limits and seek new information or assistance to solve problems and construct solutions.

Workplace success also depends on workers who are motivated and able to set and meet reasonable goals. Workers’ lack of motivation or goal-setting skills can produce an organizational undercurrent of repeated errors, absenteeism and quality problems, or it can construct barriers along the path to change. Poor performance can often be linked to deficiencies in self-esteem or motivation.

- **Resilience: Cognitive style.** The new, fast-paced and unforgiving global economy results in constant change in skills required for specific jobs. Constant economic and technological change also discourages growth in job tenure and increases the overall rate of job creation and job destruction. The subtlest behavioral asset in managing school, work and life in the constant flux of modern times is a positive cognitive style.

The notion of “positive cognitive style” is more than self-esteem or the power of positive thinking. Self-esteem and positive thinking are internal attitudes that persist regardless of external experiences of success or failure. Cognitive styles are the various ways people process information gained from experience — positive cognitive styles encourage success and negative styles encourage failure.

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 their circumstances, reducing their ability to act and persevere. The available evidence and old-fashioned common sense suggest that the feelings of helplessness that underlie a negative cognitive style are a learned behavior subject to environmental influences. If those subjected to persistent negative feedback in their interactions with the world learn to perceive failures as permanent, pervasive and personal, this can lead to learned helplessness unless extraordinary compensatory support is provided.

**Applied Skills**

At some point, everyone has to put an occupational point on their educational pencil. A small share of students begins to receive occupational preparation in high school through vocational programs, career academies and other applied curri-
In general, with notable exceptions, high school vocational preparation does not provide long-lasting earnings advantages. For the most part, these programs survive as an alternative applied pedagogy to meet statewide academic performance standards and as an alternative preparation for further postsecondary education.

Among those who terminate their education with high school, most get job training primarily on the job, although as a general rule those with the most postsecondary education get the most training on the job.

For most high school students, occupational preparation continues or begins with some kind of postsecondary education or training. A smaller share of elite college graduates continues their general education through the bachelor’s degree and then gets their occupational or professional education in graduate or professional school. As a general rule, those with the richest mix of educational attainment and occupational or professional education earn the most money.

To some extent, the increase in the demand for both education and occupational credentialing derives from the changing relationships between employers and employees. As change accelerates on the job, employers need better learners and cannot take the time to develop talent from the ground up. Education credentials increasingly are used to signal learning potential. And when relationships between employers and employees become less stable, reliable educational and occupational credentials become more important in matching individual skills to new job requirements.

The increasing reach of economic market competition raises educational hiring standards. As economic markets for goods, services and labor go from local to regional to national to global, skill requirements also escalate from local to national and, ultimately, to world-class standards. In addition, in larger geographic markets employers are hiring strangers, putting a premium on proven education and occupational degrees and certified experience.

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