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EDUCATION FOR THE NEW ECONOMY

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Fostering the development of an informed populace is fundamental to the welfare of democratic institutions, and two centuries of devotion to that principle account in significant measure for the international stature the United States enjoys today. However, in the past three decades a fundamental shift has occurred in the world economy, a development that makes a rededicated effort to educate American citizens a matter crucial to the national welfare. The position we occupy in this new economy depends on our willingness to reshape and redefine our educational institutions so as to respond to the challenges, and the opportunities, it affords.

Historically, our system of education has been designed to fulfill three missions: the political, the cultural, and the economic. In political terms, we have sought to prepare individuals to become active participants in a pluralistic, democratic society. Culturally, we have promoted competency in four major domains of human knowledge and activity: language and mathematics; the natural and social sciences; the arts and humanities; and technology. The economic mission of education in the United States has been to prepare individuals for productive employment, to enable current workers to apply new technology, and to retrain persons displaced from employment owing to economic change. Although we shall focus here upon the economic mission of education, we support fully the view recently expressed by a commission of the Department of Labor, that “the well being of a nation and it’s citizens is not synonymous with economic status. There is much more to life than earning a living, and we want more from education than productive workers.” (U.S. Department of Labor, 1992, p. xiii)
During the greater part of the twentieth century, the economy of the United States has been driven by the mass production of consumer goods. To realize their goals, business establishments developed elaborate organizational structures characterized by multiple layers of management and a highly specialized work force. Managers typically functioned within authority-based models of control “from the top down.” Because managers were routinely called upon to solve problems, think critically, and communicate, ordinarily they were college graduates. Another small segment of the work force consisted of skilled craftspersons—electricians, drafters, tool and die makers, for example—who performed technical operations primarily focused on the production, testing, and maintenance of tools, equipment, and systems. These workers were graduates of apprenticeship programs, technical high schools, post-secondary trade schools, or some combination of the three. The remainder of the work force, the largest component in the collective body of employed persons, had received no more than a high school education. These workers performed relatively simple tasks that required few decision-making and problem-solving abilities. Regular attendance, an ability to follow directions, commitment to a work ethic, and a cooperative attitude were the key attributes for this segment of the work force. Workers were often evaluated on the basis of their ability to meet or exceed production quotas set by management. The rigid authority structure within typical corporations, and the rare opportunities for collaborative decision-making this entailed, engendered among low-level employees an attitude of resentment and mistrust that underlay many conflicts between labor and management.

The sole standard of competition, the basis upon which companies vied for business, was productivity. High productivity was achieved in several ways. Companies divided the manufacturing process into a series of small steps, each utilizing complex machinery designed to perform a single operation. By thus embracing automation, they were able to employ relatively unskilled workers who, though poorly attuned to the process as a whole, could satisfactorily perform narrowly focused tasks. Companies conserved funds by limiting labor costs and focusing on time management techniques. They maximized their output by producing large quan-
tities of identical products; they ensured consumer demand by building up huge domestic and foreign markets and encouraging, through advertisement, the mass consumption of goods. The bywords of this period were *bigger, better, faster*. Productivity worked well as the standard for competitiveness until about 1970. In the decades that preceded that year, the multiple trauma of two world wars and a world-wide depression had enfeebled most foreign competition. With few serious market competitors, the United States could boast a rapidly expanding domestic economy and had reason to anticipate continuation of its vigorous economic growth.

Twentieth-century public education in the United States has been designed in part to support the economy. Not surprisingly, in fulfilling this mission its own internal organization and practices have paralleled some of the patterns we have just observed in modern industry. To name a few, large administrative structures such as boards of education have been highly bureaucratic, rigidly organized entities wherein authority flows from a single authority—the superintendent—in the central office. The productivity of the system has been assured by creating large classes, standardizing teaching methods, and building little flexibility into the curriculum. Knowledge has been compartmentalized into disciplines—natural science, foreign languages, and so on—and presented with little or no reference to real world applications. Teaching methods have tacitly adhered to the assumption that all students learn, or ought to learn, at the same rate, in the same way. Students have been grouped according to age and ability, the latter determined through evaluation in formal tests. And finally, collaborative effort in the classroom has often been discouraged and even punished as cheating.

Secondary school systems continue to administer three distinct programs of study to satisfy the needs of industry: college preparatory, vocational, and general. The “college prep” students, approximately twenty-five percent of the total number, plan to continue their education at the college level, often to prepare further for professional careers. These persons enroll in sequences of theory-based courses—in science, mathematics, communication, social studies, and foreign languages. The primary goal of their educational experience is to develop conceptual understanding; they are given few opportunities for practical, job-related application of what they
learn. This program of study yields preparation for entry into baccalaureate programs at colleges and universities. College prep courses are disproportionately costly. According to one authority, as much as 79% of available funding for secondary education has been allocated to serve students in this segment of the population (Whitman, 1995).

The second focus of attention in our secondary schools is the needs of another relatively small group, approximately twenty-five percent, who plan upon graduation to enter apprentice programs or begin careers as skilled craftspersons. The vocational or “occu prep” student receives instruction in sequences of technical courses related to the occupation he or she has selected for future employment. The curricular emphasis is developing practical, job specific skills, and few opportunities are afforded for conceptual development.

The third program of study is typically known as the “general” course. Students enrolled in this area of the curriculum comprise the largest component, approximately one-half, of the secondary school population. Dale Parnell (1985) refers to these persons as the “neglected majority,” for they have never received the amount of attention, the number of instructional opportunities, and the degree of financial support that have been accorded to students in college preparatory and vocational preparatory programs. The general curriculum, typically weak in both conceptual and practical applications, has had no real focus. It has been described as a cafeteria curriculum that yields at best a “certificate of attendance” (U.S. Department of Labor, 1992, p. 7).

In the views of many, the “general” high school curriculum exhibits a variety of shortcomings. By providing minimal instruction in mathematics, science, and communication skills, it codifies a low expectation of its enrollees, representing simply the easiest path to graduation. At the same time, this program yields the highest tardiness and absence rates and the largest proportion of dropouts. The program fails to prepare students for either post-secondary education or entry into the skilled work force.

Not so long ago a high school diploma, a strong back, and willingness to learn were adequate credentials to ensure employment. A “general” high school curriculum was sufficient to serve the needs of students as potential unskilled wage-earners. How-
ever, in recent decades the globalization of commerce, a concomitant heightening in standards of competitiveness, and the accelerating growth of technology in the workplace have produced a New Economy whose demands carry serious implications for our welfare as a nation. Our traditional practices in secondary and higher education no longer produce graduates who satisfy the job requirements for entry-level positions in many career areas. More generally, the New Economy mandates that we revolutionize not only our educational system but our ideas about industrial production and its output. In short, we must extend our traditional notion of competitiveness beyond the single criterion of productivity. Our corporations must also ensure their competitiveness with regard to quality, variety, customization, convenience, and timeliness (Carnevale, 1991).

Quality, the first of these newly influential criteria, may be understood in two senses, internal and external. Internal quality is capable of objective measurement—for example, the number of defects or errors per quantity of a product or service as delivered. In seeking to enhance internal quality, the producer attempts to refine the design and production of whatever is being offered for sale. External quality, on the other hand, is a subjective matter, a measure of customer opinion about the performance of a product or the effect of a service. The automobile industry will serve to illustrate both internal and external measures of quality. In the former area, American-made cars have improved dramatically during the past decade, though they still reach the consumer with more defects than European and Japanese products. In the latter measurement, questionnaires about customer satisfaction indicate that American vehicles have surpassed their European competitors and are closing the gap on the Japanese (Carnevale, 1991).

A company committed to improving the quality of its products must develop a long-term strategy to realize that aim. It must view its activities as a recursive system of inputs (requirements, perhaps varying in their parameters, for system operation), processes (design and production of goods and services), outputs (delivery of the product), and customer feedback. It refines its internal processes by controlling the variation produced by differences in input such as changing materials, machines, personnel, and methods.
By minimizing variation within its system it reduces the number of internal defects and achieves greater customer satisfaction. W. Edwards Deming, the influential theorist and practitioner of statistical control in industrial operations, has likened the consequences of improvement in quality to a “chain reaction.” Increasing quality, he writes, leads to an advance in productivity, which in turn lowers costs and permits distribution of products and services to customers at lower prices—a result that enables companies to capture a greater share of their market, thus prospering as institutions and generating more jobs. (1986, p. 3)

Variety, the second criterion given emphasis in the New Economy, refers to the availability of choice in sizes, styles, and kinds of service. The standardized offerings of mass production have been replaced by a multitude of choices. In earlier years, a company’s initial investment in large, capital intensive, single purpose machines justified itself through economies of scale; the investment repaid itself by the marketing of numerous product units. In recent years, more flexible manufacturing processes have made possible shorter set-up times, limited production runs, and a variety of products being offered for sale at competitive prices. The explosion of product choices is evident in almost every industry. In 1970, a typical supermarket carried approximately 12,000 items; by 1989, that number had doubled. In 1980, 408 models of American automobiles were available; in 1991, 572 were offered for sale. During the 1970s, most banks offered their customers about half a dozen basic services; today most are marketing more than a hundred (Carnevale, 1991, p. 29).

The evolution of variety as a standard of competition is easily accounted for. First, persons in many parts of the world can now afford variety and are willing to pay for it. Second, formerly global or monolithic markets have become fragmented; mass quantities of a product available in only one size or style just won’t satisfy the diverse tastes and needs of several different populations. Finally, flexible computer-based technologies permit the delivery of variety at a cost acceptable to manufacturers.

Customization, a concept closely related to variety, may be defined as tailoring or combining services or options to meet the requirements of individual customers. Consumer satisfaction and
customization go hand in hand, for purchasers value the opportunity to select only those specific products that meet their needs. Examples of customization are all around us—packaged financial services, food bars in restaurants, and computer systems for purchase by mail, their components specified by the buyer.

Convenience, the fourth newly accentuated criterion of the New Economy, refers to the success of an organization in providing customers with reliable, user friendly products and services where and when they are wanted. We may identify three interrelated components of convenience: the fundamental adequacy of the product, prompt delivery, and good customer relations. Built-in convenience is the result of product design and engineering with the goal of pleasing the customer. Examples include car telephones, camcorders, and portable tools. A second sort of convenience is easy access to products and services. Drive-through mini-marts, bank teller machines, and home shopping channels are instances of convenience of delivery. The third sort of convenience derives from an effort to treat customers well at the point of purchase or of service. Achieving high-quality customer relations requires making available an informed sales force to answer questions, provide assistance, and solve problems. This area is one in which American businesses have plenty of room for improvement. A recent study of six thousand households in the United States concluded that respondents were “reasonably satisfied with products, but pervasively dissatisfied with the service” they received (Carnevale, 1991, p. 32).

The final criterion for competiveness in the New Economy is timeliness, or the brevity of the period required for an innovation to move from the drawing board to customers. The effort to enhance timeliness is a continuing imperative. The United States remains the world leader in innovation and invention, patenting more products and processes than any other nation. However, we have lost our lead in the overall production cycle—that is, of getting innovations to market in a timely manner. For example, thoroughly redesigned new automobile models built by American firms generally appear every seven years, whereas Japanese corporations offer theirs every four years (Carnevale, 1991, p. 33). Moreover, Japanese automobile manufacturers typically conduct follow-up consumer
surveys within a month after purchase, thus shortening the period for product refinement and the development of new products. Similarly, in the apparel industry European and Asian manufacturers move from fiber to completed garment in approximately twenty-three weeks, while the same process requires American companies three times as long (Carnevale, 1991).

Clearly, productivity remains an important element of economic competitiveness. However, whereas in earlier years it was achieved by compartmentalizing and specializing the work force, mechanizing work processes, reducing costs through installation of single purpose equipment, employment in volume of unskilled workers, and high output, in the New Economy the methods have changed. Enhanced productivity now requires that authority and resources be shared among teams of workers at the points of production, delivery and service. Realizing such a goal requires in turn that organizations redesign themselves as administrative structures wherein authority and responsibility flow laterally as well as from the top down, and wherein new workers are better educated than before and are themselves understood as resources to be developed.

In the 1950s, unskilled workers comprised approximately sixty percent of the United States work force. By 1989 this proportion had fallen to thirty-five percent, and now, in 1995, it stands at approximately fifteen percent (Etheridge, 1991). It has been estimated that by the year 2000 more than seventy percent of job classifications in this country will require advanced skills available only through post-secondary education (Parnell, 1990). Demand for the relatively unskilled graduates of the existing “general” high school curriculum is now minimal. Nowadays the keys to individual success are the ability to apply theory to practice and advanced technical skills established through participation in at the minimum an associate degree program.

The “crisis in education” in the United States has been the theme of many studies, reports, and proclamations during the past two decades. Several of these inquiries have concluded that the academic and technological illiteracy of high school graduates threatens both the economic well being of our country and indeed our democratic way of life. For example, the President’s Commission on Industrial Competitiveness reported in 1985 that failure to develop
our human resources is a major cause for the decline of American stature in world markets. The finding was reiterated in 1989 by the American Association for the Advancement of Science in its report on literacy goals in science, mathematics, and technology. The same view was stated in 1991 by the Secretary’s Commission on Achieving Necessary Skills (SCANS), a body created by the Department of Labor to study workplace know-how. Our reduced ability to compete in world manufacturing markets costs our country on several levels. For corporations, the erosion of market share has necessitated layoffs, plant closings, and the near cessation of activity in certain basic industries—production of ball bearings, semiconductors, and video displays, for example—that are crucial to the national security. For individuals who do remain employed, the consequences are a reduction in the number of well paid, production related jobs, an increase in less remunerative service-related positions, and on average a decline in personal income. For the United States at large, the results are an increase in the foreign trade deficit, a concomitant increase in the national debt, and a general decline in the standard of living. According to the SCANS report, only the creation of a high-performance work force will enable our nation to regain a competitive advantage in world markets.

The New Economy mandates that companies commit themselves to product quality and customer satisfaction in order to compete successfully. That goal is attainable only if technology and the organizations that avail themselves of it interact in new ways. Corporate decisions must be made at a point closer to the production line than before, and those decisions must derive from the ability of workers at all levels to solve problems by thinking critically and creatively. Managers must seek to foster excellence; workers must be at ease with technology and complex systems, able to function as members of a team, and committed to pursuing career-long learning. Our primary means of developing the work force we need is education. Whereas in the past industry sought locations with ready access to transportation and needed natural resources in order to satisfy its essential needs, in the future the magnet that attracts economic activity will be a highly trained work force.

The opinion is widespread that United States citizens must receive more effective instruction at the secondary level in aca-
demic, behavioral, and technical skills. This “basic” education, it is believed, remains essential to prepare high school students for entry into the college level programs that can develop the high performance work force we require. In the past, educational reform to meet new needs has often meant increasing the number of academic classes required for graduation from high school or else adding to the number of credit hours in the core of “general studies” required at the college level. But there is nothing new about these adjustments to the curriculum. They simply represent an extension into general and vocational high school programs of the existing college preparation track and, at the college level, an expansion of already conventional core requirements.

The primary shortcoming of many suggestions for educational reform is that they fail to take into account the readily observable differences in student learning styles. Experience has shown that, among students in the “neglected majority,” increases in theory-based academic coursework create frustration, intensify classroom behavior problems, and yield higher failure and dropout rates (Parnell, 1985; Pedrotti, 1991; Carnevale and Porro, 1994). On the other hand, the literature demonstrates clearly that when a curriculum is tailored to fit students’ learning styles, the attitudinal barriers to achievement are significantly reduced. This kind of adaptation is already occurring within the high school curriculum for students in vocational preparatory and college preparatory programs. The same readjustment now needs to be instituted for that large component of the population who once filled the ranks of unskilled labor upon graduation from high school.

Cognitive research has shown that students in general high school programs learn best when their coursework progresses from the concrete to the abstract and includes real world applications to reinforce theoretical concepts (Pedrotti, 1991; Berryman and Bailey, 1992). Most students do have the capacity to master the material, but the learning environment must be modified to address their different learning styles. The term “applied academics” has been used to signify courses that conform to the characteristics just mentioned. The goal of applied academics is to provide a foundation in basic skills, such as reading, writing, mathematics, speaking, and listening; thinking skills, such as learning how to learn, decision-
making, and problem-solving; resource skills, such as allocating time, money, materials, space, and staff; and information skills, such as acquiring and evaluating data, organizing and maintaining files, and using computers to process information. In general, applied classes are more than simply watered down college preparation classes. The integrity of the material is preserved, but the pace is slowed in order to incorporate practical applications. According to Carnevale and Porro (1994), this integration of academic and experiential learning serves several purposes. It “provides a superior pedagogy for all learners; ends the isolation of schools from communities and workplaces, and the isolation of youth from adults; leavens academic curricula with the authenticity of experience, and allows for the development of lifelong learning systems in schools, workplaces, and communities.” (p. 2)

Instruction in behavioral skills is also germane to the development of a high performance work force. Because the number of management tiers within large organizations will continue to lessen, other members of the work force will assume leadership and decision-making roles. They will need the interpersonal skills that underlie effective work in teams, teaching, customer interaction, and negotiation. To a far greater degree than was true of their counterparts a generation ago, they will need to exhibit individual responsibility, integrity, and an ability to work with persons from diverse cultural backgrounds.

High performance companies now expect that the majority of their prospective employees will present themselves with some technical background already established in the careers they hope to pursue. Making available to students the necessary career related competence is a shared responsibility of secondary schools and institutions of higher education, and it should be accomplished through a two-phase approach. At the secondary level, beginning as early as middle school, basic technical literacy and generic entry-level technical skills should receive emphasis. At the next level, college students should enroll in associate or baccalaureate level programs that enable them to develop more advanced capacities. Most occupations can be classified into major clusters or groups that draw upon similar skills and knowledge. According to Hull (1992), at the secondary level a consensus has been established about the
broad technical backgrounds required for work in several career clusters, including engineering, health and human services, business and economics, agriculture, and arts and humanities. As preparation for career clusters in technical subjects, the literature stresses two areas within the secondary curriculum—systems and technology. In the former area, students gain experience in designing, monitoring, correcting, and improving technological, organizational, and social systems. In the latter, they learn to select the tools and equipment appropriate for specific tasks, to maintain and troubleshoot equipment, and to understand the impact of technology on society (Carnevale and Porro, 1994; U.S. Department of Labor, 1991). A broad technical background of this sort equips secondary students to begin establishing technical competencies for various lines of work within a particular career cluster. They can proceed to a specific career choice at the higher education level, where opportunities to develop enhanced academic skills and associated technical competencies are available.

The task of preparing a work force equipped with the range of competencies we have just identified is large and complex. The difficulty—and the urgency—of the task are compounded by the unemployment at present of many persons who were well prepared to participate in the old industrial order but who have lost their jobs in the transition to the New Economy. These displaced workers do not possess the knowledge and skills they need to secure employment in growth areas such as design services, research and development, integration, customizing products and services, marketing, and customer support. The existing educational system is incapable of training and retraining them. In order to respond effectively to the problems that confront us, we must transform our educational institutions, just as we are doing our corporations, into high performance organizations. Our education providers must focus their attention on producing graduates who can meet the requirements of the workplace. Just as with industry, institutional education needs to become a more flexible system, one facilitated by technology. Our institutions must deliver their services more creatively. They must develop the capacity to meet individual needs through adaptation of their instructional methods, curricula, delivery of content, certification, and student services.
Achieving flexibility in instructional methods means ascertaining an individual’s distinct learning style and devising an approach to instruction that maximizes his or her opportunity to learn. Several primary media and methods for learning have been identified, including printed material, the preference of the reader, who learns well from traditional text; visual material, for the observer, who learns best from observing slides, films, videos, exhibits, demonstrations, and charts; aural, for the listener, who learns well from lectures, tapes, and records; interactive, for the talker, who learns best from discussions and question-and-answer sessions; tactile, for the toucher or handler, who prefers hands-on activity, model building, or sketching; kinesthetic, for the mover, who reacts well to role playing and physical activities; and olfactory, for the person who associates learning with smells and tastes (James and Galbraith, 1985). An individual’s efficiency as a learner is governed in part by the degree to which instruction conforms to his or her learning style. It is also affected by the degree of independence from the system for content delivery he or she prefers to have, and does have available. Persons denominated as dependent learners require a structured atmosphere characterized by direction and reinforcement from a supervisor or other source of authority. Collaborative learners thrive on participation and interaction, deriving psychological reinforcement for their accomplishments from expressions of peer esteem. Independent learners do best when they have an opportunity to experiment, with freedom to work in their own fashion, their efforts being validated by non-judgmental support.

Traditional education delivery has paid too little attention not only to the variation among individuals with respect to preferred learning style and degree of independence, but also to the difference in rates at which students learn. In the historical model we have described, a group of students was assembled under one teacher who taught one subject at one rate. Over the years, educational researchers proposed new arrangements that would address individual needs, but even the best of these models were designed for application in a classroom that contained many students and a single teacher. Individualized instruction has been advocated for at least twenty-five years, but in the traditional classroom setting only limited application of the approach has occurred.
A fresh educational model, known as virtual education, offers the prospect of a flexible environment for learning that successfully addresses the needs of persons with differing learning styles and rates of learning. As early as 1967, research on federal Upward Bound programs validated the position that the individual should be exposed to a training environment that corresponds to his or her learning style (Joyce and Weil, 1986). In the high performance environment of virtual education, the preferred learning styles of adults can be matched with those available only a few years ago.

The curricula of high performance education must be flexible, customized to suit the needs of the learner. For example, when studying computer science one person may need to emphasize programming; another may need to focus on a particular language or application program; yet another may wish to develop technical skills with particular software applications. Moreover, a curriculum that prepares students for performance in the New Economy must break down some of the formerly rigid barriers between disciplines. Even though the entry requirements for many job descriptions today include familiarity with computer hardware and software, college degrees have traditionally been available only in Computer Science, for persons specializing in programming languages or software applications, or else Electrical Engineering, for those interested in the hardware. Interdisciplinary degrees such as Computer Engineering, or cross disciplinary undergraduate minors, can help customize the curriculum and so enable the learner to meet the specific demands of the job he or she seeks.

Along these same lines, the core curriculum of general studies at the post secondary level should be adapted to serve the needs of students pursuing specific career clusters rather than prescribed indiscriminately to all. Full-time students in technical degree programs should be able to satisfy their general studies requirements and also satisfy the appropriate accreditation standards within the usual two and four year schedules for associate’s and bachelor’s degree programs.

Finally, as new areas open up within the economy and new needs arise, mechanisms must be in place to respond promptly with relevant curricula so that students may establish the appropriate competencies without delay. One approach that has proved useful
in achieving this goal is the creation of a generic associate’s degree program whose specific requirements can be tailored to individual career goals. In such an arrangement, course requirements are determined and credit for work experience, industry or apprenticeship training, and related college coursework is awarded according to the specific needs of the industry within which a student is employed. When a need no longer exists, a program may simply be terminated.

The term education delivery refers to the specific circumstances and logistical arrangements within which a student receives instruction. Historically, an education provider scheduled instruction at a particular time and place; the interested student either made arrangements to conform to that schedule or else he or she could not participate. The delivery of education occurred when a group of students, meeting in the same room at the same time, studied one subject under one professor. Scheduling was based on the assumption that students would be persons of traditional high school or college age and that they would attend classes full-time, August through May.

As we all recognize, this model for education is rapidly evolving into a new system that better serves persons who come from a variety of backgrounds and who have diverse schedules and diverse needs. In order to adapt education delivery to the demands of the New Economy, our goal must be to offer instruction anytime, anywhere, on any subject, at any level, to any kind of learner, using whatever medium is appropriate and available. The learner should be able to schedule instruction on consecutive days or consecutive weeks, on a semester basis or within other periods. He or she should be able to receive instruction in a traditional classroom, in a hotel room, in his or her home or automobile, or on an airplane. The full range of curricula and instructional materials ought to be accessible to him or her.

In a virtual education system, instruction should be available using the most advantageous mode for delivery. The traditional hallmarks of higher education, such as textbooks, study guides, classwork, homework, examinations, and grades, all still have their value and should still be available, but alternative methods for instruction through a range of technological channels should be in
place as well. Among the media now available, the National University Continuing Education Association (1993) and Burgess (1994) have identified several, some already well established, others in process of development. They include audio and video cassettes; compact discs; broadcast radio and television, or “telecourses”; contact with instructors through the postal service or by telephone, electronic mail, fax machine, or teleconferencing; and contact with both the instructor and other students through computer conferencing, interactive audio and video systems, on-line systems, and satellite networks.

As we have just noted, the New Economy imposes the need to design customized courses of study. Yet it will also require that graduates of these programs, offered through education providers of various types, be certifiable by an internationally recognized system of standards for preparation. For the various careers and career clusters, standards must exist at all levels of expertise within a particular competency. An individual should be able to perform the study leading to recognition of a particular competency using any provider and any means possible, including among others self-study, classroom instruction, or life experience. When he or she can demonstrate a given level of competence on a standardized examination, that achievement can be recorded in a national or international data bank for credentials. To ensure consistency within the work force a standardized examination process will be needed, but examinations associated with particular occupations need not consist of single tests, nor need they be administered in only a single format. It should be made possible for students to demonstrate their competence in more than one way—for example, through presentations, demonstrations, oral discussion, or performance on written tests. At present, transcripts maintained by post-secondary institutions are at best imperfect records of a student’s competencies. They identify the courses he or she has taken, with the grades received, and they perhaps also show an overall grade-point average. But they do not clearly indicate course content, which may vary from instructor to instructor, nor do they record specific competencies not achieved within courses for which a student has nevertheless been awarded a passing grade. In the future our system for certification will make available an unambiguous modular record of evaluations under-
taken to establish an individual’s specific competencies.

Student services, the final component of high performance education delivery for the New Economy, consists of facilities and personnel to administer the admissions and registration process and to provide advising, counselling, financial aid, and career guidance. Until recently, these services have been tailored to serve the needs primarily of traditional high school and college-age students. However, as the number of non-traditional students increases, both the content of student services and the degree of accessibility to those services must be broadened. Those responsible for the admissions process will need to take into account an array of credentials and experience. They must possess some familiarity with diverse education providers that include school districts, community colleges, private industry councils, four-year colleges and universities, literacy organizations, the armed forces, community-based organizations, employer-funded consortia, union training, trade and professional associations, proprietary schools, vendors of training, and no doubt others. The persons charged with registering students will need to be available on a continuous basis, accessible by telephone or modem. Similarly, advising and counseling should be available at a distance. Registrars, counselors, and advisers will all need to heighten their awareness of adult students and their distinctive needs. The financing of education and training will have to be undertaken with a new sense of the power of knowledge as an economic resource. Programs may be developed wherein employers or prospective employers help fund the education of individuals in return for a tax credit in some form. And finally, programs for career guidance will need to interact closely with employers and to maintain contact with former students as their careers develop and change course.

During the past thirty years the international economy has undergone a metamorphosis which has altered the standards for economic competition. As a result, in addition to sustaining their productivity companies must now ensure their competitiveness in regard to product quality, variety, customization, timeliness, and convenience. The response to this set of marketplace demands has brought about high performance organizations which rely more fully than before on the knowledge and competence of their entire complement of employees. Consequently, education has become
the competitive discriminator among economic rivals. In order to respond adequately to the critical challenge posed by the New Economy, educational institutions must transform themselves into high performance organizations, relentlessly committed to producing first class graduates. The transformation will entail restructuring the curriculum for the “neglected majority” of high school students, improving instruction in academic, behavioral, and technical skills, and providing educational products and services—curricula, instructional methods, certification, delivery, and student assistance—in a more flexible manner than in earlier years. Building high performance organizations for education is a large and complex effort, one that will require of its practitioners a dramatic paradigm shift. Success in this endeavor will insure our preserving the economic competitiveness of the United States well into the twenty-first century. Failure will result in a decline in our standard of living and erosion of our nation’s stature in the world.


No. 2. Ronald D. Pearse, “Ethical Behavior is Strategic Behavior” (1991)

No. 3. John M. Teahan, “‘One of the Nation of Many Nations’: Walt Whitman and Multiculturalism” (1992)

No. 4. Judy Prozzillo Byers, “Teaching the Art of Living: The Education Philosophy of Ruth Mary Weeks” (1993)


COLOPHON

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Fairmont State College, the largest institution in the West Virginia state college system, currently enrolls over 6,500 students. Incorporated in 1867 as a state-supported normal school, for over seven decades it helped train teachers for the public school system until, in 1943, it was authorized additionally to offer bachelor of arts and bachelor of science degrees. At present, following more than two decades of rapid growth, the college offers one-year certificates, two-year associate degrees, four-year bachelor's degrees, preprofessional study in several fields, and a range of continuing education classes.

Drawing a high proportion of its students from within its own region, Fairmont State College welcomes the support it receives from surrounding areas. In return it participates actively in community projects, shares its programs and facilities with the public, lends its resources to promoting economic development, and serves as an information center and cultural focus.

Persons desiring further information about the college should write the Director of Public Relations, Fairmont State College, Fairmont, West Virginia 26554, or call 304-367-4000.