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Through The Looking Glass: Reforming Education and Restructuring the Workplace to Improve Competitiveness

*Peter Morici**

INTRODUCTION

Competitiveness and education are two words in the lexicon of policy-makers, professors and pundits that provoke responses ranging from resolve and optimism to hesitation and anxiety to inaction and pessimism. This is understandable for several reasons.

First, nothing is more important to the quality of life in North America than our ability to make products that are competitive on world markets, and no other factor is more central to our children's prospective share in the fruits of our high-technology age than the intellectual skills we impart to them.

Second, just as among countries and industries, companies and individuals vary considerably in their abilities to cope with new challenges—an accelerated pace of technological and international economic change empowers some players, while it diminishes others and leaves still others powerless.

Third, the wholesale collapse, in a period of just one generation, of American competitive and educational preeminence poses the most vexing set of challenges to policymakers since the Great Depression. Making America competitive again will require a complex array of public-policy and private-policy responses. This paper is about the potential role of educational reform in the context of the changing labor requirements of American industry.

Framing the Issue

I have argued previously that national competitiveness was best defined by the President's 1985 Commission on Industrial Competitiveness as "the degree to which a nation, under free and fair market conditions, produces goods and services that *meet the test of international markets* while simultaneously maintaining and *expanding the real incomes* of its citizens" (emphasis added). Should the President and the Congress find the political will to balance the federal budget, it is unlikely that the U.S. economy can achieve current account equilibrium without continued restraint on the growth of real wages and incomes.¹ Most fundamental in

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¹ During the 1970s and 1980s, real wages in the United States declined, as workers lost ground

this regard is the slow growth of U.S. productivity.²

Poor productivity performance can be traced to many factors including: the high cost of capital and inadequate investment; inadequate commercial research and development and ineffective dissemination of new technologies; and shortages of skilled labor. Fundamental changes in macroeconomic, technological, industrial, environmental and educational policies, as well as improvements in the management of private enterprises, are necessary to address these problems. I have discussed such a broad agenda elsewhere.³ My focus here is on education and the changing workplace.

Large and small businesses, in restructuring the workplace to make best use of computer-based information, communication and automation systems, face exacerbating skill shortages. The popular press has been full of reports about the lack of basic reading, math and problem solving skills among high school graduates. Further, too few American college students study science and engineering, raising serious questions about our already flagging ability to develop and adopt leading-edge technologies.

Addressing the basic skills crisis is proving no mean task—after more than a decade of reform, American schools are still not functioning well. Even more perplexing, much more is required than just higher test scores—cultural issues must be addressed too.

To effectively exploit the competitive potential of new computer-based technologies, corporate leaders are striving to jettison hierarchical management structures and create cultures of cooperation and greater individual accountability. Yet, in addition to having difficulties finding grey- and blue-collar workers who can be trained to work effectively in technologically-sophisticated environments, corporate leaders are finding that many middle managers and lower-level supervisors are jealous of their authority and reluctant to cede responsibility to subordinates. The latter is not surprising when one considers that American schools are essentially “ambiguous hierarchies.” The first nonparental role models for most future managers, professionals and grey- and blue-collar workers, the elementary and secondary school teachers, are often burdened by bureaucratic supervision and credentialing requirements, and they lack many of the prerogatives of other professionals.

An examination of how the workplace must change to make American firms and workers more competitive, and how schools must change to make them effective places for learning, indicates a much greater commonality between these great national tasks than may have been hereto-

to their counterparts in other major industrialized countries. The depreciation of the dollar that would accompany a return to current account equilibrium would probably lower real wages further.

² Morici, *The Changing Competitive Position of the U.S. Economy: Implications for Public Policy*, 14 CAN.-U.S. L.J. 283 (1988)[hereinafter Morici].

³ *Id.*; IACocca INSTITUTE, MAKING AMERICA COMPETITIVE: AN AGENDA FOR THE 1990s (forthcoming); P. MORICI, REASSESSING AMERICAN COMPETITIVENESS (1988).

fore apparent. Specifically, strengthening schools to make them better able to impart the calibre of reading, math and thinking skills businesses need in employees, may make them better institutions for imparting the intangible human skills and personal qualities required to build competent business organizations.

The Changing Workplace

In manufacturing, the benefits of computer-assisted technologies appear to be less widely dispersed in the United States and Canada than in Japan and several Northern European countries. North American firms, on average, appear to be achieving fewer gains in flexibility, speed and quality when they do invest in new processes than their foreign counterparts.⁴ This is, in part, due to the different ways in which new computer-based technologies are introduced in North America and Japan,⁵ and the significant problems managers have encountered acclimating corporate structures and the workplace to the flexibility requirements of new technology.

Fundamentally, to be used most effectively, flexible manufacturing systems and new communication/information technologies require that companies be reorganized along product lines so that formerly serial and fragmented functions such as marketing, product engineering, manufacturing engineering, and other staff functions are undertaken in more nearly simultaneous processes. This requires tearing down institutional walls and professional staff to be more flexible and have greater understanding of functions outside their traditionally defined areas of responsibility. The manager or technician, unable to empathize with the problems of co-workers who were formerly domiciled in separate departments, has become a critical liability.

On the factory floor, the competitive implementation of computer-assisted systems requires that teams of assembly workers take on many of the traditional responsibilities of supervisors such as planning, scheduling work and diagnosing problems. Often, with new or rapidly evolving systems, engineers cannot fully anticipate potential problems. Assembly workers are in a key position to recognize these problems before the machines shut down, thereby avoiding expensive delays, and helping management in the design and purchase of new equipment. All of this requires more technical training, continuous retraining and better basic

⁴ Muszynski & Wolfe, *New Technology and Training: Lessons from Abroad*, 15 CAN. PUB. POL., 248-49 (1989); P. MORICI, *supra* note 3, at 123-27.

⁵ In Japan, computer-assisted technologies generally have been introduced incrementally as the savings from individual devices could justify their cost. The transition from traditional manufacturing formats, though widespread, has been gradual when first implemented within plants. North American manufacturers, under pressure to catch up, have often implemented new technologies in larger doses, "the moon shot approach," converting or building whole lines at once. This often results in less flexibility and fewer productivity gains. See Valery, *Factory of the Future*, *ECONOMIST*, May 30, 1987, at survey.

skills. According to a National Academy of Sciences study: “[t]he knowledge requirements and responsibilities of production workers may well come to resemble those of engineers, who have long recognized the need for constant upgrade and ‘brush-up’ training to keep up with changes in their fields.”⁶ Moreover, increased decision making responsibilities in the context of work teams requires employees to exercise more judgment, to see things from coworkers and management’s perspectives and to generally exhibit more flexibility, empathy and generosity.

It is hard to underestimate the historic significance of these developments. Among the seminal trends of the industrial revolution were: (1) harnessing water and then steam power; and (2) the division of labor between those that managed and designed and those that fabricated products. With regard to the latter, productivity was raised by replacing craftsman with managers, engineers and other professional staff on the one hand and “operatives” performing repetitive tasks on the other.

Among both groups, emphasis was placed on breaking down tasks. Specialized, departmentalized professional assignments evolved, guided and controlled by hierarchical corporate planning structures. With regard to assembly workers, tasks were divided, redivided and stratified, and with the arrival of unions, these distinctions were codified into work rules.

Productivity was further enhanced by the moving assembly line and hard automation by the replacement of operatives by machines. Now we have come full circle. Having replaced these machines with flexible smart machines, operatives are now being replaced by more highly skilled workers.⁷

For example, at the Westinghouse furniture systems factory in Grand Rapids, Michigan, assembly workers participate in discussions of company issues ranging from overall business strategy to the design of work areas. Using computer assisted design and manufacturing, workers move from one special order to another. Factory workers consult frequently with customers who call the plant to check on the progress of orders.

As in a top-quality French restaurant, everything is aimed at pleasing the customer, including high product quality and short delivery time. Michael Maccoby, a pioneer consultant on work reform, says the Westinghouse plant is a leading example of a “technoservice” mode of production that is replacing the old “industrial bureaucracy” . . .

From 1983 to 1986, productivity at the Westinghouse plant rose seventy-

⁶ PANEL ON TECHNOLOGY AND EMPLOYMENT, COMMITTEE ON SCIENCE, ENGINEERING, AND PUBLIC POLICY, *TECHNOLOGY AND EMPLOYMENT: INNOVATION AND GROWTH IN THE U.S. ECONOMY* 128 (1987) [hereinafter *PANEL ON TECHNOLOGY*].

⁷ The movement, noted above, toward corporate reorganizations along product lines to accommodate flexible manufacturing systems is the organizational analog to changes on the factory floor.

four percent.⁸ Analogs in the service sector are ubiquitous.⁹

To get these kind of results, first, requires that a corporate culture must be cultivated in which everyone shares a sense of common enterprise. An environment must be created in which quality, responsiveness to customer needs and cost containment are accepted as everyone's responsibility. Productivity, quality and cost should be frequently assessed, not merely for the purpose of checking on the progress of divisions, plants and employees but also to mark progress in shared enterprises. Exceptional contributions at all levels should be recognized. Measurement, assessment and acknowledgement can offer a rallying point in a culture of excellence.

Second, although top management must establish goals for evaluating plant and division performance, individual plant, division and office managers should be empowered to define strategies for best meeting these goals. Plant, division and office managers must exert strong leadership. As the senior company officials has daily contact with staff, they must have the support, authority and responsibility to create a collegial working climate at all levels. Middle-managers and lower-level supervisors asked to cede authority to staff and production workers must, in turn, be given new policymaking responsibilities so that they see their own prospects expanded. Workers asked to shoulder new responsibilities for quality and cost and to forsake the security of rigid job descriptions must be offered a greater sense of mastery over their own environment and of participation in company progress. Up and down the line, managers, staff and workers will be more likely to accept new and more ambiguous authority structures and greater responsibility and accountability if they are secure about their own place and status. Put more directly, managers and workers must be empowered.

Skill Shortages

Corporate managers are encountering significant "skills" shortages as they seek to achieve this transformation of the workplace. As noted below, many firms find that recent high school graduates cannot pass their entry-level examinations. Older workers do not have the requisite basic skills to acclimate to new technology. For example, in the textile industry, as computerized looms are installed, employers are finding workers cannot read or do the simple math necessary to operate the equipment. Loom repairmen, who until recently did work similar to

⁸ Hoerr, *Getting Man and Machine to Live Happily Ever After*, BUS. WK., 61 (Apr. 20, 1987).

⁹ For example, advances in data and information processing have freed low level clerical workers to undertake more challenging duties. Until recently, a bank teller's primary responsibility was to make sure his cash draw balanced each day. Now, they are marketing credit cards and IRAs, duties formerly handled only by branch managers and their assistants. In the insurance industry, claims processors are now claims analysts. Spending less time on paper work, they now handle negotiations with claimants that were once the responsibilities of middle managers. See Swasy & Hymowitz, *The Workplace Revolution*, Wall St. J., Feb. 9, 1990, at R6-8 [hereinafter Swasy & Hymowitz].

1960s-vintage auto repairmen, have to become computer technicians. At Swift Textiles, Inc.:

One recent winter day, Mr. Owen, the loom repairman, spent hours trying to fix a machine that had stopped 27 times between 7 a.m. and noon. He couldn't see the problem, the way he might have on a mechanical loom with its visible levers and dials; the only visible part of the new computerized machine is an electronic circuit board. So Mr. Owen kept fiddling with his terminal, punching in various number combinations to try to diagnose the problem.¹⁰

As looms become more sophisticated, they will become increasingly easier to operate and more efficient to use but much more complex to maintain.

This increased complexity illustrates the broader trends. The Hudson Institute compared the skills required in typical occupations in 1984 with those necessary in jobs likely to be created between 1985 and 2000. On a scale from 1 to 6, the median skill level will rise from 3 to 4 and the mean skill level from 2.81 to 3.25. The average number of years of education required will rise from 12.8 years to 13.5.¹¹ This might not seem like a lot; however, coupled with a pronounced secular decline in calibre of academic and social skills imparted to the typical high school graduate, such requirements present a larger barrier to competitiveness.

The Culture Gap

Corporate leaders are also encountering skill problems with middle managers and foreman but these are of a different nature. Plant managers and shop floor supervisors are often jealous of their authority and reluctant to cede responsibilities to increasingly highly-skilled shop floor workers. Put more directly by the Head of the Manufacturing Studies Board at the National Academy of Sciences, managers are reluctant to "run the kind of social revolution at work that is needed to make technology pay for itself."¹²

At the Kodak division making printers, copiers and film processors, workers are now asked to track their own quality and suggest changes in product design and manufacturing processes. According to general manager Frank Zaffino ". . . workers are overlapping with engineers and financial people." But many of his managers and professional staff cannot adjust. States Zaffino: "Some of them got to where they are by being like Prussian soldiers, but today we need a whole different management style." He cut management by thirty percent, keeping only "the commu-

¹⁰ *Id.* at R7.

¹¹ See W. B. JOHNSTON & A. H. PACKER, *WORKFORCE 2000: WORK AND WORKERS IN THE 21ST CENTURY* 100 (1990).

¹² Hoerr & Pollock, *Management Discovers the Human Side of Automation*, *BUS. WK.*, 71 (Sept. 29, 1986).

nicators and listeners."¹³

Also, organizing companies and production along the lines described above generally implies stripping away layers of management and creating additional responsibilities for middle-level managers and first-line supervisors. Accustomed to taking and giving orders in more bureaucratic contexts, they are now asked to establish strategies, set priorities and supervise many more people requiring less specific direction.

At the Kodak printer division, the number of management layers was reduced from seven to three. However, some first-line supervisors, asked to set strategy for their products rather than merely carry out orders, according to Zaffino "couldn't make it . . . [T]hey were used to being star technicians, not communicators or leaders."¹⁴

In the 1970s and the 1980s, U.S. business was often slow to invest in or effectively implement the newest technologies. Business leaders now clearly recognize the necessity of reshaping the workplace, technologically and culturally. The critical question is: Will American high schools and colleges provide the calibre of flexible, literate and technically-trained managers, professionals, and grey- and blue-collar workers needed to make new technologies and structures work?

Science and Engineering

As the nature of innovation changed and its pace quickened in the 1980s, American leadership in process and many product technologies was challenged; in several important areas it was surpassed. These developments have been written about extensively. Factors such as the availability and cost of capital for high risk projects and the noncommercial, defense orientation of U.S. research and development efforts are factors that have received considerable attention.¹⁵ However, it is important to recognize that there is a significant educational component to this problem.

Since 1965 the number of research scientists and engineers per 10,000 workers in Japan has increased 4.8% a year reaching 67 per 10,000 workers in 1987. In the United States the number has grown 0.3% a year and also stood at 67 per 10,000 workers in 1987.¹⁶ The United States still has a commanding lead in the overall numbers of scientists but it has fewer engineers per 10,000 workers than Japan. The number of seats for science and engineering students in American universities does not seem to be a problem; American students appear to lack interest, and the seats are taken by foreigners. In 1988, 46% of full time

¹³ Swasy & Hymowitz, *supra* note 9, at R8.

¹⁴ Hymowitz, *When Firms Cut Out Middle Managers, Those at Top and Bottom Often Suffer*, Wall St. J., Apr. 5, 1990, B1, at B6.

¹⁵ See generally P. MORICI, *supra* note 3; PANEL ON TECHNOLOGY, *supra* note 6.

¹⁶ NATIONAL SCIENCE BOARD, SCIENCE AND ENGINEERING INDICATORS (1987); OECD, MAIN SCIENCE AND TECHNOLOGY INDICATORS 2 (1989).

U.S. graduate students in engineering came from abroad.¹⁷

The root of the problem appears to be in the primary and secondary schools where interests and abilities are cultivated. As noted below, the performance of American students in math and science is far from exemplary by international standards.

Yet our students feel good about the job they are doing. *The Wall Street Journal* recently reported that, in an international study, U.S. thirteen-year-olds ranked last in math proficiency while Koreans ranked first. In the same study, 68% of American students participating indicated that they thought they were "good at mathematics" while only 23% of the Koreans tested had a similar view of their own skills.¹⁸ It would seem we are doing a better job of imparting self esteem than teaching mathematics, which brings us to the central issue: the education gap.

The Education Gap

The innovation-driven trend towards more highly-skilled manpower requirements would be expected to hold great promise for the United States as historically our most significant competitive strengths have emanated from a highly-skilled, well-educated labor force and a vast research and development infrastructure. However, just as the technological sophistication of the workplace and intellectual demands on workers have increased, the basic skills of U.S. high school graduates and new labor force entrants have declined.

In a poignant example, the *New York Times* reported in July, 1987, that 84% of the 22,880 applicants for entry-level positions failed the New York Telephone Company's basic skills examination. The examination tests vocabulary, arithmetic and aptitude for problem solving.¹⁹ In 1989, 78% of the 3,700 people who took Southwestern Bell's entry-level examination failed. In a recent survey of the Fortune 500 companies, 58% complained of having difficulty finding employees with adequate basic skills. By one estimate, one in every five new employees hired is both illiterate and innumerate.²⁰ Even more troubling, although most workplace materials are written at the twelfth-grade level, about 65% of the labor force appears to be "intermediately" literate, meaning these workers can only read at between the fifth-grade and ninth-grade levels.²¹

The National Commission on Excellence in Education found that only 60% of all seventeen-year-olds can draw inferences from written material, only one-fifth can draft a persuasive essay, and only one-third

17 NATIONAL SCIENCE FOUNDATION, ACADEMIC SCIENCE AND ENGINEERING: GRADUATE ENROLLMENT AND SUPPORT (1990), Table B-5.

18 DeVenuta, *Education Openers*, WALL ST. J., Feb. 9, 1990, at R5.

19 Neuffer, *Poor Skills Cited in New York Entry-Level Applicants*, N.Y. Times, Jul. 4, 1987, at 29.

20 Richards, *Wanting Workers*, WALL ST. J., Feb. 9, 1990, at R10 [hereinafter Richards].

21 Charlier, *Back to Basics*, WALL ST. J., Feb. 9, 1990, at R14.

can solve mathematical problems involving several steps.²² In international comparisons, American students consistently rank at or near the bottom in mathematics, and although the 1980s witnessed some improvement in the sciences, American students remain mediocre at best when compared to their peers abroad in this discipline.²³

Quite apart from basic academic skills, also critical are cultural attributes, specifically the disposition towards work in a moderately disciplined environment. Many small companies complain of employee turnover in factory jobs. In an example of a common occurrence, Absorbent Cotton, in St. Louis, hired ninety people to keep twenty jobs filled in 1989. The most frequent reason for dismissal was absenteeism. Ron Thompson, CEO of the General Railroad Co., states "one of the real problem for manufacturers is the antipathy young people feel for work environment."²⁴

This is a startling, indeed frightening, picture. Although 86% of all Americans (84% of all minorities) complete four years of high school and approximately 86% of jobs created from 1985 to 2000 will require at least that level of schooling,²⁵ do the diplomas American high schools award guarantee American industry a labor force with the skills and self discipline required to work in a technologically sophisticated environment?

According to the National Commission:

More and more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion, the number of traditional jobs shrinks, and new jobs demand greater sophistication and preparation.²⁶

Focusing on community colleges and technical schools, a recent Department of Education study found the rate of degree completion in these institutions to have declined.²⁷ Moreover, the skills community colleges

²² THE NATIONAL COMMISSION ON EXCELLENCE IN EDUCATION, A NATION AT RISK 9 [hereinafter NATIONAL COMMISSION].

²³ For example: In 1982 the International Association for the Evaluation of Education Achievement (IEA) found American 17 year-olds in the lowest fourth of all nations studied on five of six basic math topics. . . . More recently, American first-and fifth-grade math students were found to be lagging badly behind similar groups of students in Japan, Taiwan and China.

In science: Our 10 year-olds seem about average, scoring in 8th place among 15, countries tested. But our 14 year-olds are far behind their peers around the world, placing 14th out of 17 countries, tied with Singapore and Thailand. Advanced American science students (seniors in their second year of study in given disciplines) fare even more poorly: 9th place out of 13 countries in physics, 11th of 13 in chemistry, and last in biology.

U.S. Secretary of Education [William J. Bennett], *American Education: Making It Work* 12-13 (1988).

²⁴ Richards, *supra* note 20, at R11.

²⁵ Fourteen percent of new jobs will require three years of high school or less.

²⁶ NATIONAL COMMISSION, *supra* note 22, at 12.

²⁷ Among the demographic groups studied the only cohort with higher completion rates was

teach are often outdated and suitable only to abandoned technologies.²⁸

Although a greater proportion of Americans go on to college or some other post-secondary training, this does not translate into a more competitive labor force. The National Commission recognized this fact:

It is important, of course, to recognize that *the average citizen* today is better educated and more knowledgeable than the average citizen of a generation ago—more literate, and exposed to more mathematics, literature, and science. The positive impact of this fact on the well-being of our country and the lives of our people cannot be overstated. Nevertheless, *the average graduate* of our schools and colleges today is not as well-educated as the average graduate of 25 or 35 years ago, when a much smaller proportion of our population completed high school and college. The negative impact of this fact likewise cannot be overstated.²⁹

In the United States, a chasm has opened between the scientific and managerial elite and the average citizen.

Effective Schools

What can we do to strengthen our schools? Everyone seems to have a prescription, and since the late 1970s, a reform movement has swept across the nation: real spending is up by 25%,³⁰ teachers face greater scrutiny, graduation requirements have been raised, and the choice movement is picking up steam. It seems that everything is appreciably up, except student performance.

This is not surprising. Governors, state legislatures, school boards, and district administrators are under great pressure from the electorate and business leaders to do something, to produce results. Too often, though, the approach has been top down with the state education departments and district administrators placing greater expectations and pressures on principals and teachers. Frequently, such approaches are inconsistent with what we know about how our better schools achieve superior results and how schools need to change to work better.

Some schools clearly do a better job than others, as measured by the kinds of criteria school reformers trust: test scores and mastery of basic academic skills. More importantly from a public-policy perspective, these schools appear to share many mutually reinforcing characteristics, which provide a guide for the systemic changes necessary to make schools more

hispanics. NATIONAL CENTER FOR EDUCATION STATISTICS, ENROLLMENT, COMPLETION, ATTRITION, AND VOCATIONAL COURSE-TAKING PATTERNS IN POSTSECONDARY EDUCATION: A COMPARISON OF 1972 AND 1980 HIGH SCHOOL GRADUATES ENTERING TWO-YEAR INSTITUTIONS (1989) [hereinafter NCES].

²⁸ Nazario, *Bearing the Brunt*, WALL ST. J., Feb. 9, 1990, at R22, 23.

²⁹ NATIONAL COMMISSION, *supra* note 22, at 11.

³⁰ According to the National Center for Education Statistics, real spending on public education increased 24.5% in the 1980s. NCES, *supra* note 27.

effective:³¹

- (1) autonomy—at the school level, principals and teachers are free to shape strategies to achieve academic objectives and solve problems. School district officials provide guidance and support but leave the articulation of the means to achieve educational ends to principals and teachers;
- (2) strong principal leadership and empowered teachers—pedagogically strong principals engage their teachers in defining commonly shared goals and establishing strategies to achieve them; they encourage their teachers to collaborate across departments to solve problems and to foster a team-oriented collegial environment. Generally, principals in effective schools are strong leaders but they are not authoritarian; they are more likely to encourage democratic decision making and to involve teachers in picking textbooks, formulating curricula and choosing their colleagues. These principals have more autonomy and are freer in sharing authority with their teachers;
- (3) a climate that emphasizes academic success— this often includes: clear, well-defined, commonly-shared academic goals; a pervasive and broadly understood instructional focus; high expectations for student performance; a well-articulated, rigorous curriculum (for example at the secondary level, “a planned, purposeful program of courses seems to be academically more beneficial than an approach that offers many electives and few requirements.”³²);
- (4) continual monitoring of student performance and the celebration of academic success—schools reveal a lot about themselves and the values they seek to impart to their students through their public ceremonies and the particular academic and nonacademic accomplishments they choose to recognize; and
- (5) a strong sense of community—there is strong evidence that “the sense of being a recognizable member of a community that is supportive and clearly perceived (by the staff and others), contributes to reduced alienation and increased achievement. There is also evidence that schools can create or build community by the appropriate use of ceremony, symbols, rules (i.e., dress code) and the like.”³³ Such a sense is reinforced by good order and discipline.

Simply put, the schools that deliver high quality education are serious places. They enjoy autonomy, strong but nonhierarchical leadership, empowered teachers, a collegial environment, a unity of purpose; and a

³¹ Purkey & Smith, *Effective Schools Research: A Review*, 83 ELEM. SCH. J., 427-52 (1983), [hereinafter Purkey & Smith]; Mackenzie, *Research for School Improvement: An Appraisal of Some Recent Trends*, EDUC. RES., Apr. 1983, at 5-17; GENERAL ACCOUNTING OFFICE, *EFFECTIVE SCHOOLS PROGRAMS: THEIR EXTENT AND CHARACTERISTICS* (1989); Chubb & Moe, *Politics, Markets and the Organization of Schools*, 82 AM. POL. SCI. REV. 1065 (1988) [hereinafter Chubb & Moe]. Chubb, *Why the Current Wave of School Reform Will Fail*, 90 PUB. INT. 28 [hereinafter Chubb].

³² Purkey & Smith, *supra* note 31, at 443.

³³ *Id.* at 445.

culture of excellence. While it is naive to say that schools should be fashioned after emerging models of competitive business organizations, there are strong parallels between the characteristics and cultures of effective schools and competent private enterprises. And, it is not a great intellectual leap to hypothesize that schools of the kind described above, in addition to better imparting basic academic and intellectual skills, would be a more likely incubator for the human skills and personal qualities now sought in managers, professional staff and workers—flexibility, empathy and generosity.

School Reform

Effective research of schools brings good news and bad news story to reform-minded politicians and public policymakers. On the one hand, this research strongly indicates that schools do make a difference in student performance and should be the focus of reform. On the other hand, this research is quite consistent with the findings of a massive literature that indicate that changes in the policy variables easily manipulated by politicians and state education departments, for example the instructional strategies employed by teachers, teacher salaries and educational requirements, moderate changes in class size, and tougher graduation requirements, will have little impact on student performance.³⁴

In this context, the recent frustrations expressed by Secretary of Education Lauro Cavazos about the poor progress achieved by the school reform movement are not surprising.³⁵ Many of the reforms have taken the route of cracking down on poor student performance through more detailed and rigorous curriculum rules, tougher graduation requirements, frequent testing and longer school days and through efforts to professionalize teaching through higher salaries, competency testing and more rigorous certification and recertification requirements. Generally speaking, most of these reforms are bureaucratic, marginal policy responses to systemic ills requiring radical change; they are not the sort of changes that, in and of themselves, may be expected to fundamentally alter the way schools are run and appreciably improve the quality of education.³⁶

A growing number of school districts are implementing what are called effective schools programs. In 1987-88, approximately 41% of all school districts had implemented some type of effective schools program; over half were less than two years old. The Hawkins-Stafford Elementary and Secondary Improvement Amendments of 1988 (PL 100-297) authorize Chapter 1 and 2 funds to assist these efforts.³⁷

³⁴ S. PURKEY & M. SMITH, EDUCATIONAL POLICY AND SCHOOL EFFECTIVENESS in RESEARCH ON EXEMPLARY SCHOOLS 182 (1985) [hereinafter PURKEY & SMITH].

³⁵ Address by Secretary of Education Cavazos, delivered at New Conference Regarding National Assessment of Educational Progress (Jan. 9, 1990) [hereinafter Cavazos].

³⁶ Chubb, *supra* note 31, at 44-46.

³⁷ GENERAL ACCOUNTING OFFICE, EFFECTIVE SCHOOLS PROGRAMS: THEIR EXTENT AND CHARACTERISTICS, 1 [hereinafter GENERAL ACCOUNTING OFFICE].

This movements has been the focus of criticism.³⁸ The characteristics of effective schools cannot be easily reduced to a specific set of simply reproducible requirements that may be easily grafted onto existing school structures. Effective schools are not likely to be created by regulatory mandates or simple financial incentives. In effective schools, a culture and ethos are cultivated over time. This environment makes the combined benefits of the factors discussed above much greater than the sum of their parts.

More directly, simply mandating a litany of specific changes, such as requiring collaboration among teachers and principals, written plans for action, or greater emphasis on the mastery of basic skills and test results will not necessarily create an expectation of excellence and radically alter school cultures. In the end, the real success of these efforts will hinge on whether schools and principals are given the autonomy and whether teachers are empowered with the responsibility and authority necessary to fundamentally change the way schools are run.

With regard to federal policy, Public Law 100-297 lists five specific characteristics that schools should seek to achieve; autonomy for schools and principals is not among them.³⁹ In its 1989 survey of effective schools efforts across the United States, the General Accounting Office, a Congressional agency, inquired about the emphasis placed on nine goals; autonomy for schools and principals was not among them.⁴⁰

The Importance of Understanding School Hierarchies

From a distance, schools may seem like rational hierarchies, and many teachers may view themselves as over regulated and over-supervised by management structures that place a premium on conservative, risk-adverse behavior. However, power relationships are more subtle.

Teachers apply state and district mandated curriculum guidelines. Frequently, teachers must address their principals as Mr. —, are confronted by many more layers of administration than their predecessors, are evaluated by nonteaching administrators on separate and better paying career tracks and have little say in the selection or evaluation of colleagues. This is hardly the model practiced in other professions. Nevertheless, teachers have considerable room to maneuver in their own classrooms, and schools are “ambiguous hierarchies.” According to Purkey and Smith:

³⁸ PURKEY & SMITH, *supra* note 34; D’Amico, *Using Effective Schools Studies to Create Effective Schools: No Recipes Yet*, EDUC. LEAD., Dec. 1982, at 61, 62. Rowan, Bossert & Dwyer, *Research on Effective Schools: A Cautionary Note*, EDUC. RES., Apr. 1983, at 24-31.

³⁹ These goals are: (1) strong administrative and instructional leadership; (2) emphasis on higher order academic skills; (3) a safe and orderly school environment; (4) a climate in which all students are expected to learn under appropriate conditions; and (5) continuous assessment of student and program progress. See GENERAL ACCOUNTING OFFICE, *supra* note 37, at 1.

⁴⁰ *Id.* at 58.

. . . schools are not rational, hierarchical institutions responsive to top-down command structures in which fundamental change can be mandated at one level with confidence that it will be carried out at subordinate levels.⁴¹

The emergence of effective schools will hinge on the inclination and ability of politicians, state education departments, school boards, and district administrators to strip away layers of management above and within schools, and to grant schools substantial autonomy. Speaking of school reform in January 1990, Secretary Cavazos stated:

We have gone through the motions, giving the appearance that we are changing as a system of education that was designed a century ago.

* * *

It hasn't worked—and it won't. We need a revolution in teaching and learning.

* * *

We must let parents, teachers and administrators manage their classrooms and schools, without interference from district, State and Federal governments.⁴²

As in the private sector, such changes will require resources to retrain managers, namely the district administrators and principals, to become more comfortable with democratic management styles, and to retrain teachers to accept more responsibility for and authority in defining the school environment beyond their classrooms. If school reform is to succeed, administrators and principals must engage teachers politically, much as industrial enterprises are doing with managers, professional staff and workers.

So far school reform has not moved in this direction. Schools have had their autonomy reduced as they have been placed under more bureaucratic control and supervision and efforts to improve the teaching profession have emphasized testing, credentialling, and evaluation. Although reforms urge teachers to behave as professionals and principals to be strong leaders, they are not being given the freedom to do so. Unfortunately, because parents generally are not free to choose the schools their children attend (and where states or districts offer options, choices are limited by factors such as transportation costs), they must rely on politicians, school boards and district administrators to ensure accountability; in turn, this arrangement mitigates against granting greater autonomy to schools.⁴³ Moreover, such a revolution in the perceived structure of authority within states, districts and schools could reasonably be expected to threaten administrators in much the same way as new management models have been threatening to managers in the private sector.

⁴¹ PURKEY & SMITH, *supra* note 34, at 182.

⁴² Cavazos, *supra* note 35.

⁴³ Chubb, *supra* note 31, at 47.

Making A Market for Effective Schools

Much has been written and said about the potential benefits of offering parents the freedom to choose the public schools their children attend, and the Minnesota experiment has been much heralded. Choice is seen, among other things, as a means for imposing on schools a market discipline. The quality of education will improve if individual schools have the autonomy they need to change and differentiate themselves from one another.

Similarly, given greater autonomy, it is not clear that schools will change without adequate external incentives and resources for principals to alter management styles and for teachers to accept a process of change that blurs existing authority structures, a process teachers and unions may perceive as compromising existing work-rule protections and reducing the autonomy teachers now enjoy within their own classrooms.

The lesson of the 1980s was that more money and regulation will not produce better schools. I suspect the lesson of the 1990s will be that choice without autonomy, and autonomy without choice, are equally ineffective policies.

Given choice and autonomy, if only a small percentage of parents actively scrutinize schools or if enrollment patterns resulting from parental choices do not significantly affect the funds available to individual schools, better schools will not result. Principals and teachers will not have the incentive to change if few parents exercise the option of choice, or if most do it whimsically and randomly, or their choices do not have significant consequences for the allocation of resources among schools. Moreover, parents cannot make intelligent choices if they do not have access to good, sophisticated data about the performance of their children and individual schools.⁴⁴ Financial resources must follow choice and choices must be based on sound information.

A useful first step would be to provide more sophisticated test data. For example, a comprehensive and rigorous set of state-wide eighth grade exams covering reading, composition, mathematics, history, geography, and science would give parents a good sense of the breadth and depth of their children's progress and the quality of education offered by various elementary schools if the results became part of student records of performance and school-wide data were appropriately analyzed and published.

At the high school level, similar state-wide exams to replace final exams in courses such as American history, English composition, literature, geography, geometry, trigonometry, biology, physics and chemis-

⁴⁴ The concerns of vocal minorities of parents can be assuaged with magnet schools. It is not hard to create a few good schools by exercising selectivity with regard to students and teachers, and by providing above average students and teachers with above average resources. The real challenge is to create effective schools for the entire population, and in particular for children from less educationally enriched households.

try. Such examinations could be much more than the minimum achievement exams offered in some states. They could be effective tools for differentiating levels of achievement and recognizing mastery and excellence, especially if they contained significant problem solving and essay components. They could provide useful information to college admissions officers about individual students and to parents about the performance of schools. Standardized tests need not be multiple choice; however, the grading of problems and essays needs to be standardized, and the content must be broad enough to discourage rifle shot teaching. New York State has done this for years with its program of Regents Exams. Similarly useful would be the publication of the college admissions performance of high school graduating classes.

Not all students have college aspirations, and given the demands of post-industrial society, it is even more important that a reasonable quality floor be placed below their high school education. The National Alliance for Business and the American Business Conference are backing a voluntary national examination for high school students that would cover the entire range of the typical high school curriculum, practical skills such as document literacy, and specific skills acquired in vocational courses.⁴⁵ If businesses helped define reasonable standards for students entering the work force directly after high school, something they already do with entrance exams such as the ones administered by Southwestern Bell and New York Telephone, and if test scores were published by school in an appropriate format, parents of these children would have a better basis for evaluating the adequacy of education offered noncollege-bound students.

Any such program of testing must not be presented as a means for cracking down on students but rather as a supportive mechanism for building self esteem among students and demonstrating progress and competence to colleges and prospective employers. This is no mean task, but it is most likely to be achieved in the kind of environment of academic excellence cultivated in effective schools. With regard to teachers, examination content and evaluation standards must be wide enough to give teachers reasonable flexibility in defining course content and goals. Such a program of evaluation will not help without real efforts to change schools along the lines described above.

CONCLUDING REMARKS

New computer-based information, communications and automation systems offer North American manufacturing and service industries the opportunity to substantially improve productivity and competitiveness. However, to be effectively implemented, such systems required fundamental changes in the organization of the workplace and the structures of corporations.

⁴⁵ Skrzycki, *Test of High School Graduates' Skill Planned*, Wash. Post, Nov. 4, 1989, at C1.

The consequences of these developments are radical in scope, reversing trends that began with the industrial revolution. Factory workers performing repetitive tasks, who once displaced craftsmen, are now being replaced by more technically-sophisticated, highly-skilled workers. These craftsmen of the post-industrial age are assuming more control over their work environments, participating in responsibilities and decisions that, until recently, were the purview of supervisors. Management structures are becoming flatter and more collegial and the lines demarcating responsibilities among professionals are becoming blurred. Overall, efficient factories and competent enterprises exhibit a unity of purpose among workers and managers alike, and in the exemplary cases, a culture of excellence.

Such business organizations require workers with solid reading, math, numerical reasoning and problem solving skills. In addition, workers and managers alike must be more flexible, empathetic and generous to work effectively in organizations characterized by ambiguous authority structures.

These new requirements make revelations about the poor performance of public schools extremely alarming. Whether American schools and colleges can provide the calibre of flexible, literate and technically-trained workers necessary to meet the needs of industry is a critically urgent public-policy question.

Not all schools are the same, and effective schools can be found in a variety of socio-economic circumstances. They tend to enjoy autonomy, have strong nonhierarchical leadership and collegial working environments, a unity of purpose, and culture of excellence. Overall, these schools are serious places, exhibiting strong commonality with competent businesses described above. This raises the question of whether, if we could truly make these schools the model for educational reform, we could not better achieve the twin objectives of better teaching academic subjects and imparting to our children highly valued human skills and personal qualities?

To foster more effective schools, schools and principals must be offered autonomy from state and district administrators in return for substantial improvements in student performance. The critical policy question then becomes how do we ensure accountability and incentives for principals and teachers to change the way schools are run. "Choice" has been offered by many as the means for imposing some measure of market discipline. But even where choice is offered, the array of options is often limited by geography and other considerations. Parents need sophisticated data and the inclination to make well-considered selections, and financial resources will limit students' choices. In the end, a true market, in the industrial sense, for effective schools may not be possible and some combination of choice and more enlightened regulatory accountability may be needed.

Failure to adequately restructure the workplace or effectively im-

prove the academic and personal qualities developed in our schools will seriously handicap the American economy. Slow productivity growth and the requirement for products competitive in price and quality would ultimately be accommodated by a secular decline in the real exchange rate for the U.S. dollar. In the end, Americans will continue to export to pay for most or all of their imports, but wages and incomes would continue to decline relative those paid in Japan and northern Europe.