

On Common Ground

Strengthening Teaching through School-University Partnership

YALE-NEW HAVEN TEACHERS INSTITUTE

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THOMAS HART BENTON, *INSTRUMENTS OF POWER*, 1930

Creating New Paths to the Middle Class

By Robert Reich
Secretary of Labor

A fault line runs through the American economy today that threatens the stability of our society: the deep divide between college-educated workers and the nearly three-quarters of our workforce whose education ended with "school." Never before in our nation's history have the economic prospects and experience of these groups diverged so dramatically. In the not-too-distant past, both college and non-college educated workers could consider themselves members of the same—middle—class. By 1979, the average male college graduate earned 49 percent more than his counterpart with a high school diploma alone. By 1992, this divergence had widened to 83 percent. Employment benefits such as health insurance and pension coverage have followed the same pattern.

The evidence suggests that the forces contributing to this divergence will intensify as our workforce faces an increasingly competitive, technologically sophisticated global economy. Opportunities for workers with more education and higher skills will continue to grow. Options for workers with less education and lower skill levels will continue to shrink.

Understandably, these Americans are deeply anxious about their prospects and those of their children. The enormous growth in new jobs—over 5 million since January 1993, primarily in the private sector—does not reassure them. What they see most clearly is the loss of once-secure pathways to the middle class, not the gain of new jobs. But nostalgia for the more solid-seeming economy of the past should not lead us to conclude that the mourned lost jobs—in traditional manufacturing, for

example—were inherently "middle class." Rather, in an economy in which wages for workers at all levels were rising steadily, even "lousy" jobs could eventually become good ones.

Now what is urgently needed is not the reappearance of the old jobs, but the re-creation of career paths and upward mobility for less-educated and less-skilled Americans. Manufacturing is still a critical industry in America's economy, but now the greatest value is added, not at the assembly line, but in the steps before and after the product is produced—for instance, through market research, design and engineering; just-in-time delivery, customized installation, maintenance. To add value that commands high wages, a worker must be able to think, solve problems, and learn how to apply skills in new contexts.

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Partnership as a Permanent Enterprise

The Yale-New Haven Teachers Institute has three missions: (1) to give academic strength and vitality to New Haven's public schools, (2) to offer Yale's faculty a deeper insight into the nature of American education, its students, and its teachers, and (3) to spread the idea of

About Partnership

by *Fred M. Hechinger*

such service as widely as possible to universities in cities around the country. Together, those three goals truly add up to Common Ground.

These were the issues discussed at the June 20, 1994 meeting of the Institute's National Advisory Committee, joined by Yale's President Levin. The discussion went beyond the three broad goals for the building of successful Yale-type university-schools cooperation to underscore collegiality, teacher leadership, subject-matter focus, institutional position on reform, and commitment to the long term.

A serious flaw in both public and private funding of educational pilot projects is the tendency to turn the spigot off as soon as there are signs of initial success, and to move on to other, newer experiments. It should therefore be clearly understood, both by Yale and by present and potential funders, that the Yale-New Haven collaboration is not—repeat not—a pilot project: it is a firmly established, educationally proven enterprise. It must be viewed as permanent—an educational way of life for Yale and the city schools.

Any other college or university interested in using Yale as a model should understand that without the promise of permanence, the public school teachers' reaction is bound to be negative: one more brief charity from on high. Permanence plus collegiality are the key to success.

But permanence can be achieved only if the financial base is sound. And while the Institute is on the way, it must still struggle to build an adequate endowment to insure both continuity and independence. As Jim Vivian put it, to be a persuasive model, it cannot afford to have other universities shrug: "If Yale can't do it, how could we

possibly do it elsewhere?"

Important, too, is the critical mass. A partnership between school and campus can be considered successful only if it does more than serve a few teachers. The goal should be to open up vistas of intellectual partnership to all who want to take part. In New Haven, about half of the public school teachers have done so.

There is, however, another aspect of scale. The Yale-New Haven model works because the city is small enough to give Yale an opportunity to make an impact. In larger cities cooperation may have to be limited to special areas in order not to dilute the effect.

Why is it important for Yale to succeed as a model? The answer is, as Gordon Ambach pointed out, that throughout the country a great void exists between the public schools and the universities. Even where there are limited contacts with the schools, largely through the universities' schools of education, there is no lasting bond between the universities and the schools. Most of the contacts that do exist fail to touch the hearts of either institution.

If other universities want to look to Yale as a model, what matters are not the details of the Institute's operations; what is crucial is the understanding that, from the beginning, the relationship between the university and the schools was regarded as a true partnership among equals. Public school teachers, who regularly get orders from above, are understandably suspicious that the university professors may come to them as another superior force.

The Yale-New Haven project works precisely because both sides—the teachers and the university faculty—know that they can learn much from each other. The teachers want the benefit of scholars to strengthen their academic disciplines, the professors can benefit a great deal from witnessing the techniques of good teaching and from getting a first-hand view of what today's school-age youngsters—soon to be undergraduates—are really like.

President Levin stressed that, if the Yale example is to serve as a successful model, it ought to be clear that it is easy to imitate the structure and yet miss the vital point of the importance of the spirit of true cooperation. He pledged that he would try to persuade

his presidential colleagues at other universities, especially in the cities, that such partnerships deserve their serious attention. As for his own bailiwick, he urged the Yale Corporation to endorse the Institute's permanent role as a unit of the university. This took place on September 23.

Equally important, if the Yale experience is to be replicated in other cities and by other institutions, is the commitment of the arts and science faculty as scholarly partners of the public school teachers. This does not mean that the faculty of schools of education are to be excluded, it does mean that the partnership, to be effective, should not merely involve education school staffs and the teachers. Perhaps it is unfair to say that the New Haven program works so well because Yale has no school or even department of education, but it is true that this places the responsibility on the shoulders of the arts and science faculty.

I have had the privilege of serving on the advisory board of a program called "Stanford and the Schools." It was a well-managed effort that has made valuable contributions in its own way. But because Stanford University has a strong and highly regarded Graduate School of Education, it proved far more difficult—in fact, nearly impossible—to involve sufficient numbers of the university's larger academic community. In addition, the outreach from the university to six school districts was largely limited to contact with school administrators rather than with individual teachers.

What the Yale experience and the deliberations of the National Advisory Committee make clear is that the university-school partnership cannot work unless it is taken seriously as a permanent academic enterprise, not as minor dabbling in doing good works at the fringes. The Yale model would not work without the organization, planning and fiscal realism of the Institute, the full-time professional leadership of James Vivian, and the enthusiastic and tangible support by the university's President. With these vital conditions now firmly in place, the Yale-New Haven Teachers Institute is ready to serve as a model for other universities and other cities, and the many teachers waiting to be admitted to a truly professional partnership.

On Common Ground

Strengthening Teaching through School-University Partnership

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Yale-New Haven Teachers Institute
Box 203563 Yale Station
New Haven, Connecticut 06520-3563

Phone: (203) 432-1080
Fax: (203) 432-1084
E-Mail: Common_Ground@yale.edu

Executive Editor, James R. Vivian

The Yale-New Haven Teachers Institute is an educational partnership between Yale University and the New Haven Public Schools designed to strengthen teaching and learning in local schools and, by example, in schools across the country. Through the Institute, teachers from the University and the Schools work together in a collegial relationship. Founded in 1978, the Institute is the first program of its type to be established permanently as a unit of a university.

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About the cover illustration:

Instruments of Power is the central panel of *America Today*, a mural cycle of 1930 by Thomas Hart Benton for the New School for Social Research. Its theme is the progress enabled by the prime movers of industrial power: steam, electricity, and internal combustion. We see a cross-section of an internal combustion engine flanked by structures of that revolutionary building material, reinforced concrete (a bridge and a hydroelectric dam), and surmounted by rushing forms of modern transportation: the train, airplane, and dirigible. The streamlined forms, oblique lines of force, and centrifugal composition evoke the dynamic, expansive, and future-oriented nature of a technological civilization. Though *Instruments of Power* has been called "an apotheosis of the machine age," the other panels in the cycle—*Deep South*, *Midwest*, *Changing West*, *Coal*, *Steel*, and *City Building* (reproduced on page 5)—recognize problems that our industrial democracy has not yet adequately addressed: economic inequality, racial discrimination, and the reckless exploitation of natural resources. An artist of broad sympathy for the people, Benton would understand Robert Reich's argument for creating new paths of education and economic opportunity for workers in this later phase of our technological society.

—Thomas R. Whitaker

Credits: Cover Illustration: Thomas Hart Benton. *Instruments of Power* (*America Today*). 1930. Distemper and egg tempera with oil glaze on gessoed linen. 92" x 160". © AXA Financial, Inc. **Page 5:** Thomas Hart Benton. *City Building* (*America Today*). 1930. Distemper and egg tempera with oil glaze on gessoed linen. 92" x 117". © AXA Financial, Inc. **Page 9:** Carmen Lomas Garza. *Curandera* (*Faith Healer*). 1989. Oil on linen mounted on wood. 24" x 32". The Mexican Museum. San Francisco. **Page 12:** Archibald J. Motley, Jr. *Playground* (*Recess*). 1940. Oil on masonite. 43.2 cm. X 53.3 cm. Harmon and Harriet Kelley Collection. San Antonio. **Page 16:** Charles Demuth. *Business*. 1921. Oil on canvas. 50.8 cm. X 61.6 cm. Alfred Stieglitz Collection. The Art Institute of Chicago.

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On Common Ground: The World of Work

By Thomas R. Whitaker

Education in a democracy has many aims. It must develop abilities in the humanities, arts, and sciences, provide opportunities for growth in community life, and prepare young people for responsible citizenship. It must therefore introduce a wide range of intellectual, ethical, and aesthetic skills and values. But education must also elicit and begin to train the talents that are necessary for the world of work. And that task has become increasingly complex in our technological society.

This number of *On Common Ground* considers some of the ways in which school-university partnerships may assist in that task.

The Essays: Some Connections

- The lead essay by Secretary of Labor Robert Reich focuses on the very disturbing loss of “pathways to the middle class.” What is needed, he argues, is “the re-creation of career paths and upward mobility for less-educated and less-skilled Americans.” That will require new efforts to establish “common ground between secondary and post-secondary education and between ‘work’ and ‘school,’” directed in large part toward such growing fields as nursing, computer information systems, medical technology, and allied health jobs. Secretary Reich discusses the *School-to-Work Opportunities Act*, which requires that “working relationships” be formed and maintained “between and among partners from education, business, and the community.” He notes the broad range of partners that are becoming involved in such efforts, the need for secondary and post-secondary schools to create a cohesive “tech prep” curriculum, and the important role to be played here by community colleges.
- Thomas W. Payzant, Assistant Secretary for Elementary and Secondary Education in the United States Department of Education, spells out the implications of the *Goals 2000 Educate America Act* and the *Improving America’s Schools Act*. This legislation, envisaging a comprehensive

reform, focuses on “raising the academic achievement of all students to a high level” by supporting the efforts of states and school districts. Payzant describes the need for universities to become involved in state and local reform plans, and the various ways in which they can become partners with districts in the development and implementation of those plans.

- Timothy P. Ready’s essay on health science partnerships deals with one important sector of the workforce—the nation’s physicians—and the difficult problem of recruiting and preparing minority students to enter that group. He describes how *Project 3000 by 2000* is now involving medical schools in a variety of health science partnerships with local school systems, community-based organizations, and undergraduate colleges. And he shows how each partner, like the nation as a whole, stands to gain much from these joint efforts.
- Partnerships with business are approached in different ways by three other essayists. Edward Kisailus, a professor of biology, stresses the need in today’s workforce for a greater range of competencies—including resource management, interpersonal skills, information management, systems interrelationships, and technology literacy. He suggests that schools, universities, and business collaborate on a new paradigm of lifelong education, which would bring together technical training, academic content, and higher theoretical and conceptual skills.
- Thomas E. Persing, a superintendent of schools, argues that in such an effort we can learn a great deal from the system of apprenticeship in Germany. If a comparable (though not identical) system were established in this country, it could involve universities in various ways, and it might lead to significant changes in the schools’ approaches to many academic subjects.
- And Thomas Furtado speaks from his personal experience at United Technologies with opportunities and difficulties in this area. Concerns shared by business and the schools run a gamut from basic reading

skills to sequential curricula in science and mathematics. But it is clear that we must learn to trust each other more, and to work harder, in order to lay the groundwork for collaboration in our own communities.

- Fred Hechinger’s regular column deals this time with the need to understand school-university partnerships as “permanent enterprises.” Though *On Common Ground* is not a promotional organ, we are grateful for Hechinger’s comments on the Yale-New Haven Teachers Institute. He offers some important warnings about the necessary basis for attempts to replicate the Yale experience in other cities. The Institute has long worked with groups elsewhere; and it hopes to do so more systematically in future years. The opportunities that follow from the *Goals 2000 Act*, as described by Thomas Payzant, make such nation-wide efforts all the more urgent.

The Images: Some Perspectives

Our cover illustration, which relates most closely to Secretary Reich’s essay, portrays the “instruments of power” in the United States as of 1930—but as part of a mural cycle that recognizes the need for continuing social and economic creativity. Indeed, Thomas Hart Benton had learned a good deal from the philosopher John Dewey, the American historian Charles Beard, and the historian of culture Lewis Mumford. Benton’s faith in modern democracy was a faith in the power of people to make use of technology, not to be used by it. The “instruments” are not in themselves “aims.” Wise use of technology, Benton understood, requires continuing reform of our institutions. “Change of form,” he said, “is just as much the essence of a true democracy as it is of a living art. It is the will and ability to change forms under the pressure of new needs and new experience in a living, going environment, that proclaims the very reality of democracy and makes it technically serviceable in real government.”

A major challenge in the field of education is to ensure that our technological society is open to the talents of those of every race and every social or economic stratum.

Benton's recognition of that challenge, at his earlier moment in our history, is evident in *City Building*, the concluding panel in his mural cycle for the New School of Social Research. This portrayal of the excavation stage of building includes, at the left, a monumental image of a racially-mixed work crew—a bold image indeed for 1930, when prejudice still excluded blacks from most union locals. Building Common Laborers was one of the few unions that accepted black members.

With T. P. Ready's essay on *Project 3000 by 2000*, which aims to increase minority representation in medical education, we include a contemporary image that leads us into a child's experience of healing in one kind of Hispanic context. Carmen Lomas Garza's *Curandera (Healer)*, which we reproduce with its accompanying explanatory text in both English and Spanish, comes from her book, *Family Pictures*. This book, which is designed for children, often reflects Lomas Garza's own early experience. It was brought to our attention by Manuel N. Gómez of our Editorial Board.

Relating also to the theme of minorities in education is the image we reproduce with Thomas W. Payzant's essay on the *Goals 2000 Educate America Act* and the *Improving America's Schools Act*. This painting, titled *Playground (Recess)*, is by the African American artist, Archibald J. Motley, Jr. Suggesting children's art in its naive perspective, high horizon, and linear treatment of the figures, it evokes the energy of playground life—and also portrays the interracial harmony that is possible there. The painting is a study for Motley's mural project of about 1940 for the Doolittle School on East 35th Street in Chicago. Like much of the art sponsored by the Federal Art Project of the Works Progress Administration, those murals have since been covered over or destroyed. This painting is now in the collection of African American art established by Harriet O. Kelley and her husband Harmon Kelley, M.D., an obstetrician and gynecologist. The Kelley's entire collection will be shown at the Smithsonian Institution from April 23 to the end of August in 1995. With
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THOMAS HART BENTON, *CITY BUILDING*, 1930

Reich: Creating New Paths

(continued from page one)

Building new paths to the middle class therefore requires that we establish the common ground between secondary and post-secondary education and between “work” and “school.” Neither the American economy nor the American workforce can prosper in an environment that treats “schooling,” “higher education,” and “training” as separate—even if equal—entities.

The School-to-Work Opportunities Act, signed into law by President Clinton in May 1994, has revolutionary potential to revitalize, restructure, and integrate these components. During the last two years of high school, and for at least one year beyond, young people participating in school-to-work programs receive classroom experience and on-the-job training. They may not know at any one moment whether they are receiving “schooling,” “training,” or “higher education”—and it doesn't matter. What matters is that they are forging meaningful and durable connections between the world of work and the world of school.

The process of establishing a national School-to-Work system is already underway. In 1994 alone, the Departments of Labor and Education provided \$53 million in grants to states and localities to expand promising school-to-work programs into functioning school-to-work systems. While there are a variety of models for providing successful school-to-work opportunities, they all have in common the integration of secondary schooling, post-secondary education, training and employment. And the implementation of specific school-to-work programs requires that working relationships be formed—and maintained—between and among partners from education, business, and the community.

As “work” and “school” mutually support and infuse each other, the old walls between “academic” and “vocational” education break down. At one school-to-work program I visited, I talked with a young woman who told me frankly that she “used to hate math.”
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Reich: Creating New Paths

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But now her perspective had changed. Math class, once a blizzard of abstract equations, had become a concrete way to build skills for a good job. Now, she said, "I love geometry."

The truly innovative nature of the school-to-work movement is obvious from the collaborations that routinely occur between groups that have never worked together and are often mutually suspicious. For example, the partnership launching the New Haven Area Initiative for School-to-Work Opportunities—which focuses on the area's emerging biomedical industry—reaches deep and wide into the greater New Haven community. The partners include, among others, the local Private Industry Council, the New Haven Boards of Education, the Science Park Development Center, the Gateway Community-Technical College, and the area Cooperative Education Service. The initiative has also had strong involvement from labor and individual employers, community-based organizations, Yale University and Yale Medical School.

What is so remarkable is the breadth of partners who perceive themselves as stakeholders in forming school-to-work arrangements. In a specific program, the entity responsible for initiating and coordinating a school-to-work project can range from the Greater Austin Chamber of Commerce and the Boston Private Industry Council to the School Board of Dade County, Florida, the Fond du Lac Community College in Minnesota, and Cornell University. An individual locality can choose the specific configuration that best fits its specific needs.

Some linkages are forged out of the structure of the specific school-to-work model. For example, "tech prep" programs—sometimes called two-plus-two, because they combine two years of high school with two years of college—by their nature require secondary and post-secondary schools to create a cohesive curriculum. The process of building such a school-to-work program forces schools and colleges to articulate both their common interests and their unique roles.

Community colleges are proving especially adept at providing the education and skills training that will sustain the core of the new

middle class jobs. A survey the Department of Labor conducted with the American Association of Community Colleges (AACC), incorporating responses from 460 community colleges nationwide and representing over 115,300 students, revealed that the community college degrees and certificates most in demand by employers correlate extremely well with fields that the Bureau of Labor Statistics has identified as most likely to grow between now and 2005. These include nursing (associate degree and registered nurse); computer information systems; medical technician and allied health jobs, such as physical therapy assistant; emergency medical technician; radiology technician; occupational therapy assistant; respiratory therapy; dental hygiene; biomedical techni-

It has never been more critical that we cultivate the common ground between school and college, education and work.

cian; and nuclear medicine technician. Most of these jobs—all of which currently pay minimum average entry-level salaries of \$20,000—require some post-secondary education but generally do not demand four-year degrees.

I recently had the opportunity to speak with community college students from across the country. These students were a varied and determined bunch. There were single parents pulling off the near-impossible—working full-time, raising children and getting an education. Their colleges were helping them with creative adaptations such as "teleclasses" that parents can watch on television in their own living rooms and discuss afterwards by telephone with their professors. The students included dislocated workers aiming for a second career, convinced the only way to become immune from obsolescence was not to aim for job security, but to build employment security with a solid educational base. There were some traditional-age students, too, for whom community college had been the only feasible gateway to higher education—and who were now thinking about going on to four-year schools and bachelor's degrees. Some stu-

dents were returning to school having already concluded a career. One retiree's entrepreneurial spirit and interest in education had led him to earn first a certificate and now a degree in travel and tourism—which he was parlaying into a business providing tours for older and disabled travellers.

What struck me most forcibly about these students was not just the pride they took in their colleges, but also their utter conviction that education was their ticket up and out, the place where excuses stopped and opportunities began.

The data show that they are right. Research indicates that annual earnings grow at least 5-10 percent for each additional year of training or education a worker receives beyond high school. Interestingly, the positive earnings effects of post-secondary education do not appear to depend on whether or not the student receives a degree or on the type of education—c.g., vocational training, community college, or four-year college.

The bottom line is that skills and education are critical to developing new paths into the middle class—for experienced workers as well as those just starting out. Workers now have to be prepared to learn new skills throughout their careers, to be ready to apply them in new ways and in new settings. And this means that everyone who has a stake in this nation's future must help create and sustain a system of lifelong learning that gives all Americans continuous opportunities to learn.

The only way to establish common ground for all Americans is to restore paths to the middle class for those who have been left behind. "Average" Americans will feel—and be—secure only if the education and skills that the new jobs require come into their reach. It has never been more critical that we stake out and cultivate the common ground between school and college, education and work, the college-bound and those for whom "higher" education has up until now loomed far out of reach.

Robert Reich is the United States Secretary of Labor.

Responses to Robert Reich's article appear on pages thirteen, fourteen, and fifteen.

Health Science Partnerships: Preparing the Workforce for the Twenty-First Century

By Timothy P. Ready

Project 3000 by 2000 is a campaign of the Association of American Medical Colleges (AAMC) to increase the number of students in the nation's 126 medical schools who are from racial and ethnic minority groups under-represented in the medical profession. Although the Project officially began in 1991, it is best understood as a continuation and extension of work that has been going on for more than 25 years.

The initial push to make medical education accessible to students from all segments of our society was widely known as Project 75. Until the late 1960s, medical schools were highly segregated, with the vast majority of physicians in training being white men. Only about three percent of students were minorities, three-fourths of whom attended the two predominantly black medical schools—Howard and Meharry. On average, all other medical schools admitted only one minority student every two years. To address the injustice of this situation and to increase the number of minority physicians who would be motivated to address the severe health care needs of many minority communities, the federal government and private foundations provided financial support to medical schools to create minority affairs offices, hire personnel to recruit minority students, develop educational enrichment programs for minority college students, implement affirmative action policies and provide academic support services for minority students once they were enrolled.

Although Project 75 did not reach its goal of enrolling minority students in numbers proportional to their representation in the population at large, the percentage of minorities among beginning medical school students in 1975 rose to nine percent.¹ Even though most of the programs established in the early 1970s remained in place, minority enrollment would not advance beyond this level for more than fifteen years. During that period, the country's minority population

continued to grow, resulting in more severe under-representation in 1990 than in 1975.

By 1978, it already had become clear that medical schools' continuing efforts to increase minority enrollment were no longer working, so a blue-ribbon task force of medical educators was convened to analyze the problem and make recommendations. The task force found that the primary cause of stagnation in minority enrollment was an inadequate supply of well prepared minority applicants. Although medical school efforts begun during Project 75 were helpful and necessary, they were far from adequate. The task force recommended that medical schools form partnerships with the high schools and colleges that are primarily responsible for the academic preparation of minority medical school applicants of the future. Although this recommendation was not widely adopted at the time, it is the fundamental tenet of *Project 3000 by 2000*.

The goal of *Project 3000 by 2000* is that 3,000 under-represented minority students should enter the nation's 126 medical schools each year by the start of the next decade. This goal simply updates to the demographics of the 1990s what medical educators had sought to accomplish through Project 75. Before *Project 3000 by 2000* was officially launched in the fall of 1991, research conducted on the actual and potential minority applicant pool confirmed the primary conclusion of the 1978 Task Force. If medical schools are to substantially increase their minority enrollment, the size and degree of academic preparation of the minority applicant pool must be dramatically increased. To illustrate, approximately seventy percent of medical students have earned bachelor's degrees in either the life sciences or physical sciences.² In 1991, only 3,666 blacks, Hispanics and American Indians earned bachelor's degrees in these fields.

²Most medical schools strongly encourage applicants with broad educational backgrounds in the arts and humanities. However, because of the extensive science content in the medical school curriculum and many medical schools' prerequisite course requirements, most medical school applicants and matriculants have earned bachelors degrees in the sciences.

That same year, 4,363 blacks, Hispanics and American Indians applied to medical school. To reach the goal of 3,000 minority students entering medical school each year, it is immediately clear that two points must be addressed: (1) the number of minority applicants needs to be much larger; and (2) the number of minority students earning bachelor's degrees from the primary feeder disciplines is insufficient to meet the needs of medical schools, let alone the many other science and health related fields in which minorities are equally under-represented and needed.

Moving further back in the educational continuum, we examined data on the science skills of white, black, and Hispanic 17-year-old high school seniors from the National Assessment of Education Progress (NAEP). Specifically, we looked at the percentage from each of these groups who could use specialized scientific data in problem solving (NAEP level 350)—a skill level considered to be prerequisite for doing college-level science work. In 1990, only 1.5 percent of a representative sample of black 17-year-olds and 2.1 percent of Hispanic 17-year-olds had developed these skills, compared to 11.4 percent of whites of the same age. Combining this information with census data on the number of white, black and Hispanic 17-year-olds in the general population, we estimated that there are approximately 354,000 white 17-year-olds with the skills needed to study science in college, compared to fewer than 9,000 blacks and about 7,000 Hispanics. In fact, the numbers may actually be lower than this, since these estimates do not take into account the fact that many 17-year-olds (especially Hispanic and black) drop out of school.

Admittedly, these are rough estimates. But these data convinced us that any credible effort to significantly increase the number of minority applicants to medical school had to begin no later than the start of high school. Some studies have shown that summer academic enrichment programs sponsored by medical schools can be helpful, as evidenced by the fact that a relatively large number of
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Ready: Health Science Partnerships

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former participants eventually enrolled in medical schools. Many programs reinforce the motivation of already well prepared students by providing them with experiential learning opportunities in medical settings. Although they make an important contribution, no short-term enrichment program can take the place of a strong academic high school curriculum and access to a good college. Far too few minority students have access to either.

While the primary goal of *Project 3000 by 2000* is to increase minority enrollment in medical schools, the means to achieving that goal—harnessing the resources of the academic health centers to improve learning opportunities for minority precollege and college students—is no less important than the goal itself. *Project 3000 by 2000* calls on medical schools and affiliated teaching hospitals to be catalysts in their communities' efforts to improve the quality of education especially in the sciences. The academic health centers in which medical schools are based are often the largest enterprises in their communities and the largest employers. Usually, they also are the institutions with the largest concentration of scientific resources—human and material—in their communities. As such, they have both the means and the responsibility to enhance the quality of education available to the young people of surrounding communities. Nowhere is the need greater than in predominantly minority school districts in the vicinity of many of the nation's major medical centers.

Since *Project 3000 by 2000* officially began three years ago, many more medical schools are involved in a variety of educational partnerships that include local school systems, predominantly minority community-based organizations, and undergraduate colleges, many of which are affiliated with the same universities in which the medical schools are based. What does each institution have to gain from participating in these minority student-focussed partnerships?

As already described, medical schools are committed to the goal of increasing the number of minority physicians they train. However, history has shown that they cannot solve the problem of minority under-repre-



CARMEN LOMAS GARZA, CURANDERA (HEALER)

Healer

This is a scene at a neighbor's house. The lady in bed was very sick with the flu. She had already been to a regular doctor and had gotten prescription drugs for her chest cold. But she had also asked a healer, a curandera, to do a final cleansing or healing for this flu. So the curandera came over and did a cleansing using branches from the rue tree. She also burned copal incense in a coffee can at the foot of the bed. Curanderas know a lot about healing. They are very highly respected.

—Carmen Lomas Garza

Curandera

Ésta es una escena en la casa de una vecina. La mujer que está en cama estaba muy enferma con influenza. Ya había visto a un doctor y había conseguido una receta médica para sus pulmones. Pero también le había pedido a una curandera que le hiciera una limpieza final o cura para su enfermedad. Así que la curandera vino e hizo una limpieza usando ramas de ruda. También quemó incienso de copal en una lata de café al pie de la cama. Las curanderas saben mucho y ayudan mucho a la gente. Por eso se las respeta tanto.

(tr. Rosalma Zubizarreta)

sentation by acting alone. Medical schools are dependent upon undergraduate colleges and K-12 school systems to supply them with a sufficient number of well prepared applicants. An increasing number of medical schools are proving through their actions that they are willing to collaborate to increase the number of minority students who will be prepared not only for medical school, but for many other science-intensive fields, as well.

While the name, *Project 3000 by 2000*, reflects a goal primarily of interest to medical schools, other participants in these community partnerships have their own goals

that are congruent with those of the medical school. Other health professions' schools and postgraduate programs training scientific researchers are strongly encouraged to join in. Virtually all science and health related fields face a common problem of minority under-representation, and all have important resources that they can contribute to minority focussed community partnerships. The same is true for undergraduate colleges. For example, relatively few undergraduate colleges can be satisfied with the degree to which they now serve minority students and minority communities, especially when it comes to education in the sciences. If it were

not for a small number of historically black colleges graduating a disproportionate number of students with degrees in science, the already alarming scarcity of black and other minority bachelor's degree recipients in the sciences would be much worse. Producing minority graduates who go on to medical school can be one measure of an undergraduate college's success but, of course, it is by no means the only measure, or the most important measure. However, if a college agrees to participate in the partnership and resolves to take steps to better serve minority students, not only will that college likely produce more graduates who become physicians, but also research scientists, teachers, dentists, etc. Local school systems also have much to gain by participating in health science partnerships. High school educators also want to see their graduates become successful in fields such as medicine. Not only would more "success stories" among their graduates reflect well on the school system and the teachers working in it, but the success of graduates from a community's elementary and secondary schools is crucial to the long-term prosperity and well-being of the community, itself. No single partner—not the medical school, college, or school system—should be in a position to dictate the goals or structure of a health science partnership. All need to hear each other's concerns and interests, and then agree to work together to achieve a series of related student achievement goals.

For example, a public college in a partnership may wish to set a goal of doubling the number of minority students that it graduates with degrees in biology. However, even after taking steps to improve its own curriculum and learning environment, it may find that reaching this goal would be impossible if feeder school systems do not provide more minority students who are well prepared in the sciences. One or more school systems might then agree to set a goal of graduating X number of additional minority students who have completed a specific set of rigorous courses, and who will achieve a certain performance level on one or more standardized tests. With encouragement and assistance from the medical school, a school district may wish to pursue its goal by establishing a rigorous magnet or focus school

for the health sciences. The school district might also propose to work with its college and medical school partners to improve the quality of science education at all of the middle schools and high schools. The college would agree to assist the school system in the areas of teacher in-service training and curriculum development. The medical school also would agree to assist in these areas, as well as by providing high school biology students interested in medicine with experiential learning opportunities in medical settings. A collaborating dental school might agree to do the same thing for students interested in dentistry.

Although a comprehensive partnership such as the hypothetical case just described does not yet exist, many of the components already are in place. Every medical school in the country has appointed a *Project 3000 by 2000* coordinator, whose job it is to develop educational partnerships that eventually should lead to increased minority enrollment in the medical school. Over fifty medical schools have established partnerships with magnet health science high schools. Some leading examples include the Gateway to Higher Education Program, a partnership of the Sophie Davis School of Biomedical Education and the New York City Public Schools, the Baylor High Schools for Health Professions in Houston and Mercedes, Texas, and the Hopkins/Dunbar Program in Baltimore. Even more are working with school systems in science education partnerships in which medical schools collaborate with school districts on basic issues such as providing laboratory supplies, or by working on issues such as curriculum development or providing teachers with laboratory research opportunities during the summer. Medical schools with some of the more extensive science education partnerships with K-12 school systems include Baylor College of Medicine, the University of California at San Francisco, the University of Kentucky and Boston University School of Medicine. Through such partnerships medical schools are helping to improve the quality of science education available to students of all racial and ethnic backgrounds.

Partly as a result of the support given to *Project 3000 by 2000* by medical school leadership, the number of under-represented

minority students entering medical schools has increased 27 percent in three years. This enrollment gain was facilitated by a 40 percent increase in minority applicants, a rate of growth that slightly exceeded that of the applicant pool as a whole. Where are the additional minority applicants coming from? Since many of the partnerships developed under *Project 3000 by 2000* are new, one has to point to other reasons for the increase in well-prepared applicants. It is likely that some of the educational reforms of the 1980s, such as encouraging all high school students to take high level mathematics and science courses, are beginning to show results. Also, major investments made during the past decade by the National Science Foundation in minority-focussed science education programs like the Alliances for Minority Participation are probably helping, as are programs from the National Institutes of Health (e.g., the Science Education Partnership Awards), ongoing programs of the Bureau of Health Professions of the Public Health Service, and the Eisenhower grants of the Department of Education.

For a variety of reasons, the number of bachelor's degrees awarded to minorities in the sciences has risen sharply in the past few years. Through *Project 3000 by 2000*, medical schools intend to contribute to the continued improvement in minority student achievement in the sciences and health. Medical schools and teaching hospitals will offer hands-on learning opportunities to more minority students, work to ensure that students from all backgrounds know what opportunities exist in medicine, and endeavor to provide students from diverse backgrounds with access to those opportunities whenever possible. In conjunction with similar activities sponsored by other professions, medical educators will demonstrate to students who might otherwise be discouraged that the difficult academic lessons of school are important and relevant to their one day entering a satisfying professional career.

References are available on request from the author.

Timothy P. Ready is a senior staff associate at the Association of American Medical Colleges and is Director of Project 3000 by 2000.

New Legislation for New Partnerships

By Thomas W. Payzant with Tom Fagan

On March 31, 1994 President Clinton signed into law the *Goals 2000 Educate America Act*, and on October 20, 1994, he signed the bill reauthorizing the *Elementary and Secondary Education Act (ESEA)*. It is now known as the *Improving America's Schools Act (IASA)*. Taken together, these two pieces of legislation offer significant potential to reform and dramatically improve the education of our children.

Most significant is that this legislation focuses on raising the academic achievement of *all* students to a high level by supporting states and school districts as they establish high quality, challenging, content and performance standards for *all* students and align curriculum, teaching and assessments with their standards. However, putting things in legislation is one thing—achieving the goal is quite another.

We believe that educators at all levels must be involved. Universities are one of the important partners in the implementation of Goals 2000 and the improvement of teaching and learning in our schools. Certainly the education students receive at elementary and secondary levels has a profound effect on higher education. It is a national necessity that the education children receive be radically improved and the involvement of higher education in the effort is in the interest of its institutions, the students they serve, and the nation as a whole.

How can the universities be involved? First, they can participate with educators, policy makers, parents and others engaged in the development of content and performance standards in core academic areas. These are not to be confused with minimum competency requirements of the past: rather, these standards are to be challenging and high quality, asking *all* students to reach the

Thomas W. Payzant is Assistant Secretary for Elementary and Secondary Education in the United States Department of Education. Tom Fagan is Special Assistant in Compensatory Education in the United States Department of Education.

level of academic achievement now reached by only our best students. The attainment of these standards by students becomes a means of accountability for schools, school districts, and States. To help States in setting these standards, the U.S. Department of Education, along with other agencies and organizations, is supporting the development of model voluntary national standards in several academic areas.

Following the lead of the National Council for the Teachers of Mathematics, specialists in other academic disciplines, with broad-based involvement of teachers, admin-

The involvement of higher education is in the interest of institutions, the students they serve, and the nation as a whole.

istrators, business, and the general public are currently developing voluntary standards in core subjects, including science, history, geography, foreign language, and civics and government. Standards for the arts have already been completed.

While we expect these voluntary standards to be helpful to States as they develop their own standards, the States have the authority to adopt State standards that can be even higher. These standards will guide what is taught in schools. Universities can provide substantial assistance in this effort through the participation of experts in the academic disciplines and teacher educators.

Second, universities may have responsibilities involved in the development of state and local comprehensive reform plans. The development of standards by States will be part of an overall comprehensive plan for reform that will be put together by a broad based State panel. The Goals 2000 Act, in addressing the makeup of the panel, specifically mentions institutions of higher education. This provides an opportunity for representatives of university faculties to play a major role in the development of State plans and the academic standards that underlie the plan. It is difficult to overemphasize the

importance of these standards, and the role that university representatives can play in helping to establish them.

Third, it is in the self interest of colleges and universities to pay attention to the education their future students are receiving. Clearly, better prepared students entering colleges, universities, and other post-secondary institutions will demand more challenging curriculum and programs. As schools improve, post-secondary institutions will need to upgrade their courses and teaching as well. In addition, as States begin to set standards for students in terms of what they

know and are able to do, rather than the number of courses they complete, and as they design assessment systems that adequately measure how well students are meeting these standards, post-secondary institutions will have to develop new ways of evaluating their applicants and designing programs

for them.

Fourth, there is a role for universities in local communities. The development of comprehensive reform plans will also take place at district and school levels—most Goals 2000 funds go to districts and individual schools—and districts, like States, will utilize broad-based panels to develop those plans. Universities can play a key role through membership on these panels and providing assistance to them. Panels will need information about research on teaching and learning and ideas on how to translate State content standards into curricula for use in the classroom. They will also need help in building and maintaining support for change. And schools and school districts, like States, will need guidance on how to reach out to and work with the many constituencies whose support they need in order to carry out meaningful change.

Fifth, universities will be important as they reform teacher training programs to educate teachers who will lead the effort to help all students reach high standards. A crucial component of bringing about change in schools is making certain that teachers, administrators, and other educators have the knowledge and skills they need in order to

bring all students to high levels of achievement. This will require increased attention to both the content and pedagogy. Both Goals 2000 and IASA recognize the pivotal position that professional development—both pre-service and in-service—has in truly improving our schools. Goals 2000 does this in a unique way. Rather than relying on post-secondary institutions alone to provide professional development, Goals 2000 sees this as a joint effort between local school districts and post-secondary institutions.

Goals 2000 provides funds to States for grants to local educational agencies, in cooperation with institutions of higher education or nonprofit organizations, for both pre-service and in-service professional development. Note that in both cases it is the local district that is the recipient of the funds. There are two reasons for this. First, it is presumed that the district, in cooperation with its teaching staff, is the organization best able to assess the needs of its current staff and the knowledge and skills teachers it plans to hire will need. Second, it is the district and its schools that have the responsibility to see to it that all children reach the levels of performance in academic areas that have been established for them.

To meet that responsibility, districts and schools need to be able to greatly influence the training of their current and future teaching staffs. Therefore, Goals 2000 provides for the establishment of a partnership between local districts and institutions of higher education in providing this professional development. This approach is carried over in the IASA that will provide substantial support for professional development, again linked to content standards in the core academic areas, whether established under Goals 2000, as we expect many to be, or otherwise established by States. The emphasis on academic content, a key factor in the IASA as well as in Goals 2000, encourages involvement of academics in those various disciplines as well as academics from schools of education.

In summary, Goals 2000 and IASA mark a new approach toward trying to improve

the education of children who are most at risk of failure. In the past, ESEA has sought to improve the education of these children by providing additional resources— money translated into extra teachers, materials, and support services—while having little effect on the regular school program. Chapter 1, for instance (\$6.3 billion in fiscal year 1994), provides dollars to school districts to support extra educational services to children in schools with high concentrations of poor children.

These extra services have typically been primarily remedial instruction for children

Rather than being an “add-on” program, IASA becomes a source of assistance so that all children will succeed in the regular school program.

who are behind. Typically the served children are removed from their regular classroom for part of the day to receive this extra help. This approach usually does not seek to change the basic program of instruction that the children participate in for most of the school day. Instead, it seeks to supplement it. The “add-on” nature of this method has led to development of a parallel education system in many districts, where Federal programs are operated separately from the regular school program and where individual school faculties may have little influence or control over the special instruction the children receive.

Goals 2000 and the new IASA seek to change that. The reform plans that Goals 2000 will support are not plans for use of Federal dollars or for Federal programs; they are plans that States, districts, and schools will use to bring all children to high levels of achievement, combining State, Federal, and local resources into a unified program of instruction. Rather than being an “add-on” program, IASA becomes a source of assistance so that all children will succeed in the regular school program. Goals 2000 supports the development of plans, including standards and professional development and

IASA helps States, districts, and schools carry out those plans, but the plans are for the entire program of instruction, not for separate Federally sponsored activities. The goal is a formidable one—to substantially reform teaching and learning in every school in the country not for the sake of reform, but to bring all children to high levels of achievement.

The reform will be comprehensive, not piecemeal, seeking to improve all aspects of the educational enterprise at once and bringing them all into alignment so all are mutually supportive of one another. Professional

development will be directly related to instruction in the content areas; parental involvement will be a major component of each child’s learning to the higher standards; school plans will be based on student achievement; and assessment systems will measure how well children are learning the con-

tent they need to master. There will be substantial need for help in both developing these plans and carrying them out, and universities are certainly institutions that can provide the help. Here are a few suggestions on how to begin.

—Contact the State education agency and the governor’s office about participating on the State panel and in the panel’s activities. This participation is not limited to membership. Panels have the large and very important task of establishing the State plan for reform and will need help from many sources in doing so. This help will range from the technical areas of standards and assessment and use of technology to practical matters of organization and public engagement.

—Determine which local districts plan to participate in Goals 2000 and offer assistance in developing applications to be sent to the State. If the application involves pre-service or in-service education, seek to become a partner with the district in its project. If the application is to develop a local plan, get involved at the local and the school level in developing and carrying out the plan.

—Assemble information on content and performance standards and assessments that

(continued on next page)

Payzant: New Legislation

(continued from previous page)

will be useful to State and local panels. This will be a new area where many panel members will need help and support.

—Express support for State and local efforts to establish high standards in academic areas. These academic standards are sometimes misunderstood as attempts to modify values parents believe are important for their children to hold.

Above all, it is important for all of us to become engaged in this effort. It is not an overstatement to say that the future is at stake. While the goal of universal public education is central to America's commitment to a high quality education for all its children, it is also imperative that all children become prepared to participate in a high-skill, high-wage work force. Over the past several years, many States and communities have made substantial steps at reform: Goals 2000 makes the Federal government a partner in this effort. We ask everyone to join in.



ARCHIBALD J. MOTLEY, JR., PLAYGROUND (RECESS), 1940

Whitaker: The World of Work

(continued from page five)

Playground we include some comments by Harriet O. Kelley that appeared in a recent issue of *JAMA: The Journal of the American Medical Association* (June 15, 1994).

On the back cover, to accompany the essays on partnerships with business by Edward Kisailus, Thomas Persing, and Thomas Furtado, we have reproduced Charles Demuth's painting of 1921, *Business*. No doubt the regular grid, the calendar, and the dominating digits in this painting suggest an impersonal world of office work. But Demuth has here transfigured that world through an asymmetrical composition, some unpredictably angled and shadowy reflections of buildings, and refreshing delicacies of tint. We can here discern the creative human factor—the basis for all our optimism about the world of work—not in the explicit “subject” of the painting but in the artist's subtle rendering of its motifs.

While New York City, in particular Harlem, was the center of the Black Renaissance in the late teens and 1920s, Chicago artists . . . provided a second home for this rethinking of black life and culture. One . . . was Archibald Motley, Jr. (1891-1981). Born in New Orleans . . . he was the son of Mary and Archibald Motley, Sr., and the grandson of ex-slaves. By the time he was nine years old, the family, of Roman Catholic and Creole origin, had settled in Chicago. . . . Mary was a school teacher and Archibald, Sr., a Pullman porter, both very respected occupations for blacks at that time. . . . Because they were considered to be middle class, the family lived in a neighborhood richly populated by Europeans, mainly German, Irish, and Swedish peoples. Motley attended good schools and rarely experienced racial incidents. . . .

[Nor did Motley experience] such prejudices at The Art Institute of Chicago. . . . A very good student, he developed into an excellent portrait painter. . . . Having very few buyers for his portraits, Motley turned to genre, choosing scenes that he had observed as a child. He depicted blacks at fun and work in the area of Chicago known as Bronzeville. . . .

[After a year in Paris on a Guggenheim fellowship, Motley returned to Chicago and] became involved in Treasury Department art projects and the Federal Art Project of the Works Progress Administration. It was during this period that Motley painted “Playground,” a study for a mural project for the Doolittle School in Chicago that shows his determination to draw his subject matter from his African roots. . . .

“Every artist should express his own soul,” wrote Motley. Perhaps the essence of that soul is summoned up in another, prophetic, quotation by the artist: “To me, subject matter plays a most important part in my art. It is my earnest desire and ambition to express the American Negro honestly and sincerely, neither to add or detract, and to bring about a more sincere and brotherly feeling, a better understanding between him and his white brethren. I sincerely believe Negro art is some day going to contribute to our culture, our civilization.”

—Harriet O. Kelley

Toward a New Vocational and Career Education

By Edward C. Kisailus

Education during the 1980s was reform-driven by the report entitled "A Nation At Risk." That report called upon university faculty and school teachers to work together to enhance and update teachers' knowledge, especially in science, math, and technology. Since then other reports and national programs have provided frameworks for curriculum reform, student assessment, and most recently national goals for education. These have become the standards for excellence in education in the 1990s. Today these partnerships have taken the lead to address and change education to become more learner-centered.

A new challenge faces American education and a new partner has entered the university-school partnership. The new partner is American business. The challenge is that the workplace is changing, and these changes are gradually rendering education, as traditionally delivered, more and more unconnected to what its graduates need to know and how they need to perform at work.

This newly forged partnership to include business raises some questions: 1) What role should university-school partnerships play in preparing students for the world of work?, 2) How can business join, or forge, partnerships with universities and schools to assist in this effort?, and 3) How in this context should we define vocational and career education?

Schools and universities must continue to work together to design education paradigms. The new direction for education retains the option of post-secondary education for all students while they are at ease with the demands of real-world tasks, and equipped to continue learning. The present conflict between workplace preparation and preparation for university education is being eliminated. What then should the role of the university-school partnership be in this context? Several recommendations can be made: 1) Subject area content is a critical mass of knowledge to be mastered and learned. Pedagogic issues must be opened

to debate to make the classroom more interactive and student-learner centered. 2) Student outcomes standards must indicate their skill and knowledge levels. Thus, teachers' curriculum and pedagogic skills and approaches need to be appropriate to the standards. 3) Teachers are expected to learn and to be able to use the current concepts and methods of the new curriculum and technologies. Innovative approaches, long-term commitments, and sharing of resources are critical to attain this goal.

What then is business' role in the partnership, and how might partnerships be joined or forged? What brings business into the partnership is the near elimination of low-skilled jobs and the upgrading of middle-level jobs. The rate of change due to the globalization of business and technological advances limit the value of current knowledge or skills. Competition, consumer demand, and accelerated pace of change in combination with the availability of technology are pushing business to rethink their workplace. They are restructuring to reflect the team concept-modular organization, and worker concerns for quality and pace of work. At the same time, more advanced equipment or modern procedures call for increased technical skill, workers able to perform a greater number of ever changing tasks, and supervisors with a fuller understanding of the whole product, and how to meet customers' needs. Business enters the partnership with an interest to work to develop competencies from the shop floor to the executive suite. The competencies include resource management, interpersonal skills, information management, systems interrelationships, and technology literacy. The basic foundations for these competencies in education begin with the basic skills related to content in mathematics, science, technology, reading, writing, listening, and speaking; thinking skills related to creativity, problem solving, decision making, reasoning, and knowledge how to learn; and, personal skills developing responsibility, self-esteem, sociability, self-management, integrity, and honesty.

Business brings to the partnership its needs in terms of learner outcomes or skills re-

quired. Skill requirements change through time and the demands of the global information economy raise standards significantly for workers. American businesses need to reach a consensus on such standards and how to adapt to an ever changing environment. They must bring this consensus to the partnership.

How then in the context of the university-school initiatives and the consensus needs of business is vocational education and career education defined? There are models of instruction being explored in education that are currently practiced in industry. These are apprenticeship-like learning experiences with students engaged in hands-on, real investigations, where they use a variety of means and materials to solve problems, engage in individual and group activity, and rate students based on intellectual strengths, subject interest, and learning styles. These new directions in education have changed the structure of the classroom to a more learner-centered, group interactive environment. Thus, conventional education is changing to mirror the aspects of the workplace changes driven by competitiveness and technological revolution. One may argue that this is the vocational education of old that recognizes that learning by doing is more effective in connecting graduates' knowledge and what they need to know to perform at work. The definitions of vocational education and career education then are becoming blurred with this new paradigm of education. Narrow training or task learning soon becomes obsolete in the changing world. Today properly taught technical education has considerable academic content and will have even more in the future as higher theoretical and conceptual skills require. In the past, participation in vocational education precluded college attendance. Today attending college is not a one-time only decision. The university-school-business partners' objective should be to stimulate academic achievement and career readiness among all students. Unlike the division of the past between vocational education and career education, a major objective of the partnership should be to foster lifelong learning for all.

Edward C. Kisailus is Professor of Biology at Canisius College in Buffalo, New York.

The Role of Apprenticeship Programs

By Thomas E. Persing

The graduates of secondary schools and universities in the United States are competing in the global work market. We must establish new partnerships between universities, schools, and business which will enable U.S. citizens to be more successful, especially in their early formative and competitive ages of 16 to 23. Currently there is a perilous transition from school to career. If we forge new relationships between universities, school, and business which are designed to break the established habit of having sixteen-year-olds become part of the hamburger flippers of the USA and then waiting to mature seven or eight years before getting a real job, or of disregarding the 50 percent who enter college and fail to graduate, we will have found a way to dramatically improve the economic health of the USA.

In this respect, not all First World countries function the same. Germany, to cite only one example, has a different education/work partnership. From the outset, let me hasten to say, I am not proposing that the United States adopt what has been happening in Germany for over a hundred years. Our culture would need to adapt, not simply adopt.

All students in Germany attend elementary schools K-4 or K-6. They then enter into one of three different types of middle or secondary schools. To the *Gymnasium* go the most academically able students, based on tests and teacher recommendations, to prepare for entrance into the University. Those who are very capable academically and also have practical skills and interests other than medicine, law, government and the like, enter the *Realschule*, which is composed of grades 7-13. The *Realschule* specializes in either commercial or technical fields. The least academically talented enter the *Hauptschule* which is *not* viewed as not having an advantage when entering the labor market.

Thomas E. Persing is Superintendent of North Penn School District in Lansdale, Pennsylvania.

Despite these differences in aim, all three secondary schools have a common core of academic subjects. What is more, German universities have a much more narrow curriculum overview. Students receive 13 years of secondary education, which is a broad, liberal, and general education. They are admitted directly into chemistry or sociology departments and also into medical and legal studies.

Using this as an introduction, I would like to focus on one aspect of the German education system as something the United States could adapt and adopt. This is the Apprenticeship Program or Dual System, which is a combination of apprenticeship with part-time vocational schooling. This system re-

The apprenticeship program requires a joint effort of business, government, union, and employers' organizations.

quires a joint effort of business, government, unions, and chambers (*Handwerkskammer* and *Industrie-und Handelskammer*), which are employers' organizations. The Apprenticeship Program is recognized as the true source of a skilled workforce which sustains Germany's international competitiveness.

Students entering the *Realschule* or the *Hauptschule* can become directly involved in preparing for a career by becoming apprentices. The student will attend school for one or two days per week, and will receive on-the-job training three or four days per week. The student will be paid about \$3,000 the first year, \$5,000 the second year, and about \$7,000 the last year. All salaries are paid by the employer. The student becomes more productive each year, but fundamentally it is the skilled training which is the purpose of the apprenticeship. This type of investment by the employer is not rewarded until after graduation, which is the 13th year.

The academic education is geared toward applied subjects which have a direct bearing on the career being pursued by the apprenticeship. The curriculum is a result of

cooperation among business, labor unions, government, and chambers. Furthermore, the apprenticeship is under the tutelage of a master who will determine when the apprentice may take the test which will signal his opportunity to become a craftsman.

It is important to know that there is always the opportunity for an apprentice to take the examination and secure an arbiter which is necessary for entrance into a University. Also, many of the owners of small businesses, and CEO's in large business are graduates of the apprenticeship system.

In the United States, the university establishment could play an important leadership role by using its influence to persuade business leaders, the government, the educational community, and labor unions to cooperate and create an apprenticeship program in the United States.

The key features of an apprenticeship system as proposed by Stephen Hamilton in his book *Apprenticeship for Adulthood* are as follows:

- Workplaces and other community settings are exploited as learning environments;
- work experience is linked to academic learning;
- youth are simultaneously workers with real responsibilities and learners; and,
- close relationships are fostered between youth and adult mentors.

Secretary of Labor Robert Reich and Secretary of Education Richard Riley have already demonstrated their desire to move forward on this proposition. One could easily imagine how this proposal could be accelerated if a prestigious university such as Yale would openly embrace the concept. The University has nothing to lose but can advance its reputation as a concerned member of the economic web which weaves opportunities for the less academically, socially, and financially advantaged members of the future work force. The University will not have any competition from the apprenticeship crowd that would lessen its enrollment capacity. However, lending its leadership and commitment to the apprenticeship model would greatly influence business and government officials to look more seriously to-

Building Partnerships with Business

By Thomas Furtado

ward the establishment of an apprenticeship system in the United States.

An American business which is geared to monthly progress reports and quarterly earning reports, which innately distrusts young people as workers and has great difficulty with long-term investments, will need the encouragement of tax incentives. The University could help influence the government to help realize this necessity.

More to the point, universities could create new relationships with secondary schools by preparing teachers to teach the application aspects of math and science. Teachers in current service could attend workshops and staff development courses to foster an in-depth knowledge of what must be necessary to be successful in the world of work.

Of more importance, universities, business and secondary schools could form partnerships in teaching and learning how all academic subjects, including math, science, history, and language study, could be presented and taught to secondary students in ways which would show them immediate practical applications in various career choices. Partnerships of this nature will break the mold of current relationships. New alliances based on trust and respect will be necessary. I know of no entity that has the respect of society other than the University, that could better muster these forces in a cohesive and productive manner. Following Robert Kennedy's lead, we should ask: If not the university, then who? If not now, when?

I fully recognize the virtual impossibility in a short paper of making the reader cognizant of apprenticeship programs, the necessary business and government involvement, and the role of secondary schools in the preparation of youth for their transition into the world of work. However, I list a few references for those who wish to become further involved.

References

- The William T. Grant Foundation Commission on Work, Family and Citizenship. (November 1988). *The Forgotten Half*. Washington, D.C.
- Hamilton, Stephen F. (1990). *Apprenticeship for Adulthood*. New York, New York: The Free Press.
- McAlams, Richard P. (1993). *Lessons from Abroad*. Lancaster, Pennsylvania: Technomic Publishing Co.
- Reich, Robert B. (1991). *The Work of Nations*. New York, New York: Alfred A. Knopf.

Back in the mid-eighties, I served on a National Commission on Vocational Education created by the U.S. Department of Education. It was a follow-up on the group that had produced *A Nation at Risk*. We were tasked to look at how vocational education was serving the large numbers of young people who do not go on to college, and how education could improve its efforts in this field. As part of our work we visited many different vocational programs across the country.

One of the most memorable moments of that experience for me was a visit to the Skyline Center in Dallas. At that time it had a national reputation as a high school of the highest quality that required every student to take vocational education. A very high percentage of its graduates went on to the best colleges and universities in the country, but all students had to immerse themselves in projects that taught them the value of creative manual skills.

I remember having lunch with a group of such students during our visit. One of them, a boy with combined SAT's of 1550 and an acceptance at Harvard, was telling me about his project. He and several others had spent the past year building a full-size, two-passenger plane. I will never forget how he summed up that experience: "It was the most exciting and the most stimulating thing that ever happened to me, and it brought together everything I've ever learned at school. I now know what learning is all about."

I have often thought about that meeting and those words. Maybe the reason they had so much meaning for me is how they echoed what I have long believed about education. We have been so obsessed with content instead of process, and we have so often isolated the content in the classroom from the context of adult life, especially the life of work. One of the most important tools needed in adult life is the ability to solve problems. Not the least of the subsets of that skill is relating what we know to a larger context that gives it meaning and relevance.

Thomas Furtado is Corporate Ombudsman at United Technologies in Hartford, Connecticut.

Most children begin searching for academic relevance to their lives as they move into the middle-school years. That is when many of them begin to question the value of the educational experience. The lucky ones, who love learning for its own sake, aren't deterred when the curriculum doesn't seem relevant. They excel in school anyway, because values and support systems at home have given them the motivation to succeed. Two groups, however, frequently have problems in schools where memorizing and regurgitating data is the norm and ultimately a serious turn-off.

The first group is the obvious one—children who begin to demonstrate deteriorating performance and skills, and become marginal students as they enter middle school. For whatever reasons—home environment, health, poverty—they have fallen behind. Trying to relate what happens in the classroom to what is happening outside the school, they see no connection, no relevance. Why bother?

The second group of affected children may be less obvious to some observers. I'm referring to gifted children. For all the success stories about them, there are equally compelling stories about school failures, marked by isolation, belligerence and boredom. The literature suggests that the boredom is usually the cause of the other two. Schools with programs for these children manage to minimize the problem, but in Connecticut this year we have seen budget cuts in several school districts that closed down these programs.

I have two very vivid memories about these groups. The first goes back twenty years and it happened at Pratt & Whitney. We hired a young man to work on our jet engine assembly floor. His task was to work at the bench, putting together a small sub-assembly for the product. The instructions for the process were portrayed on a light board in front of him. The instructions required eighth grade reading level and he came to us with a high school diploma from a good suburban school. It looked like a great fit, but it wasn't. Within a day his foreman realized that this young man could not read the instructions.

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Building Partnerships with Business

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We arranged to have his reading tested by a consultant at the local high school. He tested at a fourth grade level. We moved him out of the department into a lesser job, arranged for private tutoring, and in four months he was back to the original job, fully competent to read the instructions. Now obviously a private tutor was a big help in getting our friend up to speed, but I suggest that the connection between learning to read and a job was another big factor. I understand that it's much harder to establish that kind of relevance in the school, but we need to make some sort of cooperative effort to do so.

That leads me to the second recollection on this issue. Several years ago, over lunch with a superintendent of schools, we got on the subject of gifted children. He talked about how hard it was to structure meaningful experiences for them. As he went on, we began to explore how business could help. We saw many connections, but both of us agreed that we didn't want a haphazard kind of program. We wanted a structured approach that would be built into the curriculum, grade by grade.

He arranged for me to meet with the math and science coordinators in the school system. Would they be willing to let us have outlines of the science and math curricula in the middle and high schools? We would then try to find work experiences in our labs and shops that would match the curricula. We would also free up scientists and engineers to come to the schools to speak on relevant subjects. Bus trips could take the gifted students to laser labs, sound and wind tunnels, jet engine testing cells, etc.

Both coordinators agreed to talk to faculty and get us the curricula outlines we needed. The meeting ended on a high note. It never regained that lofty position of collaboration. After several calls to the coordinators over four months time, with very little concrete answers, I asked the superintendent what was happening. When he got back to me a few days later, he said, "The faculty have rejected the idea. They don't want business messing with curricula."

What a lost opportunity. How have we gotten to a situation where there is so little trust? How can we improve things? It seems to me that in the Yale-New Haven experi-



CHARLES DEMUTH, *BUSINESS*, 1921

ence, there may be a kernel of hope. Perhaps what we need to do first is bring individuals from business and the schools together in a common project. For years we have brought vocational education teachers into our shops for the summer. Why not do the same for middle- and high-school teachers, not simply to give them a job, but rather to explore experiences that could be woven into high school curricula?

My last thought is that college faculty could be facilitators in this process, perhaps visit-

ing the industrial setting with the teachers, and working with them to create lesson plans.

As adults, most of us spend over half our waking hours at work. Somehow we need to let our youngsters in school know that work is a very valuable part of our life and that what they learn in school has relevance to their future lives. We don't have to do this in an exploitative way. With the right kind of planning and collaboration, we can make it a creative learning experience.

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