

Congress May Look At Separate Voc Ed Reform Bill

The 105th Congress may opt to overhaul vocational education separately from job training next year, Capitol Hill staffers and voc ed officials say.

Voc Ed Reform

"Doing something more narrow in scope ... has a better chance of moving through

[Congress] quickly," said Nancy O'Brien, assistant executive director of government relations for the American Vocational Association.

It's important to push through a bill reauthorizing voc ed from a funding point of view, she said. Funding authority for programs under the Carl D. Perkins Vocational and Applied Technology Education Act has expired, although a catch-all fiscal 1997 funding law keeps the programs operating.

Yet O'Brien expects more than a simple Perkins extension.

Both lobbyists and congressional staffers, who spoke on background, are cautious not to say lawmakers would cast aside the idea of state block grants.

"I have an inclination to believe that, somehow, block grants are not behind us," said Kim Kubiak, associate executive director of the National Association of State Directors of Vocational Technical Education.

She added that Republicans won't forget a General Accounting Office report that said merging Education and Labor department programs would save \$1.65 billion in administrative costs over five years.

Starting Block

ED says it will use a reform plan it sent Congress last year as a starting point for drafting a new proposal. Department officials plan to meet with community groups Friday, followed by one-on-one sessions next week, to pool ideas on voc ed reform.

The department's previous plan drew heavily from definitions, outcomes and aims of the 1994 School-To-Work Opportunities Act.

It would have merged 23 Perkins Act programs into a \$1.14 billion block grant for state and local activities and another \$37 million for national programs.

Missed Chance

If, however, Congress does opt for a massive vocational training consolidation, Democrats may have missed their best opportunity to secure separate funding for the federal school-to-work program in the 104th Congress.

A more conservative Senate will probably be less willing than the last congressional session to split school-to-work funding from a bill that would pool all the vocational training funding in state block grants, some lobbyists say.

"These people are not going to be breaking down doors to support school-to-work," said Michael Brustein, a Washington, D.C., lawyer who tracks vocational training issues.

"The numbers are going to be greater now to fight the separate school-to-work piece."

To push this year's vocational training bill through, Sen. Nancy Kassebaum, R-Kan., was prepared to strike a provision that would have repealed the School-To-Work Opportunities Act.

—Matthew Dembicki

Overselling College

Politicians and other public figures continue to ballyhoo the benefits of a bachelor's degree. But promoting the American myth that college is for every kid may not be so smart after all.

By Rochelle L. Stanfield

It's called the Homer S. Gudelsky Institute for Technical Education at Montgomery College. If you think that sounds awfully grand for a county-run public school that teaches subjects such as auto mechanics and construction trades, you should see the place. Located in the swank Washington suburb of Montgomery County, Md., it has a two-story lobby decked out with a cathedral ceiling, soaring windows and sweeping staircase that could easily grace a high-rent office building downtown.

But it's all part of a deliberate—some might say desperate—ploy to upgrade the image of such technical schools, and thus attract well-prepared students into the institution's post-high school training programs.

"We're making a statement: 'This is a desirable profession,'" Gudelsky Institute director George Payne explained. "So we want the place to look upscale. We emphasize its cleanliness and attractiveness. And we always use the word 'profession.'"

That such tactics are necessary at a time when the Washington area has thousands of unfilled, high-paying technical jobs is a telling commentary on the lack of reality and practicality in American postsecondary education.

From President Clinton, business leaders and just about anybody else who commands authority, the word has gone out that education after high school is essential to land a good job. But the word that they are using is "college"—and that is giving rise to the misguided canon that a bachelor's degree in liberal arts is the key to success.

House Education and the Workforce Committee chairman William F. Goodling, R-Pa., bluntly summed up the problem earlier this year. "We're overselling college: the four-year, traditional conception of a college education."

Former Labor Department Secretary Robert B. Reich, an avid promoter of higher education and technical training while he was a member of Clinton's Cabinet, agrees. "Too many families cling to the mythology that their child can be a success only if he or she has a college degree," Reich, now a Brandeis University professor, said in a recent interview. "Sadly, far too many young people are going to college who are not

finishing college, and who are finding that what they're being trained for in college has little or no relevance to getting a good job."

Nevertheless, the hyping of higher education is snowballing. Clinton on March 20 gave Congress HOPE: the Hope and Opportunity for Post-Secondary Education proposal. The White House in announcing the package—which provides tuition tax credits and deductions, and boosts the Pell grant financial aid program—proclaimed, "Today, the President will send to Congress new legislation to help open the doors of college to more Americans."

During his first term, Clinton had focused on technical education and the transition from school to work for the three-quarters of Americans who don't get a bachelor's degree. But by the 1996 campaign, all the rhetoric pointed toward college. That's what middle-class voters wanted to hear, according to public opinion polls and political pundits, regardless of whether it made sense for national education or economic policy.

Apart from Clinton's initiatives, two other major postsecondary education measures also await Congress's consideration: a comprehensive vocational education plan that would, among other things, provide training vouchers, which failed to pass last year, and the 1965 Higher Education Act, which will have to be reauthorized next year.

The experts see troublesome incongruity in this hodgepodge of higher education proposals. "We've been working closely with the [House] Ways and Means Committee staff to try to figure out how it all fits together," said Victor F. Klatt III, the education coordinator for the Education and the Workforce Committee. "We don't know. I don't think anybody knows."

All of that may need to be sorted out. What is more important for politicians and policy makers to come to terms with, however, is whether they should even continue the current crusade for universal college attendance.

"We have a very flexible [postsecondary education] system, but it's also very messy," said Samuel Halperin, co-director of the American

Youth Policy Forum, a Washington-based nonprofit group. "Lots of people's lives get messed up in the process, and lots of money gets wasted."

ITCHING FOR THE IVY

Americans have bought into the dream of a college education for everyone, but not into all the prerequisites for getting a degree.

"Why would parents knowingly spend thousands of dollars, a lot of it borrowed, to send their kids off to almost certain failure?" asked Kenneth Gray, a Pennsylvania State University education professor who advocates technical training, rather than college, for many high school graduates. "Yet that is exactly what is happening."

These days, teenagers don't spend much time fretting over whether they should go to college: 96 per cent of those recently polled by the New York-based Public Agenda Foundation termed it "important." Of 1992 high school graduates, 70 per cent had enrolled in a two- or four-year institution by 1994, according to Clifford Adelman, an Education Department researcher who closely follows statistics in this area.

Yet many who enter the ivy-covered precincts are ill-prepared. Nearly four-fifths of institutions that accept freshmen say that they offer remedial courses, and nearly one-third of entering freshmen take at least one remedial course, according to an Education Department study.

Not surprisingly, ever-greater proportions of college students are dropping out.

American College Testing (ACT), the Iowa-based testing service, reported in 1996 that 27 per cent of freshmen at four-year institutions failed to return for their sophomore year, the highest attrition rate in the 13-year history of its survey. At two-year institutions, 44 per cent dropped out. And Adelman calculates that only 45 per cent of the students who graduated from high school in 1982 and earned at least 10 college credits had received a bachelor's degree by the time they were 30 years old.

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Overselling cont. (2)

Higher education has no money-back guarantees. Because the overwhelming majority of college students get financial aid—and because 57 per cent of that assistance is loans, rather than grants—most dropouts are left with big debts and mediocre immediate job prospects to earn the money they need to pay them off. The New York City-based College Board figured that the average federal college loan in 1996 was about \$3,500, while parents' unsubsidized loans amounted to \$5,700 on average.

Moreover, many of those who obtain a bachelor's degree discover it doesn't live up to its advertising. Many find that they need additional schooling—often in a technical subject at a community college—to get a decent job.

Take Michele Gladieux, who earned a bachelor's degree in French from the University of Virginia (U.Va.) in 1992. "During that whole spring I looked for jobs to teach French," the 26-year-old recalled recently. "I did a fair amount of hunting around, but never really came up with anything."

Meanwhile, she discovered a new, more practical interest: physical therapy. So she spent two years at Northern Virginia Community College (NOVA) taking all the science courses that she had skipped at U.Va. "Nearly 80-90 per cent of my classmates at NOVA were students who already had a B.A. [but were] trying to go on into different [professions], like physician's assistant or occupational therapist," she said.

Gladieux eventually enrolled in a master's program at the Medical College of Virginia, from which she is about to graduate. "I could have started school and gone for five years and gotten a bachelor of science in physical therapy, and done exactly what I'm doing now," she said.

"But I don't regret it," she added. "I'm lucky. Somebody helped me pay for it."

That somebody was her father, Lawrence E. Gladieux, executive director for policy analysis in the Washington office of the College Board, who views his daughter's saga as one example of a system that's out of control.

"There are a lot of larger questions we need to be asking," he said recently. "How many college-degree holders do we need? How many people do we need in our society who have advanced education? What levels?"

But Gladieux added that policy makers and higher education officials are ill-equipped—or perhaps

unwilling—to grapple with such questions. "Instead, at the federal level for the past 25 years, we've taken the path of least resistance and said, 'The marketplace will decide,'" he said. "Now the postsecondary marketplace has a lot of problems."

UNCONVENTIONAL WISDOM

Students have many reasons to go to college, but the bottom line is the bottom line.

More than three-fourths of freshmen surveyed last fall for an annual study commissioned by the American Council on Education checked off "to get a better job" as a very important reason for going to college, and 72 per cent said "to make more money." Those sorts of answers merely parrot what adults—the President, their teachers and their parents—tell young people all their lives.

Indeed, most official pronouncements made on the issue by the President or by advocacy groups of all stripes are accompanied by charts depicting the so-called wage premium for a college education. The median income of men 25 years and older who had a bachelor's degree in 1994 was 73 per cent higher than that of similar men with just a high school diploma, according to Education Department statistics. Women with a bachelor's degree averaged twice the income of women with only a high school diploma.

Many young people and their parents take such statistics at face value. They deduce that going to college, therefore, must at least double your future income. But some economists are skeptical of such conventional wisdom.

Looking at the question of why college graduates generally make more money, Robert D. Reischauer, a senior fellow in economic studies at the Brookings Institution, pointed out: "Is it something that college is filling these young empty minds with? Or is it the inherent ability that these people are bringing to their jobs? It's probably more of the latter than the former."

Arthur M. Hauptman, a Washington-based education consultant, agreed with Reischauer's assessment. "We don't control [in computing these figures] for ability, so the fact that people who went to college, by and large, are going to have a better prospect anyway doesn't get factored in," Hauptman said.

Others fear that this skepticism could lead to serious socioeconomic equity problems. "There's a huge payoff to a bachelor's degree—and it's huge for people who started out poor,

who are black and brown," insisted Kati Haycock, director of the Education Trust, a Washington-based advocacy and research group.

"The rich will go to college no matter what," she said. "So, any kind of suggestion that not everybody should go basically is a license to higher education, and society generally, to keep poor people out."

Skeptical economists agree with Haycock that everyone should have access to higher education; many say that federal aid and cheaper community colleges already provide wide access. But they still reject the blind acceptance of the numbers used to support widespread college-going.

"We don't do a true rate-of-return calculation," Hauptman said. "How much does it cost you to go to school, and what is the increase in earnings for going to that particular school? There are real data limitations here." For that reason, he is working on convening a group of education economists to take a closer look at these questions.

Perhaps the most insidious fact about the wage premium is that it is a negative measurement. The growing difference between the wages of college graduates and high school graduates doesn't reflect higher wages for the degree-holders—but rather dramatically lower earnings for those with just a high school diploma.

"The real value of a college education is not going up, it's going down," Anthony P. Carnevale, vice president for leadership in the Washington office of the Educational Testing Service, said. "If you're a kid looking to go to college, you know two things: If you don't go, you're in big trouble. If you do go, you won't do as well when you graduate as the people who went before you."

Thus labor economists worry about the real impact of increasing the proportion of high school graduates who go to college, as the President urges. "Adding a lot more college graduates, I think, would decrease inequality primarily by driving down the wages of college graduates more than they already are declining," said Lawrence Mishel, research director of the Economic Policy Institute, a progressive economic think tank in Washington.

"To me, the problem is, why is it that people who go to high school can't earn a decent wage? I think it's not about their skills, it's about their power in society and the economy," he said.

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Overselling cont. (3)

SKILLS V. CREDENTIALS

The college degree as a ticket to a good job is less an indication of the subjects mastered in college, many education skeptics insist, than it is a sign that skills were not adequately learned in elementary and secondary schools.

"A lot of the increase in the gap [between the earnings of high school and college graduates] has been due to employers' suddenly having a need for numerate-literate kids, but they can't trust a high school diploma to mean anything on those grounds," Frank Levy, a Massachusetts Institute of Technology urban economy professor, said.

Levy—co-author with Richard J. Murnane of *Teaching the New Basic Skills: Principles for Educating Children to Thrive in a Changing Economy*—added that employers these days "are using a bachelor's degree to certify skills that should be certified by the 12th grade."

Taking the same tack, Reischauer said, "The fact that it takes 16 years in the American education system to learn what the Japanese learn in 12 years never causes people to pause and to say, 'There's a lot more efficient way of doing this.'"

Clinton's 10-point education agenda does include proposals to raise the standards for elementary and secondary schools, and calls for voluntary national tests to document whether students are meeting those benchmarks. Little attention has been devoted, however, to that part of the agenda, which has been all but crowded out by the focus on a tax break for college tuition.

"It's sort of a dessert and spinach problem," Levy said. "You put both out there, but the standards—the spinach—are really hard work, while the other is very attractive, so Congress says, 'Let's go for that college thing.'"

Even Reich, who had a hand in developing the Clinton agenda, doesn't envision a beefed-up high school diploma replacing a college degree in employers' eyes any time soon.

"Even if you had national standards, there would still be a lot of discrepancies" between the value of grades earned at different high schools, he said. "And a single test is not going to capture all the nuances of 'learning to learn,'" which is the most important

reasoning skill that employers say they seek in recruits.

Penn State's Gray says that employers do not look exclusively for the credential. "If you ask employers, they will tell you what they are looking for is people with good grades who can demonstrate that they can survive and be productive in their business environment," Gray said. "Polymer engineering four-year graduates are being displaced by two-year polymer technicians because, in fact, the technicians graduate knowing how to use the machines."

Others say it all depends on the employer. Large national and multinational firms routinely hire only college graduates because that simplifies their recruitment process, while small and middle-sized companies often hire those with technical certificates and two-year degrees, according to labor experts. All of the businesses concur that some training beyond high school remains crucial. They just disagree on the rationale that dictates that it be a bachelor's degree.

REINVENTING COLLEGE

Debra Washington, 34, is a student at the Gudelsky Institute's automotive mechanics training program in Montgomery County. Her story points out some of the holes in the chaotic American system of postsecondary education.

A high school graduate, Washington used to sell real estate, but she said that she "didn't like the irregular money it brought in."

Her husband always liked to tinker with cars, and together they dreamed of opening their own auto repair shop. Washington discovered, however, that "cars are so high-tech these days, you really need a lot of training and education to diagnose what the problem is." And that led her to seek instruction at Gudelsky.

Montgomery College chief administrative officer Charlene R. Nunley agrees with Washington's impressions. "The technology in today's automobile is similar to the technology that took the first spacecraft into space exploration," she said. "Therefore, it's very difficult for a person to come out of high school without some additional kinds of preparation and training and go into the field of auto mechanics."

Not only does an auto mechanic

need to know how to use sophisticated computer equipment to diagnose a car's ills, Nunley said, the repair person needs to be able to read at a 14th-grade level just to understand the manuals put out by automakers.

The payoff, however, can be lucrative. Graduates of the Gudelsky automotive program often get jobs with earnings in the \$35,000 per year range, Payne, the institute's director, said. That's in line with the \$32,500 average earnings for auto mechanics listed in the Labor Department's 1996-97 Occupational Outlook Handbook. "There are cases of automotive people in the \$60,000-\$70,000 range, but they are the exceptions," Payne said. "However, upward earnings in all these technical areas are phenomenal."

In Germany, a master auto mechanic would have gone through an apprenticeship program, not to college like Debra Washington. Trying to fashion an American version of the German system was what the 1993 School-to-Work Opportunities Act was all about. Because of that law, which was based on a Clinton Administration initiative, states are quietly working on their vocational education programs. But the President, Congress and the American public still denigrate technical education in favor of the prestige that a bachelor's degree promises.

"We've finally learned that we're not Germans," Carnevale of the Educational Testing Service said. "We have a very sloppy and inefficient postsecondary system; it's probably the least productive industry in America in terms of its outputs. But we're not going to adopt the European apprenticeship system."

His remedy? "We've got to reinvent, restructure, reengineer college so that we can articulate the relationship between secondary and postsecondary education and careers," Carnevale said. "But in the end, what we're going to have to have is something we can call college."

Until the system undergoes such an overhaul, Carnevale and his colleagues agree, hundreds of thousands of young Americans will embark on college educations—only to find frustration, failure, lots of debt and the need, when all is said and done, to learn something practical at a place without ivy.

ED LETS STATES DECIDE ROLE OF VOC ED IN WELFARE REFORM

The Education Department says it won't interpret how vocational education plays under a new federal welfare reform law, and instead will let states decide.

The department won't submit technical amendments—which Congress will likely take up this year—to the Health and Human Services Department on how P.L. 104-193 should define "vocation education," or how it should count toward work requirements, an ED staffer said this week.

States and voc ed groups looked to ED to craft a definition of voc ed that would be as broad as possible. Neither the federal voc ed law nor the School-To-Work Opportunities Act use the term "vocation education."

States and school districts also were

looking to ED to interpret the number of welfare recipients who could count voc ed as their work requirement (ED, Feb. 27). There is confusion about whether a 20 percent allowance in the law refers to the quarter of a state's welfare rolls that must work this fiscal year, or the state's entire caseload.

Without a federal-level interpretation, states will make that decision.

Patricia McNeil, ED's assistant secretary for vocational and adult education, told House education appropriators this week that states also can decide when to begin counting the 12 months for which voc ed can be considered work.

"There's a lot of flexibility there," she told members of the House Labor, Health

and Human Services and Education Appropriations Subcommittee on Wednesday.

Employment Options

McNeil also told the panel that her office is looking at how to tie adult literacy programs to work-based training.

"It's perfectly legitimate to count that as vocational education," she said.

President Clinton last week instructed all federal agencies to review ways they can hire welfare recipients, and to submit to him next month detailed plans for recruiting and hiring them. He also expanded a federal worker-trainee program that allows agencies to hire low-skilled people for up to three years and train them for potential federal jobs.

—Matthew Dembicki■

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'BLUE DOGS' DON'T BITE ON EDUCATION INCREASE

A coalition of moderate and conservative Southern House Democrats will push to merely adjust education funding for inflation for the next five years.

The "Blue Dogs" last month released a broad, five-year budget blueprint that would provide \$11.7 billion above current levels for combined education and training programs, just enough for them to keep pace with inflation. By contrast, President Clinton has proposed spending \$36 billion more on those programs over that period (ED, Feb. 7).

And the Blue Dog proposal is nowhere near the 15 percent boost education ended up getting for fiscal 1997, nor an 11 percent increase proposed by the Clinton administration for fiscal 1998 (ED, Feb. 7).

The plan "is disappointing because it maintains the status quo, and that's not adequate for the challenges of the future," said Ed Kealy, executive director of the Committee for Education Funding.

The Blue Dog proposal is getting some attention from school lobbyists and other budget watchers because attempts by the White House and Congress to craft a broad five-year federal budget have bogged down. In fact, Republicans have not submitted their own budget blueprint.

In an unusual move, the Senate Budget Committee held a hearing this week on the Blue Dog plan.

Congress usually establishes a spending outline by the end of April, an increasingly unlikely possibility. Regardless, appropriators may start

assigning funds for fiscal 1998 in mid-May.

The Blue Dog plan doesn't have program-specific suggestions, but a budget summary indicates it wouldn't meet Clinton's call for school construction aid, funding for a children's literacy program or postsecondary education tax cuts.

About two dozen moderate and conservative Democrats, mostly from the South, are members of the Blue Dogs, formally known as the Coalition. They provide a potential swing voting bloc in Congress, especially with the Republican's smaller majority this year.

Education Department officials have been testifying before House education appropriators this week. —Laureen Lazarovici■

Manufacturers Decry A Shortage of Workers While Rejecting Many

A Lot of Applicants Lack Skills Factories Require; Small Firms Are Worried

Heated Demand for Welders

By RAJU NARISSETTI

Staff Reporter of THE WALL STREET JOURNAL
EUCALID, Ohio — Andre Miles has applied for a job at Lincoln Electric Co. three times in the past three years, but he never got past a screening interview.

"It is frustrating that I don't even have a chance," says the 22-year-old construction worker. He isn't alone. More than 20,000 applications have been submitted to Lincoln in the past 18 months, and most were rejected. Yet the maker of motors and welding products says it still has positions to fill and can't find the workers it needs.

Around the country, a shortage of skilled labor has created the same paradox: Thousands of people are being turned down for factory work by companies that are actively recruiting. The result: unfilled jobs and very frustrated job seekers.

"There is clearly a supply and demand problem for many manufacturers," says Michael Cantwell, national director of manufacturing at Grant Thornton, a management consulting firm. A recent survey of 919 small businesses by Arthur Andersen's Enterprise Group found 25% worried that a lack of qualified workers will hamper their growth.

Shallow Pool

It is "very frustrating," says Bruce Cable, Lincoln's employment manager, whose eight-person staff has screened thousands of candidates. "These days even if high-school students have C-minus grades, they can go to college. So, instead of getting the B student to handle a manual lathe, we are now getting the D student" to operate computer-controlled machines that make welding equipment.

A strong rebound in manufacturing has absorbed most of the available pool of skilled, experienced workers who lost their jobs as big companies cut back in recent years. Companies say those still looking for work typically are older, high-wage workers who lack the technology and teamwork skills to cope in factories or are unwilling to take entry-wage jobs.

Mr. Miles, the 22-year-old repeatedly turned away at Lincoln, says he thinks his 2.6 grade-point average in high school "wasn't too shabby." In school, he played football and worked part-time at a Kentucky Fried Chicken restaurant, but took just one basic algebra course. Today, he wishes he had taken more math.

"If I knew then what I know now, I would have acted differently," he says, noting that Lincoln's starting salary is more than the \$7.50 an hour he makes after two years of unskilled construction work. "If I got that job [at Lincoln], at least I wouldn't have to wear the same tennis shoes for two years."

Fries, Not Math

Lincoln won't comment on individual applicants but says most come with retail or fast-food backgrounds and little understanding of mechanical work. Applicants "should have had high-school algebra and succeeded at it," Mr. Cable says.

Pay at the company is tied to productivity and profitability. Last year, factory workers earned an average wage of \$19,800. But because the company did well, so did the employees; with bonuses, their average compensation came to \$55,614, up from about \$45,000 in 1993.

Workers typically move among three jobs within the first 12 months and are routinely expected to work overtime. The company also puts great emphasis on attendance. Yet many high-school graduates don't show "stick-to-it-ness," Mr. Cable says. Some who are hired give up quickly: 15% leave within the first 60 days. After that, turnover drops to 4% a year.

All this has forced Lincoln, which hasn't laid off a factory worker at its U.S. operations in the 100 years of its existence, to adopt some unusual tactics to find employees. Along with advertising on local radio stations, managers have met with

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Help Wanted

Lincoln currently has about 200 openings, with hourly pay ranging from \$8.39 to \$20. While some openings are at the lowest rung of the plant, the company also needs many skilled tool-and-die makers, mold makers and machinists.

But few of the thousands of applicants who applied for jobs at Lincoln could do high-school trigonometry or read technical drawings, and most didn't show an aptitude for learning how to operate computer-controlled machines — skills that Lincoln says even entry-level workers need.

Employees with certain skills are hot commodities. "A journeyman welder is like a free agent in baseball," says Walt Elish, executive director of the Economic Development Corp. of Waukesha County, Wis. "We can't find welders, we can't find tool-and-die makers, we can't find [computer-controlled] machine operators." He says such workers can earn from \$35,000 to \$50,000 a year, and it isn't uncommon for a good toolmaker to pull down \$60,000 with overtime.

But to command those wages, today's factory workers need to use advanced math, have good communication skills and understand the use of computers. Most high-school students with those abilities are college-bound.

Job Paradox: Manufacturers Decry a Major Shortage Of Workers While Rejecting Many as Too Unskilled

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local ROTC units and the Interchurch Council of Greater Cleveland to flush out candidates. Lincoln won't specify how much it spends on recruiting, but says it has spent more in the past two years than it has in the previous 98 years put together.

Mr. Cable's staff holds frequent open houses for high-school teachers, career counselors and students and has sent recruiting teams to other counties in Ohio and neighboring Pennsylvania. But when Lincoln asked the Ohio Bureau of Employment Services to search its databases for candidates for tool-and-die openings, the bureau couldn't come up with a single candidate in the entire state—even though Ohio has one of the highest numbers of machine-tool companies in the U.S.

In Wisconsin, Mr. Elish has faced similar frustrations. He recently flew to Seattle to recruit skilled employees being laid off from Boeing Co. He represented 52 companies looking to fill 300 jobs but could land only 13 interviews with prospective employees. He says it is tough to compete with glitzy companies in newer industries. Across the aisle from him at the Seattle job fair, Microsoft Corp. was wooing some of the same workers.

Scott Paper Co. spent \$400,000 to search for workers for its new tissue products plant in Owensboro, Ky. Managers screened 14,176 applicants to come up with 174 new hires. Of the 10,000 people who made it through the preliminary screening, 4,000 failed a standardized English and high-school algebra test. The rest went through 28 hours of testing.

The reason Scott was so finicky is clear at the 1,200-acre complex. The plant has 230 nonunion employees—expected to soon increase to about 270—less than half of the number of workers at comparable Scott production facilities. Except for two part-time telephone operators, every employee is assigned multiple production responsibilities within teams.

Along with operating the tissue-making equipment, the Owensboro workers do tasks previously handled by managers. They develop their own five-week production schedules, enter data in computer spreadsheets, buy supplies and load onto 18-wheelers cases of two-ply bathroom tissue rolls coming off packing machines.

They deal with customers and production staff at other Scott mills. They even take attendance, interview job seekers and vote on merit raises for one another. Starting salary: \$29,000, with eligibility for merit-based raises every six months.

"Most of my first year was training," says Jenny Hester, a 27-year-old basic technician at the plant, who, like all other employees, got at least 740 hours of training in topics ranging from use of Microsoft Windows software and lab tests for fiber strength, to operating forklifts and handling confrontations with co-workers.

Scott looks for workers who show a capacity to learn, whether or not they have taken classes beyond high school, says

Micheal Lerch, who heads the plant. After high school, Ms. Hester attended community college at night, earning an associate degree in business management. During the day, she worked at a factory, running a machine that made plastic pellets.

In her job at Scott, Ms. Hester says she is often called upon to think like an entrepreneur. For instance, she says, Scott pays contractors to haul away clay by-products from recycled paper. Ms. Hester manages a process called curing, which helps dry the waste and makes it up to 50% lighter. "If I don't keep up with curing adjustments, we are wasting money, paying contractors to basically haul away water," she says. "Everybody here is expected to think and act like a business person."

Yet, many New Age factory workers still don't feel they have the status of white-collar workers—and don't plan to encourage their children to follow their footsteps. Donald Dunbar, a coal miner's son, drives 50 miles a day to get to his technician's job at Scott, which he says represents the "best side" of manufacturing. But he wants his 16-year-old son to go to college and become an investment banker. "I want my kids to do better, get a college degree," says the 40-year-old Mr. Dunbar. "I have seen too many factories close."

Some experts contend manufacturers

make the labor shortage worse by not paying enough to attract college graduates with technical skills. "Companies are looking for champagne workers but willing to pay only light-beer wages," says Frank Emspak, a professor at the University of Wisconsin's School for Workers.

But a bigger problem than wages may be the image of manufacturing. "If you want to stay in a factory all your life, that is fine," says Lynda Wright, a 1995 high-school graduate who interviewed with Lincoln in May before deciding to join a Cleveland law firm as a secretary. Even though Lincoln's starting pay and future earning potential is "probably higher" than the \$8 an hour she now makes, Ms. Wright says, "I don't care for the dirt, oil and grime. Money isn't everything."

Bill Fisher, a 26-year-old factory technician at Lincoln, understands why many of his peers find manufacturing jobs so unattractive. "In school, you were either college-bound or not," he says. "The rejects ended up in shop."

Mr. Fisher, who joined Lincoln after obtaining a degree from Ohio State University, says many of his college classmates still aspire to be part of the increasingly competitive white-collar world. "Lots of my buddies seem to be working in shoe stores. Everybody thinks and wants to be a manager. But there is no future in that."

Special Report



Fred Price gropes his way downstairs in the dark, grabs a Danish, and races off to work at 4 a.m. Today is a special day for the 29-year-old North Carolina factory hand. On the job, he will schedule orders as usual for the tiny tool-and-die shop where he doubles as a supervisor when he's not bending metal himself. But at midday, test results are coming in from the state Labor Dept. in Raleigh. These aptitude exams for all 43 workers at Northeast Tool & Manufacturing Co., outside Charlotte, measure everything from math and mechanical skills to leadership and adaptability. And they come with a prescription. Now it appears that Price will have to pull back from the bird hunting a little and spend less time

Today, life on the line
requires more brains than
brawn—so laborers are
heading for the classroom

with the kids' go-cart. Like tens of thousands of factory workers across America, Fred Price is going back to school.

Growing up, Price liked to work with his hands more than his head. He would help his father fix the family's old Ford pickup, and once they rigged

up a hydraulic log-splitter. In high school, he excelled in shop class but sat toward the back in English and math. These days, in an economy where even factory work increasingly is defined by blips on a computer screen, more schooling is the only road ahead. Northeast Tool, for one, will use the employee tests over the next several months to develop customized training for each worker. Some will enroll at a nearby community college. Others will take remote

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FRED PRICE

Northeast Tool
Charlotte, N. C.

Part supervisor, part metal worker, Price is aiming for a two-year degree in metallurgy.

"Someday," he says, "I hope to manage the plant."

courses through computers set up at the plant. A few will attend afternoon classes with professors brought right into the mill. Price wants to pursue a two-year degree in metallurgy, even if it means putting in long hours on weekends. "Someday I hope to manage the plant," he says.

Until recently, Americans often divided ranks in high school between shop kids such as Price, who went on to industrial or service work, and college-bound students headed for white-collar or professional jobs. They parted ways at graduation and would move into distinct categories of manual and knowledge workers.

IN THE LOOP. But over the past decade, thinned-out ranks of managers have been equipping factory workers with industrial robots and teaching them to use computer controls to operate massive steel casters and stamp presses. At the same time, managers are funneling reams of information through the computers, bringing employees into the data loop. Workers are trained to watch inventories, to know suppliers and customers, costs and prices. Knowledge that long separated brain workers from hand workers is now available via computer on the factory floor. At Northeast Tool, Rusty Arant, Fred Price's manager, points to a powerful computer he rigged up to a milling machine and says: "I crammed it with memory because I want these guys to be managing the business from the shop floor."

The trend toward high-skills manufacturing began in the mid-1980s with innovative companies such as Corning, Motorola, and Xerox. They replaced rote assembly-line work with an industrial vision that requires skilled and nimble workers to think while they work. In the 1990s, what was

once the industrial avant-garde is now mainstream as its practices spread across the manufacturing sector. Large, old-line companies finally are learning the lesson that investments in training boost productivity, often at less cost than capital investments. And as the big guys push suppliers and subcontractors on quality, price, and just-in-time delivery, even little shops such as Northeast Tool see high skills as essential for competition.

The result is an intensifying transformation of the American factory. The ranks of manufacturers that put a majority of their workers through different types of training have doubled or tripled in the past decade, according to surveys of large companies by the University of California's Center for Effective Organizations (chart). At the same time, the share of the country's 19 million factory workers with a year or two of college has jumped to 25% vs. 17% in 1985, according to the Bureau of Labor Statistics. An additional 19% have college diplomas today, up from 16% a decade ago. "There's a real

rise in companies' willingness to invest in their workforces," says Pamela J. Tate, president of the Council for Adult & Experiential Learning, a Chicago consulting group.

This investment, though, carries a none-too-subtle message for America's manufacturing workers: hone your skills or risk being left behind. U.S. workers are being pushed to raise their technical savvy to the level of the best Japanese and German workers. At the same time, many are being asked to develop leadership skills and to take a role in managing that's rare in the top-down structures found in Asia and Europe.

Indeed, the old formula of company loyalty, a strong back, and showing up on time no longer guarantees job security, or even a decent paycheck. Today, industrial workers will thrive only if they use their wits and keep adding to their skills base. It's a rich irony: Millions of Americans who headed for the factory because they didn't like school, among other reasons, are

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now faced with a career-long dose of it. "It isn't whether you can hoist 100-pound sacks anymore," says Anthony Carnevale, a training expert at Educational Testing Service in Princeton, N.J. "Most of the work is mental."

Demanding as it is, the high-skills factory represents blue-collar America's best hope for retaining high wages in a world teeming with workers. Across the economy, in manufacturing and services alike, there has been a surge in demand for higher skills as employers reorganize work around new technologies and human capital-investments. Recently, the pressure for more capable workers has even begun to generate skills shortages in pockets around the country.

SKILLS GAP. But many companies still need to catch up: Only 10% to 20% of large companies have adopted high-performance techniques, surveys show, including a third of large manufacturers, according to the National Association of Manufacturers. Others are actually going in the opposite direction. In industries as diverse as apparel making, telemarketing, and chicken processing, many employers continue to slice pay, avoid unions, and outsource work to lower-wage subcontractors. These trends have led to a growing inequality along skill and edu-

cation lines, similar to the one cleaving society at large. So far, the net result has weighed more heavily downward, even in manufacturing, where average pay lagged inflation by 3% from 1989 to 1995, according to the BLS.

In this cutthroat environment, an individual worker's best chance of getting ahead now lies in advancing his or her skills whenever the opportunity arises. And plenty of workers are jumping at the chance. From downsized defense-industry hands in Long Beach, Calif., to white-smocked pharmaceutical workers in the Delaware Valley, they are studying for new factory jobs.

This even includes veterans in old-line smokestack companies. Take Adlai John Warner, 44, who put in 25 years at Acme Metals Inc., a specialty steelmaker outside Chicago. Warner always enjoyed learning and was quick with facts—quick enough to be given top security clearance as a U.S. Marine intelligence specialist in Vietnam. He had planned to attend college when he returned to Chicago after the war. Instead, he started a family and wound up making good money as a laborer at Acme.

NO-BRAINER. Warner found the work tedious. Acme, like most other manufacturers, was organized for a low-skilled force and used Warner's body but not much of his brain. Even after he jumped a few rungs on the job ladder by apprenticing as a pipe fitter, the work required more endurance than thought. Warner describes long empty days of sitting around, waiting for pipe-fitting jobs, making time and a half with gobs of overtime. Despite pay that eventually reached \$60,000 a year, the boredom prompted Warner to pursue a bachelor's degree in psychology at night at

Chicago State University in the hopes of moving into human resources. He got his BA in 1978, but it never led anywhere.

Meanwhile, the world was closing in on Acme. Low-cost mini-mills and foreign mills threatened its niche in super-high-carbon steel, which is used in knife blades, tools, and critical machine parts. Its old equipment was falling apart. In 1994, management launched a \$400 million redesign of the mill with a high-tech German caster—an audacious move for a \$560 million company. But operation of the finicky caster, which converts molten steel into a two-inch-thick band, is fast and dangerous. If workers can't make quick decisions, they risk a "breakout," when hot liquid steel spills from the mold all over the machinery. To date, only minimill leader

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Nucor Corp. and its offspring, Steel Dynamics Inc., with skilled and flexible workforces, have made money with the new technology.

In effect, Acme is betting the company on its workers' brains—and Warner has leaped at the opportunity. Last year, the company brought in scads of consultants to test

those who volunteered among its 1,100 unionized ranks. They used an exhaustive battery

of exams to look for reading, math, technical, and communication skills. Some workers weren't interested and took early retirement. About 750 were chosen to create an entirely new, team-oriented system. Warner qualified for an advanced job as a maintenance technician and last September promptly hit the books.

Acme set up classroom trailers next to the mill and brought in teachers from Detroit, Georgia, even Germany. The company paid Warner and 130 others to spend nine months, full-time, learning everything from metallurgy, math, and computers to a piece-by-piece study of the new machinery. The total cost to upgrade the workforce, including employee salaries, came to some \$8 million, or just 2% of the amount Acme spent on the new caster. "We're being exposed to things we've never been exposed to before," says Warner appreciatively.

NEW STANDARDS. Warner and his colleagues also are involved in reinventing Acme's entire work system. In the spring, he and five other workers were selected to sit down with managers and consultants for weeks on end at a nearby Ramada Inn. There, they hung poster paper all over the walls and blackboards, marking up a scheme for the new workplace, from devising

a pay system pegged to profits to redefining supervisors' roles. "The people working there have to make the decisions," says Anthony C. Capito, Acme's

vice-president for steel production. The new system, including the training received by Warner and his colleagues, will be put to the test when the new caster is brought on line this fall.

Workers at small manufacturers are facing similar tests. In 1985, when the then 18-year-old Fred Price landed his job at Northeast Tool, the job shop sold custom-made metal pieces primarily to local Carolina customers. Today, as regional markets meld into national and global ones, Northeast must boost quality enough to land contracts from the likes of BMW and Siemens. These companies want metal fashioned to precise tolerances that only statistical quality-control methods can

achieve. Many demand that suppliers be certified to tough European standards, a goal Northeast is pursuing.

All this requires more training than Price, a high school graduate, had gained through work experience. For him, the payoff comes in getting a shot at advancement and improving his \$15-an-hour pay. From manager Arant's perspective, there's no choice at all. Arant plans to use his higher-skilled workforce to bid for more lucrative business and expand. If he didn't, Northeast could fall behind, as Arant thinks some rivals may do. "They'll run the machines as long as they can and then close," he predicts.

OPPORTUNITY COSTS. Until recently, workers such as Price probably would have been out of luck. Northeast, a flyspeck of a company with annual revenues of less than \$5 million, simply wouldn't have had the wherewithal to launch its ambitious training program. And many companies, large and small, were loath to invest too much in workers, only to

lose them later. Now, though, more companies feel they can't afford not to train. And Northeast, like other small companies, has been able to tap into a growing network of local and state training initiatives. Often, these are cobbled together with regional or state development funds and community-college training programs (page 68).

As a result, Northeast is spending just \$35,000 for its entire training plan. North Carolina has set up programs to assist small

companies, helped out with staff advice, software, and access to the nearby community college. Such state programs are growing fast. "If we don't invest in higher skills, we relegate ourselves to low-wage jobs," says Eric Butler, president of Bay States Skills Corp., which coordinates training programs in Boston.

The education message rings so loudly today that some job-seekers actually target high-performance employers just to get the schooling. In fact, in the post-cold-war era, such companies are replacing the military as a blue-collar training ground as a way to get some college education, or its equiva-

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lent, inexpensively. Many companies are willing to sink money into training if they feel confident the employee has the profile of a lifelong learner. "We look for people who want change, who don't see it as troublesome, but as an opportunity," says David P. Jones, an official of Aon Consulting, a Chicago firm that assists manufacturers in testing and hiring.

Rachelle Cook, 36, fits that description. Cook worked at a Pittsburgh nursing

home for six years while she pursued an associate degree at Westmoreland County Community College. But to get anywhere in nursing, she says, requires at least a four-year degree, and the mother of two was having enough trouble freeing up study time after work. So in 1992, when a friend told her that Medrad Inc., a Pittsburgh medical-equipment maker, invested in its workers, she applied for a job.

Medrad didn't seem at all promising at first. Cook found herself working as a temp, up all night assembling syringes, and making less than \$10 per hour. "Everyone could see I was miserable," she recalls. "Working that shift, I had no life." But she had good communications skills and loads of ambition. She applied for every job she saw posted.

GUNG HO. Fortunately, Medrad was instituting teams in its 250-employee factory and giving workers more say in how their jobs are done. Cook was part of a pilot project that offered courses in conflict resolution, problem solving, and customer and supplier relations. A few times, the team stayed up all night debating how to reorganize manufacturing and quality-control systems.

Cook excelled, primarily because of a gung ho attitude and her sense of teamwork. The result: Last year, company managers selected her for a career development program.

Now, she fills in as a substitute to learn different jobs and takes a slew of in-house computer courses. Once a week, she commutes into downtown Pittsburgh for a Dale Carnegie course on public speaking. When she's done in a year or two, Medrad will place her in a higher-paying job that best uses her abilities—possibly as a trainer or a customer service supervisor.

Unfortunately, plenty of the most flexible factory workers wind up running in place. Or worse, they take on new responsibilities and get a pay cut for their trouble. That's Phil Waccary's problem. In 1992, defense cuts prompted Allied Signal Inc. to shutter the aerospace plant in Torrance, Calif., where he had earned \$19 an hour as a supervisor. Waccary found part-time jobs driving freight trucks and loading planes for a United Parcel Service Inc. subcontractor. Next came a full-time post in a shipping and receiving department. But none paid close to what he had made building medical in-

struments for Hewlett-Packard, F-18 fighters for Northrop Grumman, and aircraft parts for Allied.

So Waccary took a monthlong federally funded course that teaches job-seekers how to write résumés and start businesses. But a host of job interviews led to nothing with much promise. He suspected that part of the problem may have been his age, 57. Then, finally, in 1994, Waccary won a spot on the graveyard shift at Kinetic Parts Manufacturing Inc., a high-tech auto parts factory in Harbor City.

The plant was opened that year by Autospecialty, a privately owned, \$75 million importer of brake parts. Autospecialty had gone into manufacturing after industry consolidation left it chronically short of critical parts. The company's founders traversed the globe to study brake manufacturing and designed a high-tech plant based on heavy training and job rotation.

"STARTING OVER." But while Kinetic is high-performance, it's not exactly high-wage. It set up shop in the Southern California town and hired lots of laid-off defense and aerospace workers such as Waccary for \$9 an hour. By now, Waccary has gone through the same kind of extensive training that has helped Price, Warner, and Cook. Armed with state funds, Kinetic paid him and other new hires to put in a month

of eight-hour days learning basic math, algebra, and blueprint reading with instructors from nearby El Camino College.

The company also has given Waccary and his fellow employees doses of upgrade training on the job, including more math, supervisory skills, office automation, and computer-aided design. Now, Kinetic is setting up classes for total quality management and statistical process control.

But fierce competition from the Chinese has left Kinetic barely profitable so far. And even though recent U.S. trade threats against China for dumping brake parts has the com-

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pany mulling a major expansion. Waccary is not likely ever to come close to his old wage. So far, he has received only a 50¢-an-hour raise for the training he has gone through. "No one in this building can take pride in their salaries," concedes Kinetic plant manager Stephen J. Ruiz. Says Waccary: "I feel like I'm starting over again. But I'm not sure I have any other choice."

The same could be said for many other blue-collar Americans. To earn a higher paycheck or save their jobs from rivals

abroad, U. S. factory workers are under the gun to add value. This relentless atmosphere is far less forgiving than the seniority-based assembly line it replaces. But talk to these men and women about their work, their class load, the software they have to reconfigure, or the inventory that should show up in, oh, three minutes, and many seem happy for the chance to stake out a new path. Most realize that they're helping to carry U. S. industry. This time, though, it's not on their shoulders, but with their heads.

*By Stephen Baker in Pittsburgh,
with Larry Armstrong in Los Angeles*

YOUR LOCAL CAMPUS: TRAINING GROUND ZERO

The six guys clustered around a transmission hardly look like state-of-the-art high-skilled workers. Yet these students are toiling at a potent nexus of academia and business. They're ripping apart General Motors Corp. cars with sophisticated GM equipment, working toward associate degrees at Gateway Community-Technical College—and to careers as technicians of GM-made natural-gas-powered cars.

Over the past seven years, GM has donated \$2 million of equipment and 75 demonstration cars to the college's North Haven (Conn.) campus. And when the auto maker started investing in alternative-powered cars, Gateway sought out a federal grant to run its technician training. "Satisfying the needs of the community is one of our goals, but now we're finding this other [business] market, and we're pushing the envelope to get into it," says Roy C. Francis, coordinator of the auto program at Gateway.

WELCOME BUSINESS. In accepting his party's renomination Aug. 29 in Chicago, President Bill Clinton vowed to "make the typical community-college education available to every American"—with, among other proposals, a \$1,500-a-year tuition tax credit. The pledge acknowledged a new reality: Community colleges, long the humble stepsisters of U.S. higher education, are in demand.

"In the past, community colleges didn't seem to have that strong an interest in working with [companies], and we weren't that easy to work with," says Stan Horner, senior

manager of training and education at chipmaker AMD. These days, though, community colleges are awash in corporate contracts. With government funding dwindling and their full-time student base stagnating, the institutions welcome the business. Local governments see the programs as engines for business de-

velopments at North Carolina State University in Raleigh. "Business and industry have to have training because technology is changing so rapidly," he says. Massive restructuring, moreover, has left thousands of displaced workers in need of new skills.

IN THE CHIPS. Look at Austin Community College (ACC) in Texas. A sleepy 1,800-student two-year institution when it opened in 1973, it now serves 26,000 for-credit students. On top of that, 18,000 employees get training through \$2.7 million in annual contracts with local businesses such as AMD. The chipmaker gave the college \$400,000 in equipment; ACC, which already had worked with AMD and other technology companies to create programs for semiconductor manufacturing technicians, put in \$2 million. The result: a new facility that ultimately could train up to 350 chip workers a year.

Most contracts are more modest, lasting less than three months and costing under \$10,000—far less than companies typically would pay elsewhere. In Pittsfield, Mass., papermaker Crane & Co. pays Berkshire Community College an average of \$400 per student, a fraction of the \$1,500 it once spent on commercial courses. "Because we do it every day, we think we can be more cost-effective," says Robert J. Kopecek, president of Northampton Community College in Bethlehem, Pa. That's compelling logic—for employers and colleges alike.

By Susan Jackson in North Haven, Conn.

COMMUNITY COLLEGES GO CORPORATE

Training partnerships between community colleges and corporate employers are growing:

SEMATECH The semiconductor industry association is working with Maricopa Community Colleges in Phoenix to develop a national curriculum for training entry-level manufacturing technicians.

PENNSYLVANIA POWER & LIGHT The utility has created a technology demonstration center with Northampton Community College in Bethlehem, Pa., to test-run new developments.

AEGON US In Cedar Rapids, Iowa, the insurer built a \$10 million corporate data center at Kirkwood Community College, to be shared by company employees and college students.

GM With Toyota, it has donated equipment to laboratories at Gateway Community-Technical College in North Haven, Conn., to prepare service technicians for work at area dealerships. GM has similar programs at more than 50 other schools.

DATA: BUSINESS WEEK

velopment. Employers, meanwhile, have discovered that the colleges are better at most sorts of training—and cheaper, too.

Community colleges were born after World War II, and they multiplied through the 1960s and 1970s. Today, some 5 million students are enrolled in degree programs, paying average tuition of \$1,492. But deeper ties with business and industry "are the future of the community-college movement," says George Baker, who studies community col-