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Students conduct a science experiment that they call "bubble-ology."

Preparing for the Changing Workplace

If the United States is to regain its competitive edge, schools must better prepare their graduates for a transformed workplace.

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Behind the grim realities of today's sweeping budget cuts and layoffs is a deeper, perhaps even more ominous message. Unless U.S. students are better equipped to enter a changing workplace, the finan-

cial future for graduates — and the economy as a whole — is likely to remain bleak even after the present recession breaks.

Experts on education and the economy are worried by the growing

gap they see between the capabilities of high school graduates, especially those not bound for college, and the skills, knowledge, and habits of mind that employers seek. "More than half of our young people leave school without the knowledge or foundation required to find and hold a good job," states a recent report by the U.S. Department of Labor.¹ A recent Harris poll found that only one-third of employers think that recent high school graduates show "the ability to read and understand written and verbal instructions" and only one-fourth say they are "capable of doing arithmetic functions."² And two-thirds of personnel officers at some of

America's biggest firms said that they must screen more applicants now than five years ago to find qualified candidates for entry-level jobs, according to another survey conducted by the National Alliance of Business.³

These shortcomings have emerged at a time when the requirements for entry-level workers in U.S. businesses are likely to increase, not remain static, if American industry is to compete globally, analysts say. Trying to increase productivity to better compete with Japan, Germany, and other economic powers, top U.S. companies are moving more decisions and responsibilities to the factory floor. Entry-level workers — the school graduates of a year or two before — are increasingly expected to think on their feet, solve problems that require several steps, and apply their knowledge and skills in new contexts.

In the old industrial model, "thinking was left to the managers, and doing to the hired hands," Lauren Resnick, director of the Learning Research and Development Center at the University of Pittsburgh, said pointedly at a recent ASCD-sponsored conference. "Today, to be competitive, what seems to be required is thinking throughout the production process." Competitive "high-performance" work organizations seek "entrants to the work force who can think their way through unfamiliar problems, who can use complex tools, [and] who are able to envisage the place of their own activity in the much broader activity" of the workplace, Resnick added.

Pupils on Their Own

Compared to some of its economic competitors, the United States lacks a real structure for preparing students to enter the transformed workplace of tomorrow, some analysts believe. "America may have the worst school-

to-work transition of any advanced industrial country," a report by the Commission on the Skills of the American Workforce bluntly puts it.⁴ While many pieces are in place to help prepare U.S. students for jobs, they are somewhat uncoordinated, and, consequently, less effective. Asked who is responsible for linking school and work, one analyst concluded that, "at most times and in most places, it is still young people, themselves, left largely to their own devices."⁵

More than half of American juniors and seniors hold part-time jobs, for example, but these jobs generally bear no more than a passing resemblance to students' schoolwork or to their eventual careers.⁶ Specialized vocational training, cooperative education, and other school-based programs serve a relatively small proportion of students: "When you add them all together, you're still talking about direct preparation for work for only about 25 percent of students," says Gordon Ambach, executive director of the Council of Chief State School Officers. And employers and labor unions typically focus apprenticeships on adults in their 20s, not on students.

Students in some other industrialized nations benefit from more systematic transition programs. For example, high school seniors in Japan get jobs almost exclusively through established links between schools and employers, and roughly two-thirds of German youth participate in apprenticeships.⁷

"The Forgotten Half"

While recognizing the need for all students to better prepare for the workplace, some experts say that special attention must be given to "the forgotten half," those 50 percent of students not bound for postsecondary education. "Opportunities for today's young workers who begin their careers

High-performance organizations seek entrants who can think through unfamiliar problems and use complex tools.

with only a high school diploma are far more constrained than were those of their peers 15 years ago," according to a report by the William T. Grant Foundation Commission on Work, Family, and Citizenship.⁸ The earnings gap between young adults with a high school diploma or less and those with at least some college education is growing, and the non-college-bound also face higher unemployment.

Although going to college is surely no guarantee of finding a good job, the non-college-bound face additional obstacles. The curriculum in many high schools for students not bound for college tends to be neither strongly academic nor strongly vocational: instead, pupils choose from a "large buffet of scholastic junk food," asserts Gene Bottoms, who directs a state vocational education consortium for the Southern Regional Education Board (SREB). Held to lower expectations and taught a watered-down academic curriculum, "many of them are unprepared either for a job or for continued study," he says.

The disconnection between school and workplace also hurts students who enter the marketplace with just a high school diploma. Although most employers require a high school diploma (or its equivalent), they do not consider it a compact signifying

that graduates have basic academic or social skills, so they do little to reward students for the grades they've earned or other signs of effort in their schoolwork, argues Cornell University's John Bishop. Thus, students not entering selective colleges lack a basic incentive to study. As a result, "the last couple of years of high school become a holding tank for those not going on to college," says Rich Kazis, director of work-based learning programs for Jobs for the Future, which is sponsoring a series of school-to-work transition projects.

The economic picture emerging for the forgotten half is one of frequent periods of unemployment or employment in dead-end jobs. Some of the better jobs, which offer good salaries and the chance to move along some sort of career path, are being closed off to recent high school graduates. "Employers basically don't want to hire kids right out of high school," Resnick says. "They want to let them 'ripen' a bit and hire them when they're 24 or 25."

Some Positive Signs

Although the gaps between schools and the workplace are many, there are some encouraging signs of progress.

One is the continued *erosion of the long-standing wall separating academic and vocational programs*. A common complaint about traditional vocational training programs has been their failure to ensure that students master academic as well as occupational competencies. Vocational education courses have frequently been seen as a "dumping ground" for less academically able students.

Several of the schools in an SREB project teamed academic and vocational teachers to create new courses teaching algebra, geometry, chemistry, and physics through applied, "hands-on" techniques, says Bottoms.



At the Chicago High School for Agricultural Sciences — a fully vocational, fully college preparatory school — students help community members purchase bedding plants that they've grown.

Student achievement in those schools has risen, he says, and at one school, the number of general studies and vocational students completing a second year of algebra and geometry rose more than 20 percent over two years. Changes in the Perkins Act governing federal vocational education programs, which require more coordination between vocational and academic programs, are likely to fuel the integration trend, experts say.

A second positive sign is the appearance of *better information about the skills, knowledge, and habits of mind that students need to be prepared for the work force*.

Although schools have always considered preparation for employment as one of their missions, they have often

been hampered by unclear or conflicting messages about the qualities that industry sought in graduates — basic skills, a good work ethic, competence in core academic subjects, occupationally specific training, or some of each.

A report issued last year by the U.S. Department of Labor's Secretary's Commission on Achieving Necessary Skills, *What Work Requires of Schools*, begins to provide some critical answers. "The product of a systematic examination of the labor market and interviews with workers from the factory floor to the board room, SCANS comes down strongly in favor of broad preparation (eschewing either a focus on narrow occupational skills or an academic

curriculum without applications to the workplace). All students, the commission says, should learn basic reading, writing, and math skills, to think critically, to work in groups, to choose and apply appropriate technologies, and more (see "Taking Action on the SCANS Report" p. 27). This spring, SCANS expects to produce a set of recommendations on how to integrate their findings into school curriculum and assessment programs.

A third positive indicator is the *development of systemic plans to address the school-to-work transition issue*. Attempting to remedy the fragmented nature of existing school-to-work programs, some experts are calling for strategies that bring together schools, higher education, industry and labor groups, government agencies, and others.

"I think we need a very decisive and systemic strategy," says Ambach of the CCSSO. As part of a yearlong focus on connecting schools and employment, CCSSO members recently agreed to a policy statement sketching out a set of principles and strategies for more effective transition programs. With funding from the Pew Charitable Trusts, the group also is working with 10 states on a project to design and develop youth apprenticeship programs.

The most comprehensive plan to emerge on preparing youth for work is that proposed by the Commission on the Skills of the American Workforce.¹⁰ The commission calls for a comprehensive array of strategies: for example, all students under the commission's plan would be helped to acquire a Certificate of Initial Mastery at or about age 16. The certificate would be based on satisfactory completion of a series of performance-based exams tied to world-class standards of achievement. Students would then choose to go to work, enter a college-prep

program, or study for a technical or professional certificate. Special "Youth Centers" would be developed to help students unable to attain the certificate in regular schools (see

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"Will America Choose High Skills or Low Wages?," p. 10).

Last year, Oregon became the first state to pass a law that calls for incorporating many of the elements suggested in the commission's report, including the Certificate of Initial Mastery and provisions for performance-based assessment. After obtaining the certificate in the 10th grade, students will be able to choose between professional/technical courses, some in nontraditional settings, a college-preparatory curriculum, or some combination. In effect, the new legislation means that "we'll no longer have the comprehensive high school that offers a little bit of everything to everyone," says Joyce Reinke of the Oregon Department of Education. The new system is expected to be in place by the mid-

decade, with planning to take place over the next few years.

Although some critics are concerned that schools should not focus too narrowly on skills for jobs, helping all students learn the skills they'll need for the workplace is becoming an economic necessity. Says Reinke: "We're going to have to be looking at very high standards for all students, because there just aren't going to be all those jobs for people with low skills." □

¹⁰The Secretary's Commission on Achieving Necessary Skills. (1991). *What Work Requires of Schools: A SCANS Report for America 2000*. (Washington, D.C.: U.S. Department of Labor).

¹¹The Harris Education Research Center. (1991). "An Assessment of American Education: The View of Employers, Higher Educators, the Public, Recent Students, and Their Parents," survey sponsored by the Committee for Economic Development. (New York: Louis Harris and Associates).

¹²National Alliance of Business. (1990). "Work Force Study," survey for the National Alliance of Business conducted by the North Coast Behavioral Research Group, Cleveland, Ohio.

¹³Commission on the Skills of the American Workforce. (1990). *America's Choice: High Skills or Low Wages!*. (Rochester, N.Y.: National Center on Education and the Economy).

¹⁴P. E. Barton. (1990). *From School to Work*. (Princeton, N.J.: Educational Testing Service).

¹⁵Ibid.

¹⁶U.S. General Accounting Office. (1991). *Transition from School to Work: Linking Education and Worksite Training*. (Washington, D.C.: GAO).

¹⁷William T. Grant Commission on Work, Family, and Citizenship. (1988). *The Forgotten Half: Pathways to Success for America's Youth and Young Families*. (Washington, D.C.: Grant Commission).

¹⁸The Secretary's Commission on Achieving Necessary Skills, op cit.

¹⁹Commission on the Skills of the American Workforce, op cit.

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