

In Search of A Niche

*A new report spells out reasons students
should learn job-specific skills*

By John Bishop

As enrollment in secondary vocational education programs declines and employers re-evaluate the attributes needed for success in today's job market, some observers of the U.S. education system have called for schools to limit—or even eliminate—the teaching of occupational skills. Does this mean employers don't reward such training? To find out, John Bishop of Cornell University culled 12 years of research on the preparation of young people for work. This article is excerpted from a draft of his book, *Expertise and Excellence*.

*ALL MY LIFE I'VE ALWAYS
WANTED TO BE SOMEBODY.
BUT I SEE NOW I SHOULD
HAVE BEEN MORE SPECIFIC.*

— COMEDIENNE LILY TOMLIN AS CHRISSEY

In our information-based society, new skill needs emerge every day. Automobiles, for example, have become so complicated that only professionals have the tools and skills necessary to fix them. We have become completely dependent on the expertise of others.

Because of this dependence, we are willing to pay good wages to people who have skills and expertise that we lack. Skills that are new and for which demand is growing tend to receive high compensation.

Most of one's schooling is spent learning generic skills such as reading, writing and arithmetic. Success in developing these skills does not, however, make one a highly competent worker or ensure a job that pays well. Rather, these generic skills are tools for learning and developing the scarcer skills and expertise that determine productivity in particular jobs.

It is unwise to devote one's entire education to learning things that everyone else knows or will know. One must select

a vocation for which there is market demand and for which one has talent, then pursue expertise and excellence within this niche.

This principle applies just as much to the gifted as it does to those with average or below average learning ability. That is what Ruth Feldman found in her longitudinal study of a group of gifted youngsters, "Whatever Happened to the Quiz Kids?". Robert J. Sternberg, a leading theorist on intelligence, summarized Feldman's findings in 1988: "What is most striking in biography after biography of these quiz kids is that those who were most successful were the ones who found what most interested them and pursued it relentlessly. The less successful among the group had difficulty focusing on any single interest and in a number of cases floundered in the process of carving out a niche for themselves."

If individuals cannot achieve excellence without specialization, an education system that does not encourage specialization becomes a barrier to real

excellence. A "one size fits all" upper secondary education is bound to fail the majority of students. Our comprehensive secondary schools historically have accommodated their students' diverse interests and learning styles by offering a great variety of courses, including occupation-specific courses.

College rolls swell

Employers agree that certain qualities—dependability, honesty, achievement, motivation, literacy and numeracy—are important to success in all jobs. Occupational skill, too, is an important factor in hiring. The better the job, the greater the weight given to occupation-specific skills.

What we believe we are good at tends to define the positive image we have of ourselves. Everyone needs to feel excellent or at least above average at doing something important. The hands-on activities that characterize vocational classrooms offer students who are good at making things but poor at traditional academic courses an opportunity to select a niche that interests them and to work constructively to build competence in a vocation.

If vocational education has such positive qualities, why is it shrinking in upper secondary schools throughout Europe and North America? Between 1982 and 1992, the number of vocational courses taken by the typical high school graduate fell by 11 percent. In the same period, reports the 1995 National Assessment of Vocational Education, the percentage of high school graduates who "concentrated" (earned at least three credits) in one labor market preparation area fell by 28 percent.

Some have blamed the decline on legislated increases in the number of math and science courses required for high school graduation. This does not explain, however, the parallel declines in occupation-specific programs in European upper secondary schools. More likely the primary cause was the vast increase in the number of high school graduates that chose to go to college and the resulting rise in college attendance rates during the period.

Occupation-specific course taking normally is concentrated in the last few years of a student's time in school. As college attendance and completion becomes more common, postponing specialization and occupation-specific course taking also should become more common. And indeed it has.

While vocational course taking in high school has declined, it has risen dramatically at the postsecondary level. Despite

a 13 percent decline in the size of the 18-to-24 age cohort, the number of occupational certificates and occupationally oriented associate's and bachelor's degrees has risen more than 20 percent, according to the National Center for Education Statistics. Europe has experienced a similar increase.

Despite this trend, calls for education reform have been pretty much silent on how vocational education should be upgraded. Education reformers march under a banner of economic renewal, but the school subjects most directly related to worker productivity—business education, technical education, economics, computers—have, until recently, received little attention. The five "core" subjects proposed for periodic assessment in the U.S. are English, mathematics, science, history/civics and geography.

Some have argued that governments should force employers to do more training by scaling back subsidies of school-based, occupationally specific education and training. An article in the March 12, 1994, issue of *The Economist*, for example, argued that general education was more valuable than specific training because education is transferable and skills tend to be job-specific. "Today this case is becoming more compelling still as jobs become less secure, the service sector expands and the life-cycle of vocational skills diminishes and the market puts an even greater premium on the ability to deal with people and process information," the article said.

Job success: not academic

The recommendation to teach only generic, core academic skills is based on two flawed premises:

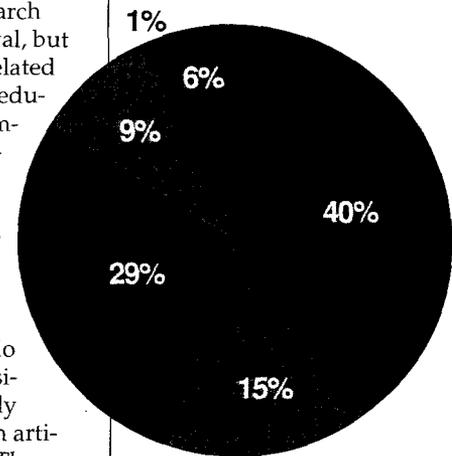
- academic skills are good substitutes for occupation-specific skills;
- increases in job turnover and skill obsolescence rates have caused a decline in the return to occupation-specific training by schools.

When employers are asked which skills they look for in new hires, they almost always cite work habits and occupational skills ahead of reading and math skills. The applicants' knowledge of history, geography and literature is seldom evaluated. Small companies do most of the hiring of young high school graduates, so it is important to understand what skills those employers are seeking in entry-level employees.

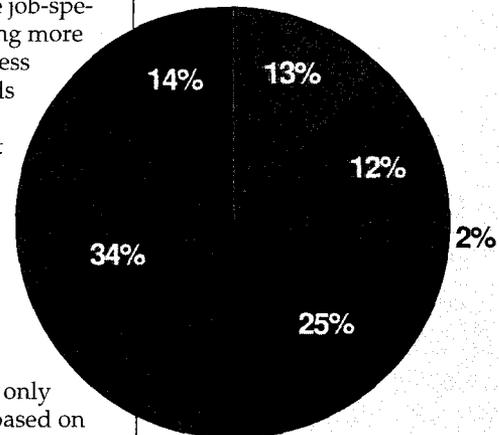
When members of the National Federation of Independent Business were

EMPLOYERS' PRIORITIES

In a 1987 survey of National Federation of Independent Business members, respondents were asked which abilities influenced their hiring selections the most. These owners of small companies ranked occupational skills and work habits well above reading, writing and math ability.



Priorities Ranked No. 1



Priorities Ranked No. 2

KEY

- Occupational/job skills (already has them)
- Ability to learn new occupational and job skills
- Work habits and attitude (trying hard, enthusiasm, punctuality)
- People skills (teamwork, appearance, getting along with others)
- Leadership ability (organize, teach and motivate others, solve problems)
- Reading, writing, math and reasoning ability

Source: J. Bishop, 1987

asked which abilities influence hiring selections the most, they cited occupational skills more frequently than any other ability (see charts on previous page).

Once a new person is hired, which abilities predict success on the job? The NFIB survey also provides insight here. The business owners supplied information on the background and on-the-job success of two employees (A and B) who had recently occupied the same job for a year or more. Since the firms were small, the owners had contact with each worker.

Assessments of relative occupational skills, learning ability, work habits and people skills all had significant positive relationships with relative global productivity ratings at about one year of tenure. Employer assessments of a worker's academic skills and leadership ability, on the other hand, had no relationship with current overall job performance ratings. Holding demographics and employer evaluations of other traits constant, workers thought to have "much better" occupational skills were judged to be 10.7 percent more productive after about a year on the job.

The impact of occupational skills on relative wage rates is even more striking. Workers whose occupational skills were thought to be "much better" started with a 12 percent better wage and were making 14 percent extra after a year on the job.

Academic skills had no significant effects on wage rates. People skills also had no effects on wage rates. Leadership had modest positive effects on wage rates and initial productivity but not on productivity a year later.

Employer vs. school-based training

Many enterprises are too small to mount training programs by themselves, so they must rely on training programs organized by schools and trade associations. For some topics, even very large corporations lack a sufficient flow of interested trainees to warrant hiring an expert to provide specialized training.

School-based training has its advantages, but it still cannot replace some kinds of employer training and may be less effective than employer-provided skill training of the same duration.

Often, training in a skill can be organized only by the employer—especially when skills are specific to the firm. General skills, too, are often easier to learn in context.

Even when the same skills are taught, employer-provided training generally is more effective per hour of trainee time than school-based training for these reasons:

PERFORMANCE ON COMPETENCY TESTS

1988 tests of Ohio vocational education high school seniors showed they made large gains on comprehension tests compared with their junior year. Effects were measured in terms of the change in a standard deviation, which translates to a move from the 50th percentile of scoring to the 80th percentile.

Test Area	Change in Standard Deviation
 Word Processing Specialist	.43
Welding	.67
 Grocery Clerk/ Food Marketing	.27
Apparel Sales	.86
 Dental/Medical Assisting	.63
Restaurant/ Food Service	.25
 Carpentry	.60

SOURCE: Ohio Vocational Instructional Materials Lab, 1988.

- Training obtained at a school is less likely to be used in an actual job than training received from an employer. For graduates of high school vocational training programs in the U.S., 43 percent had a training-related job, according to the 1985 National Longitudinal Survey of Youth (Paul Campbell et al., 1987). Other studies of high school vocational education using the same methodology show similar results (Felstehausen 1973; Conroy and Diamond 1976). According to a 1986 analysis of labor statistics by Steve Mangum and David Ball, employer-controlled training institutions have higher training-related placement rates.
- On-the-job trainees have a stronger motivation because they know it is highly probable they'll use the skills learned and may receive promotions and pay increases if they do well.
- Employer training generally is tutorial—an effective though costly teaching method.
- Employer training generally is done by supervisors and co-workers who are aware of the trainee's progress and

can give corrective instruction.

- Equipment and materials necessary for the training usually are readily available at the work site and time on a machine generally can be arranged without disrupting production.
 - The trainer—not just the trainee—is held accountable for success since the training is designed to increase productivity.
 - The trainee's time tends to be used much more efficiently. Both the trainer and the trainee are on the clock, so hourly costs are high. And because employers receive most of the benefits of training, they have a strong incentive to choose cost-effective strategies.
- The problem with employer training obviously is not a lack of effectiveness. The problem is that there is too little of it.

Employers undertake training only when it is expected to yield extremely high returns. Training is costly for employers because federal regulations require them to pay for all of it if the result is to increase productivity. And many employers fear that turnover will effectively negate their investment.

Employers also may under invest in training because benefits don't accrue to them alone but to the workers and society at large. Such philanthropy is not the goal of a business.

If schools were to withdraw from the occupational training market, the economy would have to depend on employers to provide occupation-specific training. How would they respond to shouldering the whole responsibility?

Since separation rates are high for most companies, employers would not be willing to take over this task without some inducement. Government could offer employers training subsidies, but such a scheme would be difficult to administer and probably would cost more than the current school-based occupational training system.

In the absence of massive subsidies of employer training, shortages of skilled labor would develop and wage premiums for occupational skills formerly learned in school would rise. Some employers would substitute less skilled workers for the now more expensive skilled workers and let the quality of the service they provide deteriorate. Only when the scarcity of workers and the wage differential became severe would employers find it profitable to provide occupational skills training.

In the present, though, some observers of education and the workplace argue that rates of turnover and skill obsolescence are so high that occupationally specific skills are no longer good invest-

ments for young people. Are they right?

Job turnover has indeed increased over the last 25 years. The proportion of workers with fewer than 25 months of tenure at their current company rose from 28 percent in 1968 to 40 percent in 1978 and has remained high since then, according to the Bureau of Labor Statistics.

While job turnover has increased for men, occupational turnover has decreased. When age and gender are held constant, rates of occupational mobility for men fell 20 percent between 1966 and 1987. For women, occupational mobility increased from 1966 to 1978, but this was positive because it signaled better opportunities.

Current levels of job turnover are considerably lower than those experienced by the generation that lived through the Great Depression, the mobilization for World War II and the rapid demobilization after the war. Occupational turnover is high in the United States, but it always has been high.

The decline in occupational turnover for men and more recently for women means the social returns to occupational skills training have increased. At the same time, the rise in job turnover has eroded incentives for employers to invest in occupational skills training.

Skill obsolescence has increased, but this does not imply that rates of return to occupation-specific skills must fall. Skill obsolescence is greatest in fast-changing fields close to the frontier of knowledge. It is in precisely these fields where the payoff to skill development is the greatest. Although high obsolescence means the payoff period is short, it also means that the supply of workers with the new skills is small because previous generations of trainees did not learn them. So graduates of training programs that impart the latest skills have something that is in short supply and will be well rewarded.

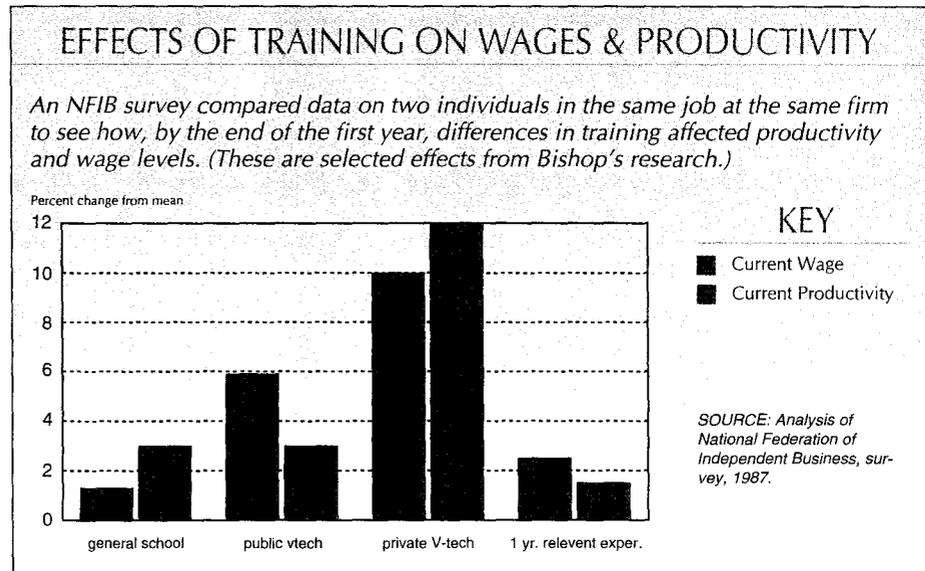
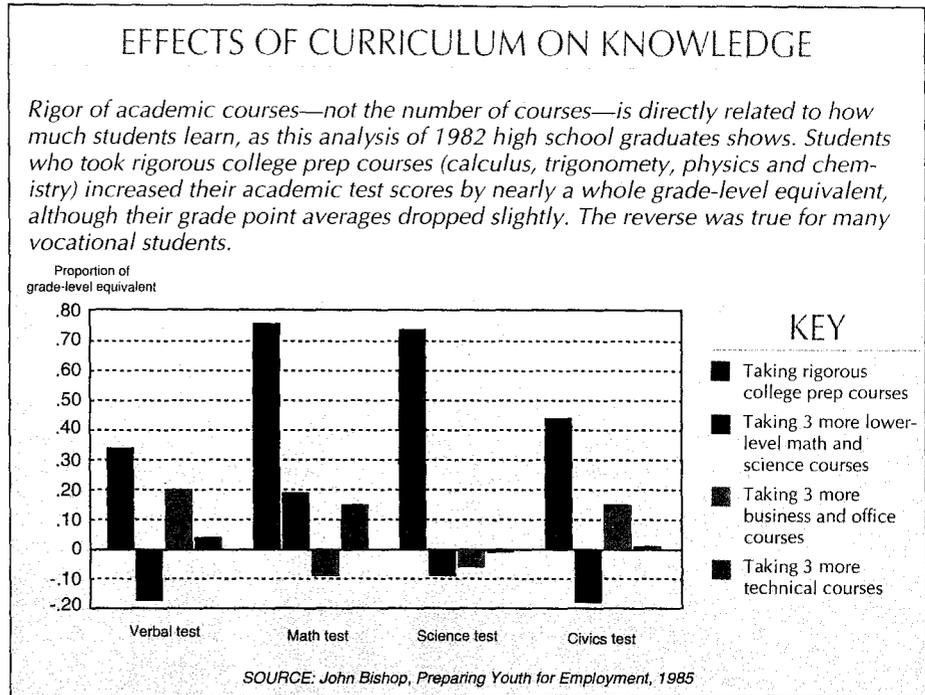
If skills become obsolete more rapidly, then new skills must be learned more frequently. If employers will not increase training, schools must do it.

Does vo-tech pay off?

Since occupational competence is the primary objective of vocational programs, it would be reasonable to hypothesize that students who participate in these programs should score better on job knowledge tests, be rated by supervisors as better employees and earn more money.

Vocational education programs do have substantial effects on job knowledge.

A 1988 Ohio study conducted by the



Vocational Instructional Materials Lab showed that high school seniors improved their scores on competency tests by at least .25 of a standard deviation—and as much as .86 of a standard deviation—over their junior year scores.

The Ohio tests can be interpreted to show that vocational students who get jobs in the field for which they have trained are apt to be more productive employees than recent graduates who lack specific training.

Does all this achievement in occupational areas mean that vocational education students achieve less in academic areas? At first glance it would seem so. There are large test score differences at the end of high school between vocation-

al and academic students. The gap is about one standard deviation, or about 3.5 grade level equivalents (GLE). Much of this gap, however, existed before the student's entry into vocational education, according to James Kulik's 1994 research.

A 1994 analysis of national achievement test scores shows that vocational students were behind general track students in 10th grade but closed the gap by 14 percent of a GLE in science and 27 percent of a GLE in reading by the end of 12th grade. Relative to academic students, the vocational students fell a further one-half of a GLE behind in math and another 28 percent of a GLE in science but lowered the reading gap by 15

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percent of a GLE.

Students who took college prep math and science courses, on the other hand, raised math and science performance by 75 percent of a GLE, verbal test scores by 33 percent of a GLE and civics test scores by 44 percent of a GLE. Taking lower level math and science courses raised math scores slightly but lowered verbal and civics test scores.

The key determinant of learning, though, is the rigor of the courses taken, not the total number of academic courses or the total number of hours spent in a school building during a year. Thus, many vocational students learn less math and science than many academic students primarily because they take less demanding academic courses, not fewer.

Kulik concludes that "if vocational students were similar to academic students in aptitude and took the same number of advanced courses in core subjects, the achievement gap would be no more than .1 standard deviations."

The National Federation of Independent Businesses study mentioned earlier speaks to the question of whether vocational-technical graduates are better employees. The study rated the impact of general schooling, relevant vocational education and relevant work experience on employer assessments of worker skills.

Employers found a year of occupationally related training to have a significantly larger positive effect on basic skills, occupational skills at hire, learning ability, work habits, people skills and leadership ability than did a year of general education. For five of the six skill traits, the estimated impact of a year spent in a vocational school was three to five times larger than the estimated impact of a year of relevant work experience.

It is widely known that college graduates—especially those with degrees in high-skill areas—earn much more than comparable high school graduates. The payoff to those with two-year degrees also has risen substantially since the late 1970s, when white male, full-time workers 25 to 34 years old earned only 3.3 percent more than similar high school graduates. By 1989 the premium had risen to 13 percent according to the NCES (1991). For white female workers during the same period, the wage premium for some college rose from 10.3 percent to 17.7 percent. Unemployment for this cohort also declined.

The picture continued to improve in the 1990s. By 1992 the wage premium for

full-time workers 25 to 34 with associate's degrees improved to about 24 percent and about 14 percent for those with some college but no degree. Seventy percent of associate's degrees and 98 percent of other non-baccalaureate degrees are awarded in vocational lines of study, according to the National Center for Education Statistics (1993).

Fifty-seven percent of workers reported in 1991 that they needed training to qualify for their current job. Thirty-two percent said they got "qualifying" training from schools of some kind. Four-year colleges and universities were the source of qualifying training for 18.8 percent of the workforce, two-year colleges 7.7 percent and non-degree granting vocational schools 3.9 percent (Eck, 1993).

Allowing for years of schooling, potential work experience, tenure, ethnicity and gender, researchers Norman Bowers and Paul Swain found in 1992 these benefits of matching occupation-specific training to jobs:

- a 2.4 percent wage increase for high school training,
- a 13 percent increase for two-year college training,
- a 24 percent increase for four-year college training.

Adults who receive occupational skills training also see an increase in wages, according to certain studies. A 1992 report by Lisa Lynch found that, allowing for job changes and changes in unionization, tenure and experience, wage rates were increased 12 percent by apprenticeship training and 6 percent by off-the-job training at schools but were unaffected by formal company training programs lasting four weeks or more.

A 1994 study by Lynch and David Blanchflower found company training raised wages by 12 percent, off-job training by 5 percent and apprenticeships by 38 percent.

Broad technical literacy has very large payoffs for workers who use and/or maintain equipment that is similar in complexity to that employed in the military. The skills taught in typical trade and technical programs raise productivity and yield substantial labor market benefits if jobs are found in a related field. These benefits alone are sufficient to justify trade and technical programs.

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REFERENCES

- Blanchflower, David and Lynch, Lisa (1994). "Training at Work: A Comparison of U.S. and British Youths." Private Sector and Skill Formation: International Comparisons, edited by Lisa Lynch, National Bureau of Economic Research, Chicago: Univ. of Chicago Press, 233-260.
- Bowers, Norman and Swain, Paul. (1002) "Probing Issues of Employment Related Training: Evidence from the CPS." Washington, D.C.: Economic Research Service, U.S. Department of Agriculture.
- Campbell, Paul B.; Elliott, Jack; Hotchkiss, Larry; Laughlin, Suzanne and Seusy, Ellen. "Antecedents of Training-Related Placement." Columbus: National Center for Research in Vocational Education, The Ohio State University, 1987.
- Conroy, William G. Jr. and Diamond, Daniel E. The Impact of Secondary School Occupational Education in Massachusetts. Lowell, MA: University of Lowell, College of Management Science, Sprint 1976. ED 122 095
- Felstehausen, Joyce L., et al. Follow-up Report on Illinois "Class of '71" Occupational Program Alumni, Final Report. Charleston: Eastern Illinois University, Center for Education Studies, June 1973. ED 087 866
- Kulik, James A. High School Vocational Education and Curricular Tracking. Ann Arbor, MI: University of Michigan, January 1994, 1-84.
- Lynch, Lisa. "Private Sector Training and the Earnings of Young Workers." American Economic Review, March 1992, 299-312.
- Mangum, Steve and Ball, David. "Military Service, Occupational Training and Labor Market Outcomes: An Update." Columbus: Center for Human Resource Research, The Ohio State University, March 1986.
- National Center for Education Statistics, The Condition of Education: 1993 (Washington, D.C.: Department of Education).
- Sternberg, Robert J. The Triarchic Mind. New York: Penguin Books, 1988.
- The National Association of State Directors of Vocational-Technical Education Consortium, the U.S. Department of Education and Cornell's Center for Advanced Human Resource Studies supplied grants for Expertise and Excellence. For copies of the full report, call (607) 255-2742.*