

## **Chapter 2**

# **Policy Issues and Options**

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### INTRODUCTION AND CONTEXT

There is a broad consensus that the American training system needs strengthening; the questions are how to achieve it and who is to do it. American society needs to do a better job of integrating young people into the work world, providing them with initial training, and helping workers upgrade their job skills during their working lives. In many other countries workforce skill levels equal or exceed our own, or are advancing rapidly, often with government stimulus. If the pool of skills in the American workforce becomes obsolete relative to the highly trained workforces of the Pacific Rim nations and Western Europe, further erosion in the U.S. competitive position—with adverse implications for living standards—could occur.

The corporate training system, the adult education system, and the individual workers themselves will play the critical roles in upgrading workforce skills. At present, the Federal role in encouraging these players to interact is very limited. However, proposals have been made in Congress or elsewhere to broaden Federal support, ranging from provision of more information to support for industrial training consortia to tax credits to a national training levy. Also, some executive branch agencies, such as the U.S. Department of Labor, are looking at ways to encourage work-based learning. The States are also examining their role: the Nation's governors are debating how to improve workforce skills in their effort to flesh out national education goals emerging from the 1989 Education Summit with President Bush. (See box 2-A for discussion of recent recommendations of national commissions on workplace training; recent executive branch actions are summarized in box 2-B.)

With some notable exceptions (see box 2-A), the proposed actions do not represent an overall national strategy toward human resource development for the workforce. A comprehensive strategy would need to encompass many elements, ranging from education of children, drop out prevention, and training programs for the unemployed and the economically

disadvantaged, to training of scientists and engineers.

The focus here is on just one element—Federal policy and the continuing training of employed workers. Before examining the need for such policies, and the arguments for and against an expanded Federal role, a review of some of OTA's major findings is in order:

- While strengthening public education is critical for developing future workforce skills, the most immediate opportunity for skill development—the one that would have greatest impact in the near and medium term—lies in improving the skills of those already working. Indeed, 7 out of 10 workers in the year 2000 will be people already in the workforce in 1988; the typical worker will also be older than is the case today.<sup>1</sup> The flexibility of this workforce, especially how well workers at all levels—from the shopfloor to the executive suite—respond to challenges will be a critical factor for national competitiveness over the next decade.
- Aside from managers, professionals and technicians, few American workers get much training on their job, or act on their own to upgrade skills. By contrast, our most formidable economic competitors, including Japan and West Germany, do far more to assure the continuing development of workforce skills at all levels than does the United States. Most West German workers go through formal apprenticeships; much additional training is needed for workers to move up to supervisory positions. In Japan, high quality secondary schools, well structured but informal training on the job, and worker interest combine to produce highly skilled, flexible workers. Production workers in Japan's auto assembly plants get three times more training—formal and informal—than their American counterparts.
- Labor mobility in the United States is high. Companies cannot expect to fully capture all benefits from training investments, particularly broad training that gives workers transferable skills. Recognizing this, many other advanced

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<sup>1</sup>Howard N. Fullerton, Jr., "New Labor Force Projections, Spinning 1988 to 2000," *Monthly Labor Review*, November 1989, p. 10.

### **Box 2-A—What National Commissions Recommend on Workforce Training**

Several recent commissions and national studies have concluded that systemwide improvements are needed in education and training if the United States is to be able to compete effectively in a world economy in which the best prospects for a rising standard of living lie in the skills of the workforce. Two which advocated a stronger government role:<sup>1</sup>

- ***The Secretary of Labor's Commission on Workforce Quality and Labor Market Efficiency (1989):***<sup>2</sup> This panel of business, labor, and education representatives expressed alarm about possible economic decline unless more is done to educate and train the American workforce. Its recommendations for public and private actions encompassed both the school system and the workplace. While noting its concern about the budget deficit, the Commission said that there was "likely to be a clear and pressing need for a sustained increase in Federal expenditure on human resource programs." It called for sustained human resource investments to, among other things, improve student achievement, encourage lifetime education and training, and make better use of workers' skills.

Among its suggestions for Federal action in the training area: give employers a limited tax credit for training, offer more technical assistance and clarify antitrust provisions for multiemployer training programs, and continue the favorable tax treatment workers get for employer provided education assistance. It urged Federal and State Governments to ensure that all adults have lifetime access to basic skills education. It called for more Federal efforts to disseminate information about best-practice worker participation approaches, and called for improvements in labor market data. Finally, the Commission urged formation of a Presidential committee to coordinate human resource policy.

- ***The Commission on the Skills of the American Workforce (1990):***<sup>3</sup> This panel, also comprised of business, labor and education representatives, concluded that American living standards will rise only if far more American companies reorganize work along a high performance, high skill model. To develop the needed skills, the Commission proposed restructuring the American education and training system at all levels. Many of the group's recommendations focused on noncollege bound youth and workers. It recommended that young people under the age of 18 should not be allowed to work unless they could meet (or were taking steps to meet) a new educational performance standard, and urged major levels of support for dropout recovery programs. It called for a program of financial support to allow all students and workers to enroll in programs giving technical education certificates or associate's degrees.

A national board, comprised of industry, labor, and education representatives, would appoint industry and trade based committees to develop specific standards for certification. The Commission also proposed that the States and the Federal Government see to it that all Americans could receive 4 years of financing for postsecondary education at some time during their lives.

As for employers, it called on the Federal Government to require all firms to spend at least 1 percent of payroll on education and training, with the amount increasing over time. Firms that did not spend the required amount on their own workers would pay this amount to a Skills Development Fund to train temporary, part time, dislocated, or disadvantaged workers. The Commission also proposed increased technical assistance to help firms reorganize work in ways that would take advantage of highly skilled workers.

<sup>1</sup>See also the President's Commission on Industrial Competitiveness (1985). This group, headed by industrialist John Young, recommended strengthening the capabilities of vocational schools and community colleges to provide customized training to employers, especially small business, and also called for evaluation of tax proposals to achieve a balanced tax treatment of employer investments in physical and human capital.

Another group, MIT's Commission on Industrial Productivity, in its 1989 report *Made in America*, stopped short of policy recommendations. However, it noted the adverse impacts from what it called a "legacy of long neglect in training" and a widespread reluctance by U.S. firms to invest more in training and in reorganizing work to promote continuous learning.

<sup>2</sup>Commission on Workforce Quality and Labor Market Efficiency, *Investing in People: A Strategy to Address America's Workforce Quality* (Washington, DC: U.S. Department of Labor, 1989). The Commission appointed by Ann McLaughlin, a Secretary of Labor under former President Reagan, made its report to President Bush's Secretary of Labor, Elizabeth Dole, on Labor Day, 1989.

<sup>3</sup>The Commission on the Skills of the American Workforce, *America's Choice: High Skills or Low Wages!* (Rochester, NY: National Center on Education and the Economy, June 1990).

### **Box 2-B—Executive Branch Initiatives on Workforce Quality**

During the last 5 years, the executive branch—and especially the Department of Labor—has been actively studying new avenues for improving workforce quality. The Commission on Workforce Quality and Labor Market Efficiency, set up by former Labor Secretary Ann McLaughlin late in the Reagan Administration, proposed a strategy, and some 44 recommendations for private and public actions, to address what it called “America’s workforce crisis” before it disbanded in the fall of 1989<sup>1</sup> (see box 2-A for details). Also in late 1989, Elizabeth Dole, President Bush’s Secretary of Labor, announced her own seven-point “agenda for action” to improve workforce quality. In contrast to the actions urged by Commission, few items on the agenda would require legislative action or much new Federal spending.

Items from the agenda directly pertinent to industry training include:

- The Secretary’s Commission on Achieving Necessary Skills (SCANS): SCANS is to recommend national guidelines to help schools better define educational competencies needed to meet workplace skill needs. The Commission will work to identify needed skills, acceptable levels of proficiency, and effective ways to measure these skills. Former Secretary of Labor William Brock chairs the Commission, which is expected to issue its final report in May, 1991.
- A National Advisory Board on Workplace Training: The board would focus on ways to expand apprenticeship to new industries and occupations (such as service industry jobs). It will work with industry to develop standards to accredit work-based training programs and to provide workers with recognized credentials. The board had yet to be appointed when this report went to press.
- A Workforce Quality Clearinghouse: The clearinghouse would work to promote best practices by employers in meeting employee needs, such as flexible benefits, training, and innovative labor-management relations. Initial operations were expected to begin in the Fall of 1990.
- Research and demonstration projects to test incentives for employer- and employee-financed training and partnerships with industry groups.

Secretary Dole’s agenda also calls for research and development on School-to-Work Transitions, including awards recognizing exemplary practices, and more volunteer efforts. A national conference on the subject was held in May 1990. In addition, the Secretary has acted administratively to establish an Office of Work-Based Learning, which includes the Bureau of Apprenticeship and Training and also has responsibilities for displaced workers and trade adjustment assistance.

The 1989 Education Summit with President Bush and the Nation’s Governors also has focused some concern on workforce skills. One of the six national education goals adopted by the governors after the Summit concerns adult literacy and lifelong learning. The goal states that, by 2000, every adult American should be literate and possess the necessary skills and knowledge to compete in a global economy and exercise good citizenship. Among the stated objectives: to involve “every American business in strengthening connections between education and work” and in giving “all workers the opportunity to acquire the knowledge and skills, from basic to technical, to adapt to emerging technologies, work methods and markets through public and private educational, vocational, technical, workplace or other programs.”

In July 1990, the National Governors’ Association proposed alternative strategies for States to consider in implementing the education goals.<sup>2</sup> Progress toward these goals will depend on continued commitment at all levels within the society.

<sup>1</sup>The Commission actually reported to President Bush’s Secretary of Labor, Elizabeth Dole. Its report, *Investing in People: Strategies to Address America’s Workforce Crisis*, (Washington, DC: U.S. Government Printing Office, 1989) was issued on Labor Day, 1989.

<sup>2</sup>Report of the Task Force on Education, *Education America: State Strategies for Achieving the National Education Goals* (Washington, DC: National Governors’ Association, 1990).

industrial economies have put in place government policies that, in effect, protect a firm’s training investments by assuring that other firms make similar investments. Similar policies have not been adopted here. Nor, by and large, does the recognition yet exist here that there is a broader public good in having a

well-trained workforce that extends beyond the benefits to any firm or worker.

Should the Federal Role Be Expanded?

The Federal Government now requires employee training in some areas where the public interest is clear—such as workplace safety, health, and hazard-

ous material handling.<sup>2</sup> However, it does little to assist firms and their employees with skills or job performance training. Does the national interest in maintaining economic competitiveness and living standards justify Federal incentives for employee training? And, if a Federal role is appropriate, what should be its scope?

It is clear that the private sector must be the primary actor in employee training. Proposals that will receive serious consideration by policymakers are likely to aim at expanding the Federal role through activities that augment or enhance, not substitute for, private efforts. With the list of proposals growing, the pros and cons of an expanded Federal role need careful assessment.

#### Is There Need?

There would be little need for government involvement if employers provided an optimal level of training or if workers undertook such training on their own. A common view in American management—and among many workers—has been that little training is required to develop the skills needed to perform most jobs. When training is needed to develop specific skills (e.g., to operate new equipment), firms will provide it. The practice of reducing jobs to their simplest tasks has been widely used by American management, in part because training needs were minimized.

While this practice still prevails, its suitability as a contemporary model for work organization is increasingly challenged. Indeed, as chapter 4 of this report discusses, a growing number of American firms are beginning to reorganize work in ways that more fully develop and exploit the skills of their workers. These companies usually find that considerable training is necessary for success. Most firms, however, continue to rely on the traditional model of work organization.

Thus, there is growing concern, reflected in the commissions cited in box 2-A, that American society is doing too little to develop the skills needed to support a globally competitive set of industries and an improved standard of living. Training is too often given low priority or is used ineffectively by management. According to this view, U.S. society

has a vested interest in a high skill industrial system, one that is likely to produce high wage jobs and raise living standards, and this is a persuasive rationale for government assistance in training.

Indeed, training can benefit firms, workers, and society as a whole. For workers, training is associated with higher wages, less likelihood of unemployment, and shorter duration of joblessness if they do become unemployed. While other factors also affect outcomes, training can be expected to contribute to broad societal benefits stemming from a highly productive workforce. To the extent that such a workforce might command better wages, and their employers' realize higher profits, government tax revenues would increase to defray part of the public's investment in training. There also are likely to be reductions in public costs associated with unemployment.

#### Won't Firms Train on Their Own?

A few American firms are world leaders in training; by all accounts, however, most firms do little training. More might begin to act on their own to provide training as the benefits of well designed programs become clear. This seems unlikely, however, unless some structural impediments that now make many firms reluctant to train are overcome.

Companies cannot expect to fully capture all of the benefits of their training investments, particularly training that develops general skills. High labor turnover in the U.S. economy makes many employers, especially small employers, view training that gives workers transferable skills as a risky investment. Even though the training might enhance the skills of their workforce, these employers fear that their workers will take other jobs before the firm recoups its training investment.

There can be a broader public good arising from training that the individual firms or workers are not in a position to achieve through their own actions. Several other countries recognize this through national policies that help protect a firm's training investment by assuring that other firms also make similar investments. Similar approaches could be taken here.

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<sup>2</sup>For example, nursing homes that receive Medicare and Medicaid funding must meet minimum Federal standards for nursing aid training. Many States are now developing literacy tests for truck drivers to meet federally established standards for truck drivers. Implementation of the Occupational Safety and Health Act now requires companies with over 10 employees to label hazardous substances, warn workers of their dangers, and provide special training in their safe handling.

Government assistance will not do much unless there is strong management commitment (which could require a change in management attitudes) and employee motivation (which might follow a change in management attitude) to more fully use worker skills. Without this, training might do little to improve a firm's performance. It could be a goal of government to provide the information and incentives that could contribute to this change in behavior and attitudes.

### Are There Training Gaps?

Several highly publicized reports have suggested a growing mismatch between worker skills and workplace demands. Many low skill jobs will continue to be created that require little training. However, unless the overall pattern is toward high skill jobs that can command high wages, the United States risks becoming a low skill, low wage country. The conclusion is almost inescapable that U.S. industry will not be able to widely replicate the good results realized by the best-practice firms unless some major gaps in the worker training system are addressed.

As discussed in chapter 6 of this report, the best estimate is that one-fifth of young adults aged 21 to 25 read only as well as an average eighth grader, and the incidence of poor basic skills could be higher for the workforce as a whole. Few employers on their own can be expected to offer basic education to their employees. The United States ranks near the bottom among industrialized countries in apprenticeships. Small firms and firms facing financial difficulty—the firms that might benefit most from the improved productivity and quality that can come from relatively low-cost investments in training—are often in the poorest position to train their workers. Moreover, the quality of training is often poor, and firms often do not make good use of training. In the face of such findings, business-as-usual will leave many U.S. workers unprepared to participate in the kind of high skill economy that is most likely to lead to an improved standard of living.

### Government Action: State, Federal, or Both?

What level of government would be best suited to assist in addressing these gaps? The American system of federalism offers many different alternatives for structuring partnerships between the Federal Government and States. Ideally, policy initia-

tives could be crafted to exploit the special strengths of each level of government.

Clearly, the States are better positioned than the Federal Government to provide direct services to firms. Most States now offer modest assistance to industry for training, and several are now active providers of workplace literacy assistance. Because several States also offer industrial extension services, they have the potential to provide firms with coordinated technology, training, and management assistance at the same time. Many States also support community colleges, which provide firms with training services. States also play a pivotal role in public education. Some also are experimenting with new ways to finance training assistance, such as payroll levies and tax credits:

While the level of State activity is increasing, progress could be slow and spotty without national leadership and support. State spending for industry training and technology services is modest—probably less than \$1 billion. The State activities are driven by economic development objectives, and the States are in competition on this. National policies could help create a more favorable environment for continuing education and training throughout the country.

There are other activities that would be difficult to carry out without Federal leadership. Clearly, the Federal Government is better suited than the States to collect and analyze data about national trends in training. A Federal role to support research, evaluation, and dissemination of the best training practices is another area where national scope is important, especially since the military and some other Federal agencies are major supporters of training research.

### Competition for Federal Dollars

An expanded Federal role could heighten competition for Federal funds, a matter of no small concern in a day of budget deficits and limited funds for existing Federal training programs for the disadvantaged. Employer spending on formal training—a low-end estimate would be \$30 billion per year—is one-third more than the total budget of the U.S. Department of Education and about 10 times the amount the Federal Government spends for services to economically disadvantaged people and displaced workers under the Job Training Partnership Act.

Clearly, Federal support, or any governmental support, for that matter, would need to be carefully targeted. Otherwise, government dollars might simply substitute for private training dollars, hence doing little to expand industry training. Government efforts might aim at improving the effectiveness of training. Another possibility would be to target assistance on either employees that seldom receive much training or on transferable training.

Government involvement would not necessarily require major increases in Federal spending, however. Most options discussed in this chapter would have a small (under \$10 million per year) or moderate (under \$100 million per year) initial cost. Many of these options would need to be sustained for a period of years to have much impact, and some of them might well need to be expanded in time beyond the \$100 million level to fully succeed. But the option that would stimulate the most training, a training levy, would do so with only modest fiscal impact on the Federal Government.<sup>3</sup> It would force many firms who do not now conduct training to spend on training, but it would also ease 'free rider' problems for other firms that do spend money on training. There would be a danger of training for training's sake—with resources not always used in the most efficient and productive fashion.

Other government roles, such as support for research, have the potential to improve training throughout society—including the training Federal agencies give to their own employees and the training offered through such Federal programs as the Job Training Partnership Act. The efficiency gains might in time pay for the research many times over. Finally, an initiative aimed at equipping workers with transferable skills would help workers get new jobs in the event of displacement.

#### Do We Know Enough To Take Action Now?

To those demanding a high degree of certainty, the absence of good data may seem a reason to delay a major Federal initiative in this area (e.g., a national training levy). Better information clearly would be desirable. But there also are risks in delaying action for the protracted period (certainly several years) needed to develop good data about training. The findings of numerous national studies in recent years

clearly indicate that more needs to be done—and soon—to enhance workforce skills. If a major initiative is to be launched, it will need to occur very soon to have much impact in this century.

As it considers possible policy directions, Congress might wish to evaluate the degree to which proposed actions support not only industry training but also contribute to broader societal goals. For example, actions to improve the overall skills in the workforce would help not only firms but also workers adjust to the demands of new technology and changing competitive circumstances in the coming years. For workers without much formal education, workplace training can be a major source of learning and the last chance for upwind mobility. Workers with abroad base of skills are likely to have less difficulty in finding new jobs if they are displaced, reducing unemployment costs to society.

#### Defining the Scope of Federal Responses

OTA has identified, and analyzed below, 16 policy options that, taken in sum, would broaden and deepen employer and employee commitments to training. (Table 2-1 lists these options, grouped under four broad issue areas, and directs the reader to more detailed policy tables and discussion in the text.) Some options would provide a stronger institutional base of support within the Federal Government for industry-based training, building on existing programs. Others, if adopted, would go well beyond the current Federal role. These options are not mutually exclusive, although some would need to be modified if other approaches were also taken,

These options could be put together in various combinations, reflecting different degrees of government involvement. One approach would be for government to play a supportive, but largely indirect, role in encouraging training by firms, individual workers, and States. This incremental approach would build on current Federal activities (sponsorship of research and demonstration projects, help to States for evaluating training programs, development of data, dissemination of information about best practices) that could provide a better information base for training. Some existing programs (e.g., workplace literacy demonstration projects, favorable tax treatment of employer provided education

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<sup>3</sup>A training levy would not entail direct Federal expenditures. There could be some near term revenue loss to the Government if firms used funds from otherwise taxable profits for training. On the other hand, if the training led to more productive enterprises, the long-term effect for Federal revenues would be positive.



Table 2-I--Summary Guide to Policy Issues and Options

Issue areas and options		Table no.
<i>Issue area A—Reducing barriers to firm-based training</i>		
Options:		
1. Help firms setup training consortia . . . . .		Table 2-2
2. Expand technical assistance to trade associations, others . . . . .		Table 2-2
3. Consider limited tax credit for private-sector training . . . . .		Table 2-2
4. Phase-in payroll based "national training levy" . . . . .		Table 2-2
<i>Issue area B—Retraining individual workers for career advancement</i>		
Options:		
5. Expand apprenticeship concepts . . . . .		Table 2-3
6. Adequately fund Federal support for vocational programs . . . . .		Table 2-3
7. Fund workplace basic skills program . . . . .		Table 2-3
8. Provide favorable tax treatment for continuing education . . . . .		Table 2-3
9. Evaluate ways to help finance workers' continuing education . . . . .		Table 2-3
<i>Issue area C—Linking training and technology assistance</i>		
Options:		
10. Coordinate technology and training assistance . . . . .		Table 2-4
11. Help States expand industrial services, combined with training . . . . .		Table 2-4
12. Support creation of an employer institute for work-based learning . . . . .		Table 2-4
<i>Issue area D—improving the quality and effectiveness of training</i>		
Options:		
13. Encourage adoption of best practice approaches and technologies . . . . .		Table 2-5
14. Fund the Federal training technology transfer program . . . . .		Table 2-5
15. Fund more civilian-sector learning research/technologies . . . . .		Table 2-5
16. Improve the information base on work-based training . . . . .		Table 2-5

SOURCE: Office of Technology Assessment, 1990.

assistance, assistance to State technology programs, and transfer of federally developed training technology) might be continued or expanded. Some new initiatives (e.g., planning support for industry training consortia, earmarking funds for learning research, and funding of State clearinghouse services) would be launched, but at a modest level of funding.

The incremental approach has attractions; in its early stages, it would not cost the Federal Government much to implement, because it would take time to build the capacities to use resources wisely. Moreover, many of its features are partly in place or under consideration in Congress or the executive branch. It relies on persuasion and avoids controversial measures likely to be resisted by business. But it also has limitations. Even if effectively implemented, the specific measures that in sum constitute this approach would likely have a modest impact on skills upgrading. Since Federal policy would have little direct impact on the training behavior of employers, progress would depend on employer initiatives and actions at the State level. Some States would do a lot; others little.

If widespread action is desired, Congress could consider more far-reaching approaches to encourage skills development and technology upgrading by

firms. These actions would not preempt the measures identified in the incremental approach, but would provide, in addition, broad incentives or requirements for employee training. First, Congress could attempt to raise employer investment in training, through options ranging from extensive funding for technical assistance to tax credits to a training levy. The most far-reaching approach—one that would affect all firms—would be a national training levy; with a levy, employers would either commit a small percent of their payroll to training or pay the same amount to a national or State training fund. Other possibilities, such as a limited tax credit or direct assistance for training, could be used to assist firms that have limited resources for training, but these would cost the Federal Government quite a bit. Enhanced support could be made available to help individual employees undertake training on their own.

The more aggressive strategy outlined above, with its national training levy, would result in a fundamental change in the training behavior of all employers (including small business and government). It would elevate training and skill development in the national consciousness. On the other hand, it could quickly devolve into training-for-training's sake. If phased in too fast, and without

some control over the quality of training, its potential to upgrade workforce skills would be reduced. Moreover, most employers would need time to evaluate their training needs and to put management structures in place to take full advantage of the new skills possessed by their workers. The training might have greater effect if it were combined with technology assistance to help firms adopt new technologies and more effective ways to implement these technologies. State industrial extension services or Federal technology assistance might help.

Many firms—even those that spend enough on training to be unaffected by a training levy—would see the levy as intrusive and would be concerned about bureaucracy, red tape, and possible government involvement in the content of training. Business might be more willing to be involved if a new institution, located outside any existing government agency, were chartered to work with industry groups on employee training, work organization, and new technology adoption issues. Ideally, such an institution would be set up by the employers themselves; it might be funded through the national levy, were this adopted.

Even if fully implemented, the options and approaches discussed in this chapter would comprise only one leg of a national strategy for human resource development. As a new area of involvement for the Federal Government, the relationship of work based training policies to other kinds of government training programs—assistance to displaced workers, older workers with outdated skills, the economically disadvantaged, at risk youth, and those on welfare—would need to be defined and clarified.<sup>4</sup> Although not within the scope of the policy options discussed here, better coordination and integration of these programs, especially at the implementation level, is emerging as a major concern. Indeed, Congress, in its consideration of bills to reauthorize the Job Training Partnership Act and the Carl D. Perkins Vocational Education Act, is evaluating alternatives, such as a human resource council, to better coordinate Federal training, education and social service assistance now distributed to a wide variety

of State and local bodies. Others have proposed merging of existing education and training programs where possible, or creation of new entities, such as Employment and Training Boards, to serve local labor markets. Whatever mechanism is selected, close interaction with employers will be needed.

## ISSUE AREA A: REDUCING BARRIERS TO FIRM-BASED TRAINING (Table 2-2)

Employers, of course, benefit from having well-trained workers. But many firms shy away from paying for broad-based training. There are several reasons.

Compared to workforces in many other countries, U.S. workers tend to change jobs more often—especially in the early years of their careers. Many employers, especially small ones, fear losing their investment if they provide general training to an employee who then takes a job at another firm (maybe even a competitor). Of course, firms often do find ways to share training costs with employees. Moreover, some evidence suggests that employees who receive the most training tend to have longer tenure with their employers than those who get less.

Another uncertainty for employers is whether the training support system available in the community will meet their needs. Relatively few companies can afford to develop and implement their own internal training systems. The majority are therefore dependent on outside providers—vendors, consultants, community colleges, private training schools—of highly variable quality.

A third reason is employer uncertainty about whether their workers' performance will actually improve after formal training. Some firms have found that 20-30 percent of their nonsupervisory workers must take remedial courses before taking classroom training and, although classroom training can be effective, transferring the training back to the job can be difficult. Faced with such circumstances, employers may pursue management strategies that minimize the need for training.

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<sup>4</sup>For discussion of displaced worker issues, see the following Office of Technology Assessment reports: *Technology and Structural Unemployment: Reemploying Displaced Adults* OTA-ITE-250 (Springfield, VA: National Technical Information Service, February 1986); *Plant Closings: Advance Notice and Rapid Response* OTA-ITE-321 (Springfield, VA: National Technical Information Service, September 1988); *Trade Adjustment Assistance: New Ideas for an Old Program* OTA-ITE-346 (Washington, DC: U.S. Government Printing Office, June 1987).

Assuming that Congress wishes to encourage employers to invest more in training, there are many options it could consider. Four approaches are discussed below:

1. helping firms setup training consortia
2. helping trade associations and industry groups build training capabilities
3. offering tax credits for certain training expenditures; and
4. implementing a payroll based levy for training.

#### Option 1: Help Firms Set Up Training Consortia (Table 2-2)

Training consortia or cooperative training ventures involving several employers can help employers reduce costs and ease their concerns about the perceived risks of training. Small companies in a consortium can share costs of instruction and training facilities. Consortia could be used by large firms and their supplier networks to develop shared training approaches and common workplace practices (e.g., for quality control). Consortia also might be used to upgrade the training skills of first-line supervisors and others who are expected to give informal training but have little training background. Community colleges and other training organizations could play constructive roles in consortia. While a few examples of training consortia exist (see ch. 5), organizing new consortia can be difficult; moreover, some firms worry (though perhaps needlessly) that joining a consortium could make them vulnerable to antitrust actions. To help companies set up training consortia, Congress could authorize start-up assistance and clarify the relationship of training consortia to antitrust laws.

No Federal agency has a continuing program to help firms setup multifirm training consortia.<sup>5</sup> A bill to setup such a program in the U.S. Department of Labor is before the 101st Congress (S. 2114 as introduced).<sup>6</sup> The bill would (among other things) authorize grants to help companies in the same

industry or using similar technologies to plan and organize training consortia. The training would aim to help technicians, nonsupervisory workers, first-line supervisors, and other workers function more effectively with new technologies, management practices, and new forms of work organization in both manufacturing and service industries. The bill would authorize the program for 10 years, with \$5 million for the first fiscal year, and such sums as necessary thereafter.

Some employers shy away from involvement in multiemployer training activities out of fear that their participation might be interpreted as violating Federal antitrust laws.<sup>7</sup> This concern may not be warranted, given the fact that some firms now participate in multifirm apprenticeship programs. However, the perception of legal problems can be as great a barrier as actual legal barriers.

To reduce business uncertainty, Congress could clarify how antitrust law would be applied when firms form training consortia. In some special cases, Congress has adjusted antitrust law to minimize interference with other public policy objectives. In the 1984 National Cooperative Research and Development Act, Congress clarified that precommercial research and development collaborations are to be judged "on the basis of . . . reasonableness, taking into account all relevant factors affecting competition," and also limited damages for registered projects to actual injury.<sup>8</sup>

In helping firms initiate consortia, the Federal Government also could support efforts to provide consortia with information and technical advice on best practices. Multifirm consortia can be used to develop and deliver several important types of training. For example, they might make it more cost effective for firms to provide the classroom training associated with apprenticeships. With encouragement, multiemployer groups might develop and administer industry-specific programs to address basic skills problems encountered by member firms,

<sup>5</sup>The Department of Labor on occasion has provided demonstration grants to industry and educational consortia to develop training materials.

<sup>6</sup>Section 404 of S.2114, the proposed Excellence in Mathematics, Science, and Engineering Education Act, as introduced.

<sup>7</sup>Commission on Workforce Quality and Labor Market Efficiency, *Investing in People: A Strategy To Address America's Workforce Crisis; A Report to the Secretary of Labor and the American People* (Washington DC: U.S. Department of Labor, September 1989), p. 19.

<sup>8</sup>Public Law 98-462, 15 U.S.C. 4301 -4305." Even without the clarifying legislation, this "rule of reason" would usually apply. However, the 1984 law did substantially reduce business uncertainty and the need for extensive legal analysis. The 1984 Act and possible further antitrust clarifications and amendments to facilitate interfirm cooperation are discussed in U.S. Congress Office of Technology Assessment *Making Things Better: Competing in Manufacturing*, OTA-ITE-443 (Washington, DC: U.S. Government Printing Office, 1989) pp. 219-231, pp. 66-69.

S. 2114, as introduced in the 101st Congress, proposes that publicly disclosed training consortia covered under the bill would be judged by a similar rule of reason.

Table 2-2—issue Area A: Reducing Barriers to Firm-Based Training

**Option 1! Help firms set up training consortia:**

. This could include start-up grants and technical assistance to firms, trade associations or industry groups, and training institutions (e.g., community colleges) to organize multifirm training consortia. To give the program visibility and staying power, Congress could give the administering office a statutory basis, and funding authorization, and clarify employer concerns about antitrust violations. Beyond this, Congress could, as a further inducement to companies to engage in cooperative training efforts, set aside some funds from Federal adult education and vocational programs specifically for consortia activities.

Consortia could involve: 1) new groups specifically set up to provide training, and 2) existing industry and trade organizations, given added training functions.

**Option 2: Expand technical assistance to trade associations, others:**

. In conjunction or separately from Option 1, give a statutory charter and technical assistance funds to the U.S. Department of Labor (DOL) to: 1) help trade associations and other industry groups identify industry-specific training needs, and to, 2) help them build training capacities and institutional structures. DOL now funds about \$3 million of work-based learning demonstration projects a year. To launch a meaningful program of technical assistance, initial funding at three times this level might be needed. Some of the funds could be made available to State industrial training assistance programs.

**Option 3: Consider a limited tax credit for private-sector training:**

• The initial steps might include: 1) directing the Treasury Department (in coordination with the Department of Labor and the Department of Commerce) to evaluate alternatives for targeting the tax credit; and 2) directing Treasury (again in cooperation with Labor) to conduct a field trial on the fiscal impacts of a limited tax credit by, for example, reimbursing participating firms with an amount equivalent to what they might receive for training if the limited credit were in effect. The fieldtest could be restricted to small and medium-size firms and also limited to particular kinds of training expenses (such as basic skills training). Legal considerations would prevent offering an actual tax credit to selected firms during the trial period; hence, appropriated funds would be needed.

**Advantages:**

. The consortium approach might induce more firms to share training or risks they might not singly assume. If coordinated with other Federal education and training programs, the consortium approach could expand access of small businesses and their employees to basic education, job skills upgrading and transfer of the latest training technology and techniques. The consortium approach also might help more firms send personnel (such as supervisors and others responsible for informal training) for train-the-trainer instruction.

**Advantages:**

. The approach might encourage more industry-sector responses to skill development, building on private sector initiative and depending on the private sector for implementation. If evaluation and dissemination were built into the program, other industries might become more involved, with little need for further government assistance.  
• By setting up a statutory office and program authorization at the Federal level, Congress would place Federal support for research, demonstration, and technical assistance for industry-based training activities on a firmer foothold, less subject to year-to-year flux in allocating Departmental research funds.

**Advantages:**

. The fieldtest would give a sounder basis for subsequent decision about whether to proceed with a tax credit. As for the advantages of an actual tax credit, firms would have the choice of using or not using this incentive—and it would thus be more accepted by employers. If carefully targeted to certain kinds of activities like basic skills education, a tax credit approach might affect the behavior of firms at the margin.

**Disadvantages:**

• While used in some industries like construction, there could be structural reasons why the training consortia or cooperative training concept has not caught on with American firms. Firms could be concerned about loss of proprietary information and also about raiding of trained employees by firms outside the group. Also, small firms often do not join trade or industry groups.

**Disadvantages:**

• Startup funds alone might not be enough. It could be difficult for industry organizations to develop and sustain required levels of support once government funds ended. Federal technical assistance, even if provided for several years, will not necessarily be sustained by employers or trade associations on their own.  
• Many trade associations and industry organizations lack close linkages to small employers and have limited capacities to deal with training issues. Those industry organizations most likely to seek Federal help might have planned training actions in any case; hence, the Federal funds might simply substitute for industry funds.

**Disadvantages:**

. Tax credits are difficult to target and limit. Tax credits would not do much to encourage firms to undertake training they were not predisposed to take. Hence, the approach might not be effective for such training as basic skills. At the same time, tax credits can be inefficient when firms actually do make use of them, since it is difficult to determine whether the credit simply substitutes for training the firm would undertake in any case. Tax credits would not help not-for-profit employers and their employees. Finally, tax credits run counter to recent efforts to hold tax expenditures under control.

**Option 4: Phase In a payroll-based national training levy:**

- Employers would be obliged to spend a small percentage of their payroll (say 1 percent) on broad, transferable training or pay an equivalent amount into a government training fund. (The government fund could support such activities as workplace literacy, training of contingent workers or other underserved workers, technical assistance, or services to displaced workers.) During the first phase, employers would not have to pay the levy if they reported their training expenditures to the government (even if they spent nothing on training.) Implementation would be phased in over several years to allow firms to develop training expertise and select the best service providers. The levy could be made to apply to employers in all sectors, including nonprofit organizations and governments.

**Advantages:**

- This approach would assure a certain minimum of worker training by all firms and employing organizations, including nonprofit organizations and government. It thus has the potential to raise worker skill levels throughout the employed workforce. Because the cost would be borne by the employers, direct competition for public funds—such as training of unemployed people—would be minimized. Depending on how it were implemented, this approach could also give firms considerable flexibility about how to fulfill their training obligation. Even if full implementation of the levy never occurred, the approach proposed (with an initial period of tax forgiveness if the firm reported training expenditures to the government) would for the first time create benchmark data on firm-based training expenditures that would provide policymakers with a sounder basis for subsequent decisionmaking. The first phase data alone might affect the training behavior of firms, since they would be able to compare their expenditures with overall trends in their sector.

**Disadvantages:**

- The more targeted the training requirements (e.g., basic skills training, apprenticeship training) the more monitoring and paperwork would be needed. Yet, without targeting, firms might not use the training to meet publicly important objectives.
- There is a danger that this approach could lead to training for training's sake, especially in the early days of full implementation. Many providers could be expected to jump into the training market, with the probability that much poor quality training would be offered.
- Some employers, especially employers having financial difficulties, might not be able to meet the levy requirements.
- The first phase of the program, in which firms would have the option of paying the tax or reporting their training expenditures, could create burdensome paperwork or undue expenses for some firms.
- The levy could result in undue emphasis on formal training in classrooms, to the exclusion of improving on the job training.

SOURCE: Office of Technology Assessment, 1990.

using curricula and instructional materials directly relevant to the students' jobs. All of these activities could be aided by technical assistance.

Consortia, in themselves, will not overcome employer concerns about losing training investment when workers leave before a certain payback period. Consortia members could have cost recovery agreements when trainees move from one member firm to another. However, outside firms may be "free riders, able to hire away well trained workers from consortia members without incurring training costs.<sup>9</sup> But the employer's investment would be smaller, due to economies of scale, so concerns about loss would be smaller.

Generally, such concerns might be eased if individual firms and their employees were to establish "training compacts" to upgrade training of underserved employees and new entrants. Apprenticeship might offer a model. Some apprentices in unionized industries enter into compacts when they receive training financed by joint union-manage-

ment trust funds. Apprentices who leave the unionized industry during or shortly after finishing the training may have to reimburse the trust fund for part of the assistance. Congress might instruct the Department of Labor to explore and report on alternative approaches for risk-sharing by employers, workers, and government that could lead more firms to experiment with training contracts of one sort or another.

**Option 2: Provide Technical Assistance to Trade Associations and Other Industry Groups (Table 2-2)**

Whether or not Option 1 is adopted, Congress might give the U.S. Department of Labor (DOL) a statutory charter and more funds to help firms, trade associations, and other industry organizations build up their training capacities. DOL recently set up a new Office of Work-Based Learning (OWBL), which is beginning to move in this direction.

<sup>9</sup>Laurie J. Bassi, *Multi-Employer Training Consortia: An Idea Whose Time Has Come* (Washington, DC: National Federation of Independent Business Foundation, April 1990) pp. 4-5.

However, OWBL has other major program responsibilities (including trade adjustment assistance and retraining of displaced workers). A statutory charter for OWBL, or creation of a similar office to support training consortia and training by other industry groups, would signal congressional commitment to technical assistance.

OWBL now funds a few national demonstration projects (3 million dollars' worth in 1989) on an ad hoc basis to show new uses for apprenticeship concepts. (See Option 5 for apprenticeship discussion). Even the most successful demonstrations, however, would reach only a tiny fraction of U.S. employers. With a statutory charter, a separate authorization, and enough funds, DOL could launch a sustained effort to help trade associations, other groups of firms, or labor/management cooperative groups involve their members with training.

U.S. trade associations, for the most part, are less involved with training than their European counterparts. Without encouragement, they are not likely to become involved on their own; with encouragement, such as technical support, some might act. DOL might help them identify industry-wide training needs and, when the needs are known, assist in developing training materials and best-practice approaches that member firms might use. The Canadian Federal Government has had some success with this approach. In one case, it convinced large Canadian electrical firms and their unions to join a government-sponsored study on the industry's training needs. After the study was done, the companies and the unions set up a joint training committee which agreed to adopt a joint training fund, with

some cost-sharing by the Federal and provincial governments.

DOL would need much more than \$3 million—the current funding for demonstration projects—to launch a significant technical assistance program. In fact, without initial funding of \$10 million per year, there would be little point in characterizing the effort as anything other than a demonstration program. An expanded DOL technical assistance program would complement Option 1 (help to industry for training consortia). Of course, it might be possible that the States or a nongovernmental organization will become more integrally involved in providing technical assistance. For example, if a nonprofit institute to work with employers and employer organizations on workplace learning were established, the institute could perform part of DOL's technical assistance mandate. (See Option 12 in table 2-4.) If the States greatly expanded their technical assistance capabilities, the Federal role might evolve into a grant assistance program (with higher funding levels) or, if State efforts were sufficient, be reevaluated.

#### Option 3: Field-Test Limited Tax Credits for Private-Sector Training (Table 2-2)

There have been several recent proposals to give firms a limited tax credit for employee training.<sup>10</sup> For tax purposes, firms now treat much of their training costs as expenses that can be deducted in 1 year rather than amortized over several years as is the case for capital equipment.<sup>11</sup> Proponents believe a tax credit would leverage more employer training investments at less cost to the government than

<sup>10</sup>Three examples: 1) H.R. 1219, the proposed National Training Incentive Act of 1985, as proposed but never acted on in the 98th Congress, called for a 25-percent tax credit for eligible training expenditures (e.g., apprenticeships, cooperative education programs) that exceeded a company's average spending on these activities over the previous 5 years; 2) The Commission on Workforce Quality and Labor Market Efficiency, in proposing a training tax credit to Secretary of Labor Dole, also called for a long base period for calculating the credit; the Commission proposed to limit the credit to (a) compensation of full time corporate trainers, (b) purchase or development of instructional materials and equipment, and (c) payments to third-party training institutions. (One member of the commission dissented on the tax credit.); 3) A recent joint report issued by the National Center for Education and the Economy and the American Society for Training and Development called for tax-based investment incentives to partially subsidize development and delivery of training, and discussed some issues involved in designing a tax credit. See Anthony P. Carnevale and Janet W. Johnston, *Training America: Strategies for the Nation*, (Alexandria, VA: American Society for Training and Development 1989), pp. 53-58.

<sup>11</sup>John M. Quigley and Eugene Smolensky, "The Tax Treatment of Training and Educational Expenses," *Investing in People: A Strategy To Address America's Workforce Crisis*, background papers, vol. 1, p. 838.

would be the case for directly appropriated funds.<sup>12</sup> The tax credit also could make training more visible to high level corporate officials. Tax credits also tend to be viewed favorably by potential beneficiaries.

At the same time, tax credits are hard to target effectively and can be an inefficient way to stimulate investments. If a training tax credit were authorized, it would be difficult to devise safeguards to keep firms from taking a credit for training they would undertake in any case. Also, the tax credit would have to be carefully designed to exclude some kinds of training expenses (e.g., renting a conference center at a vacation resort, transportation to such facilities). For reasons such as these, as well as the unpredictable effect of tax credits on the Treasury, many consider tax credits to be bad public policy.

Of course, the credit could be narrowed to a few eligible activities (e.g., basic skills instruction or formal classroom training in programs that give successful trainees a recognized certificate of successful completion).<sup>13</sup> The credit also might be restricted to training of certain categories of employees (e.g., nonsupervisory workers). If narrowly drawn, the credit might help firms build their internal training capabilities. One possibility would be to allow smaller firms (those with under 250 employees) to get a partial credit for training materials and equipment, or for sending supervisors and other personnel to courses on training.

There is a danger that a tax credit would need to be so narrowly cast that it would not serve as much stimulus. Building in safeguards would increase paperwork, which in turn would reduce the likelihood of company participation in the program. Very few companies centralize record keeping of their training expenses; to make sure that the credit

supported additional training, data collection would be needed to establish a baseline. While some activities (e.g., corporate payments to outside training institutions) would be quite easy to document, internal training activities, if covered by the credit, would be very hard to document.

Given the implementation questions involved in administering a tax credit, Congress might take some preliminary steps (as discussed under Option 3 in table 2-2) before deciding to authorize a full-fledged training tax credit. For example, Congress might instruct the Department of Treasury, in coordination with the Departments of Labor and Commerce, to prepare a detailed analysis of how a tax credit might be targeted to meet identified training needs.

As part of the evaluation process, Congress could also authorize Treasury, in conjunction with Labor, to experiment with a field test of training incentives that would be equivalent (in essence) to a tax credit. One possibility would be to offer the training incentive to a set of randomly selected firms for, perhaps, a 2-year period. Firms that elected to participate in the field trial, as a condition for assistance, would need to be willing to work with Treasury or Labor personnel on appropriate accounting measures.

#### Option 4: Phase in a Payroll-Based National Training Levy (Table 2-2)

Among options considered here, a payroll based training levy would be the most far-reaching approach the Federal Government or the States could take to stimulate employer investments in training. It also would be the most controversial with employers. Many variants of a payroll-based levy exist in other nations. The one discussed here would

<sup>12</sup>*Training America: Strategies for the Non-union*, for example, speculates that a 20-percent tax credit for new training expenses could leverage a 20-percent increase in corporate training activities. This would mean that the spending on formal training could increase to \$36 billion from \$30 billion (the authors' estimate of what firms now spend on formal training). Revenue losses to the government, they estimated, would be \$600 million. Of course, there is no way to predict in advance just how much of a stimulus the tax credit would be. The stimulus anticipated by *Training America* would appear to be at the extreme upper end of likely outcomes. An analysis of the early years of the U.S. research and development (R&D) tax credit (viewed by some as a model for a training credit) found that firms spent on average only 1.2 percent more on R&D because of the credit than they might have without it; losses to the Treasury were probably greater than the gain in R&D attributed specifically to the credit. See Edwin Mansfield, "Public Policy toward Industrial Innovation: An International Study of Direct Tax Incentives for Research and Development," in Kim B. Clark, Robert H. Hayes and Christopher Lorenz, eds., *The Uneasy Alliance: Managing the Productivity-Technology Dilemma* (Boston, MA: Harvard Business School Press, 1985), pp. 385-386.

<sup>13</sup>Some contend that a Federal basic skills tax credit is a red herring that would prompt little employer action and might divert policymakers from dealing with the real barriers to employer involvement. While a tax credit alone would not solve the problem, the only way to find out how employers would react would be to try out the concept. If carefully crafted, a temporary credit would cost little if it failed. (For an analysis of possible limitations of the tax credit for basic skills, see Forrest P. Chisman and Wendy L. Campbell, "Narrowing the Job-Skills Gap: A Focus on Workplace Literacy," Forrest P. Chisman and Associates, *Leadership for Literacy: The Agenda for the 1990s* (San Francisco, CA: Jossey-Bass, 1990), pp. 165-167.)

give employers a choice between spending a certain amount on training (say 1 percent of payroll) or paying the same amount into a special training fund administered by a public agency<sup>14</sup> (see box 2-A). The levy could apply to all employers, including government agencies.

This option is not so much a tax as an “obligation” that employers provide their workers with training or pay the levy. Within broad guidelines, employers would have the flexibility to use the training for purposes that fit into their strategic needs. Only if a firm elected not to spend the money on eligible training would the levy be imposed. (Another variant would be a levy-grant system, now used in some States, in which all employers pay a payroll tax for training that is then redistributed for specific training projects. See box 2-C for discussion.)

Many training intensive countries, including France, Sweden, Ireland, South Korea, Singapore, and the Netherlands, use variants of a levy system to insure that more firms engage in training or to insure that workers do receive needed trainings (see ch. 3 for a discussion of the French and Korean programs). France requires employers to spend an amount equivalent to 1.2 percent of payroll on training or pay the same amount to a training fund. A separate 0.5 percent payroll levy is earmarked exclusively for apprenticeship training. In place since 1971, this use-it or lose-it approach has been quite successful in generating more firm based training—small and medium-size firms have doubled their training over the period<sup>16</sup>—in part because firms have a great deal of discretion about whom and how to train. But questions of need and suitability of the training remain.

There is little doubt that the levies have stimulated additional training in these countries. If applied in this country, the levy could be used to place a floor under employer-based training activities, with minimal direct outlays of public funds. This would have

the advantage of minimizing competition for limited public funds available for training of economically disadvantaged people, displaced workers and others. The levy might have some short term impacts on Federal revenues, as some firms would use otherwise taxable profits to meet the 1 percent requirement. Firms with better trained employees might be more productive and efficient and generate more taxable income, thus offsetting any fiscal impact.

What training activities would the levy cover and how might it be implemented? One possibility would be to target the levy for training activities that develop broad-based skills of employees or that develop the firm’s internal training capabilities to develop such skills. Examples: basic skills training, apprenticeship or other training that would give employees recognized credentials, and costs for developing relevant training materials or paying trainers to conduct these programs. Administratively, it would be easiest if the States oversaw the levy as they already collect a payroll tax through the Unemployment Insurance system.

While promising in theory, a levy has disadvantages as well. It would add to the amount currently subject to payroll tax collection under various Federal laws—an amount some view as already burdensome. Some economists might argue that the workers, not employers, would ultimately bear most of the cost. If so, workers in firms that elected to pay the levy would be in the position of paying for the training of others, without getting training themselves.

Some training produced by the levy—at least in its early years—would probably be poor in quality, with little direct connection to the real needs of the firm or the workers. In France, some managers still complain that the government is forcing companies to conduct training for training’s sake. Also, while the system clearly has generated a great deal of firm-based training, it has not necessarily been directed to those workers with the greatest need.

<sup>14</sup>This approach was recently advocated by the Commission on the Skills of the American Workforce, a private group Setup by the National Center for Education and the Economy, in its report, *America’s Choice: High Skills or Low Wages* (Rochester, NY: National Center on Education and the Economy, 1990).

<sup>15</sup>Other countries, including West Germany and Japan, use payroll taxes to finance a range of employment and training programs; some of these funds are used to train employed workers. Ibid., Supporting Information IV.

<sup>16</sup>& cited in B. S. Barnow, Amy B. Chasanov, and Abhay Pande, *Financial Incentives for Employer-Provided Worker Training: A Review of the Relevant Experience in the U.S. and Abroad*, report prepared for the U.S. Department of Labor Employment and Training Administration, Apr. 2, 1990, p. 35.



### **Box 2-C—State Training Levies**

At least four States (California, Delaware, Rhode Island, and Alaska) now collect a small payroll-based training tax from employers. These States use what has been called a levy-grant system to fund training.<sup>1</sup> Most of the tax is used to train unemployed workers, but some of the tax can be used to support firm-based training if it would serve certain objectives (e.g., reduce the likelihood of a plant closing or layoff). In contrast to the French approach, the firm does not receive credit for the training expenses it incurs; instead, the employer pays the money into a government fund that is redistributed in grant form. Only a few firms—those who apply for and receive a grant—directly benefit from the tax.

These States collect the training levy when firms pay their Unemployment Insurance (UI) payroll tax. However, the training tax is not part of UI. The four States first imposed the training tax at a time when they could lower the unemployment insurance tax rate firms' pay. Since the employers' payroll tax rate was no higher than the year before, political opposition was lessened.

The State levies are not large; they amount to just 0.1 percent of that portion of payroll that is subject to UI taxes. The largest amount raised is in California, which has about \$100 million available in its training fund.<sup>2</sup> (By contrast, the training tax component for payroll levies in France, the Denmark, Sweden, Ireland, Singapore, South Korea, Japan, and West Germany range from about 1 percent of payroll to about 2.5 percent.)<sup>4</sup>

Other States could impose such training levies—provided they are kept separate from the Unemployment Insurance trust fund. However, training levies are only likely in States that have a surplus in the trust fund. States in deficit—those with the greatest recent demand from claimants—would not have the option of offsetting scheduled tax reductions as the base for the levy. Thus, any payroll-based approach would constitute an increase over current tax rates for nonsurplus States.

Of course, States have other options—such as the levy approach used in France—that they could pursue and some States already fund programs out of general revenues. The levy might only be collected if companies failed to spend the required amount on eligible training activities for their employees. Funds collected from the levy could be made available as grants to companies or organizations involved in training of employees, or pooled to defray publicly supported training of (among other possibilities) displaced workers, contingent workers, older workers, or employed workers in industries or occupations vulnerable to displacement.

<sup>1</sup>See Peter A. Creticos, Steve Duscha, and Robert G. Sheets, "State Financed Customized Training Programs: A Comparative State Survey," report prepared for the Office of Technology Assessment under contract No. L3-3810. In addition, New Jersey uses penalties and fines collected from its Unemployment Insurance system to finance training. Five States use lottery funds to finance industry training. The remaining States with customized training programs finance the programs through general revenues.

<sup>2</sup>Robert J. Gitter, "A Review of Financial and Non-Financial Incentives for Apprenticeship programs," contractor report prepared for the U.S. Department of Labor Bureau of Apprenticeship and Training, September 1988, p. 25.

<sup>3</sup>This includes some carryover.

<sup>4</sup>See chapter 4 and the Commission on the Skills of the American Workforce, *America's Choice: High Skills or Low Wages!* (Rochester, NY: National Center on Education and the Economy, 1990).

As mentioned, a levy could be crafted to meet objectives such as improving the basic skills of employees or providing lower level workers with access to training. In this event, some strings would have to be attached, with an accompanying need for some paperwork and administrative oversight to assure compliance. The French simply ignore this issue by leaving it to the firm to decide the kind of training to provide—a circumstance that would not necessarily direct training to the desired areas. In countries that have targeted the levy (e.g., Ireland and South Korea), firms encounter more reporting requirements.

Still, the levy approach merits greater consideration in the United States than it has received heretofore. As in the case of a tax credit, there are enough uncertainties about a national training levy that a good deal of spadework would need to precede full-scale implementation. For example, without sound information on firms' training expenditures, there is little basis for determining whether the overall objective of the levy should be to assure that firms spend, say, 1.0 percent or 1.5 percent of payroll on training. Nor is there a basis for estimating differentials in training by industry sector.

Rather than simply study the issue, however, Congress might consider proceeding with a national levy in a two-stage process. During the first phase, lasting perhaps 3 years, firms would have the choice of either paying the levy or reporting their training expenditures. Firms that did report their expenditures would owe nothing, even if they spent nothing on training. By the end of the first phase, policymakers would have detailed information on which to base a decision about whether to proceed with the levy. Of course, it might be possible to obtain the needed data through a special survey of firms, without imposing the levy. However, the very existence of the levy during the first phase would prompt large numbers of firms to begin keeping closer track of their training activities. Moreover, during the trial period, industry-sector training information could be made public, so that firms would have a basis for comparing their training activities with their competitors'.

## **ISSUE AREA B: RETRAINING INDIVIDUAL WORKERS FOR CAREER ADVANCEMENT (Table 2-3)**

**In** contrast to the education system, where social equity and fairness issues are of much concern to policymakers, equity concerns get much less consideration in the debate about human capital development and the workplace. Training can make a major contribution to career advancement for individual workers. (See ch. 8.) Several measures suggest that training is associated with long term positive effects for the subsequent income of trainees.<sup>17</sup> One study comparing trained and untrained workers with 12 years of experience found that the trained workers had wages averaging 9.5 percent more than their untrained counterparts at any point during the ten years following training. (Trained workers with more experience also fared better, although not so dramatically.) While company training, especially, had a major impact, with increased earnings observable for over 13 years, vocational training at a school also had a positive effect. Moreover, the benefits of training extended across a broad spectrum of the workforce. Managers experienced the greatest in-

crease in earnings following training, while semi-skilled workers had the longest duration of benefits. Training is also associated with a lower likelihood of unemployment. Moreover, trained workers who do experience unemployment are more likely to return to work more quickly than their untrained counterparts. These findings suggest that public support for training will be partly repaid by higher levels of taxable income, and less need for services to the unemployed.

Yet, many workers get little training from their employers, at least in broad, transferable form that can help them make worklife transitions when needed. Part-time or temporary workers who do not work for temporary service firms often get little training except on their own. Nonsupervisory workers also get little training, as do both older workers and very young workers. Minorities and people with less education also get less training. At least in the past, women also received less training than men.

While the United States has a large adult education system, many barriers, including financial constraints, scheduling problems, insecurity, and poor basic skills, impede participation. In this section, several options to encourage more employers and employees to address the training needs of individuals are discussed, including: 1) expanding apprenticeship, 2) funding of postsecondary vocational education, 3) supporting workplace basic skills programs, 4) extending favorable tax treatment for employee education, and 5) evaluating support for continuing education.

### **Option 5: Expand Traditional Apprenticeship (Table 2-3)**

Apprenticeship, which combines supervised training on the job with some classroom instruction, can be a very effective way to produce highly skilled workers who have a sound grasp of the theory and practice of their trade. In contrast to the school-to-work transition apprenticeship systems that prevail in European countries like West Germany, apprentices in the United States are typically workers in their 20s and older who have been out of school for some time.

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<sup>17</sup>See Lee A. Lillard and Hong W. Tan, *Private Sector Training: Who Gets It and What Are Its Effects*, report prepared for the U.S. Department of Labor (Santa Monica, CA: The Rand Corporation, 1986). Of course, many other factors are relevant. Employers can be expected to invest more heavily in the workers they believe to be most capable and most likely to benefit from training. It is also possible that workers who seek training on their own may be more motivated, more capable, or more ambitious than workers who do not seek training.

Table 2-3-Issue Area B: Retraining Individual Workers for Career Advancement

<p><b>Option 5: Support efforts to expand apprenticeship concepts:</b></p> <ul style="list-style-type: none"> <li>• As a starting point, more funding could be given to the U.S. Department of Labor's Bureau of Apprenticeship and Training to promote expansion of traditional apprenticeships. (BAT's staff and budget have declined in recent years). BAT also could be directed to begin collecting information and statistics on the continuing training of journeymen. Some funds could also support Department of Labor efforts to work with industry and unions to develop national standards for certification of skills among trainees in industries that do not now have strong traditions of apprenticeship.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• The portion of the U.S. workforce that has gone through apprenticeships is small. A revamped Federal effort, if successful, might raise the status of traditional apprenticeships.</li> <li>• Structured approaches for work-based training might well be appropriate for industries that seldom have been involved in traditional apprenticeship programs. If certification standards were developed, benefits for both workers and firms would likely accrue; workers would receive credit for the training they completed -- a factor that could help them make job transitions; certification could make it easier for employers to select qualified personnel.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Prior efforts to expand apprenticeship-type approaches in this country produced little effect. Further efforts might simply deflect attention from other constructive efforts to develop workforce skills.</li> </ul>
<p><b>Option 6: Adequately fund Federal support for vocational programs:</b></p> <ul style="list-style-type: none"> <li>• The Carl D. Perkins Vocational Education Act (or the reauthorized version of the vocational education law) has several provisions related to adult education and retraining, including employee training.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Bills proposed in the House and Senate to reauthorize the Perkins Act would authorize some support for employed worker retraining, including apprenticeships. These activities could be beneficial for both firms and workers.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Even if fully funded, the amounts made available would not have much impact on employer based training, and could deflect limited funds available for improving secondary vocational education.</li> </ul>
<p><b>Option 7: Fund workplace basic skills programs:</b></p> <ul style="list-style-type: none"> <li>• One possibility: recast Federal support for workplace literacy training from a demonstration grant approach (as now authorized under the Adult Education Act) to on-going programmatic assistance. As part of that effort, earmark some funds for: 1) cooperative basic skills development efforts by small businesses and other consortia; 2) industry specific projects aimed at developing and administering basic skills projects to meet specific needs within industries; 3) research, evaluation, and dissemination on the most effective approaches (including technology based approaches) to industry.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Workbased projects have the potential to expand provision of services to the fraction of the employed workforce with basic skills deficiencies.</li> <li>• Earmarking funds to small business and consortia could assure that the benefits of this program do not accrue disproportionately to large firms and their workers.</li> <li>• Earmarking funds for industry specific materials and approaches also appears desirable, since research suggests that basic skills developed in occupationally specific contexts are more likely to be transferred back to the job.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Workplace based approaches have not been extensively evaluated; this is needed so that the most promising approaches can be disseminated to others. It may be premature to proceed with an on-going program of support for workplace literacy until evaluations of initial demonstration grants have been completed.</li> <li>• Turning what is now a demonstration grant into a continuing program of regular assistance could result in competition for limited Federal funds for basic skills programs between employers and individuals seeking adult basic education courses on their own.</li> </ul>
<p><b>Option 8: Extend favorable tax treatment for employee involvement in continuing education:</b></p> <ul style="list-style-type: none"> <li>• Make Section 127 of the Internal Revenue Code permanent, so that workers receiving employer provided educational assistance will not need to declare this assistance as income in filing their Federal income taxes.</li> <li>• Allow workers to fully deduct job-related education expenses, and allow them to take the deduction on the short form.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Section 127 is one of the few Federal incentives for continuing education of workers. Making the exclusion permanent would assure that workers would not discontinue training programs they enter on their own simply because they might have to pay taxes on the assistance they receive from their employers.</li> <li>• Section 127 has expired several times before Congress has renewed it—and made its coverage retroactive. By making the exclusion permanent, Congress could end confusion among employers about reporting requirements and underscore its commitment to continuing education.</li> <li>• Workers can not now deduct job-related education expenses that they pay for themselves unless these expenses (and other miscellaneous expenses) amount to 2 percent of their adjusted gross income.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Section 127 may cost the Federal Government \$255 million or more per year in foregone tax revenues. If the purpose of Section 127 is to help low-wage workers with continuing education, there may be more appropriate and direct ways to accomplish this.</li> </ul>

(continued on next page)

Table 2-3-issue Area B: Retraining Individual Workers for Career Advancement-Continued

<b>Option 9: Evaluate ways to help workers finance continuing education:</b> • Among the possibilities that could be covered by the evaluation: human resource investment funds for workers, surcharges on individual income taxes to repay education loans, and approaches for guaranteeing a specified amount of postsecondary education to all Americans.	<b>Advantages:</b> • Thorough evaluation would be needed to determine which would be most likely to be cost effective and successful.	<b>Disadvantages:</b> • More study is not likely to resolve the fundamental issues, which concern education philosophy.
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SOURCE: Office of Technology Assessment, 1990.

Apprenticeship in the United States is not in very good shape, and apprentices represent a declining proportion of the workforce. During the 1980s, the proportion of enrolled apprentices fell by one half, from about 0.3 percent to about 0.15 percent, as manufacturing companies discontinued long standing apprenticeship programs in the midst of layoffs and downsizings. Many companies that discontinued their apprenticeship programs in the recession years of the early 1980s have yet to begin them anew.<sup>18</sup>

Despite its problems, apprenticeship has served industry and a small segment of the workforce well for over 50 years; it continues to be one of the most important means available to supply the United States with highly skilled craft, trade and repair workers. Efforts to rebuild apprenticeship—with nonunion as well as union employers—will be needed. The Federal Government might help by doing more to promote apprenticeship and by offering technical assistance through DOL's Bureau of Apprenticeship and Training. DOL also is evaluating ways to expand apprenticeship concepts to nontraditional industries, which could require funding for demonstration projects and certification efforts<sup>19</sup> (see box 2-D and ch. 8 on old and new approaches to apprenticeship).

While apprenticeship has many strong points, expanding or even maintaining the current level of apprenticeship could be difficult unless existing

problems are solved. Some problems relate to image; many nonunion employers see the formal apprenticeship system as dominated by unions, and are reluctant to become involved, even though there are many successful apprenticeship programs in nonunion firms. Federal and State roles in registering new programs and supporting existing ones are not clearly defined, and there is little oversight of program quality. Most apprenticeship programs have rigid time requirements; trainees must complete all hours of training even if their performance shows they are fully competent. Some formal requirements—such as a requirement for 144 hours of classroom training per year—appear inflexible and unnecessarily prescriptive.

It is difficult to see how the Bureau of Apprenticeship and Training (BAT) could do much to expand apprenticeship into new areas (as proposed in the Department of Labor's Apprenticeship 2000 activity), let alone promote traditional apprenticeship, without more funding. BAT's staff has been cut in half since fiscal year 1978—from 495 full time positions to 245 today—while its budget has stayed about the same (\$14 million). (In constant 1982 dollars, it's budget has declined by 60 percent.) President Bush's fiscal 1991 budget proposal (noting budgetary constraints and high priority staffing needs) also calls for further (albeit modest) reduction

<sup>18</sup>The United States has long ranked near the bottom among Western industrialized nations in civilian workforce apprenticeship programs. In 1977, before the decline in the 1980s, the United States ranked 14th among 16 industrialized countries in the proportion of its workforce enrolled in apprenticeships according to the Bureau of Apprenticeship and Training.

<sup>19</sup>U.S. Department of Labor, *Work-Based Learning: Training America's Workers* (Washington, DC: U.S. Government Printing Office, 1989) p. 17.

**Box 2-D—Apprenticeship: Old and New Models**

*In* late 1987, the U.S. Department of Labor announced its “Apprenticeship 2000” initiative to find ways to apply apprenticeship concepts in raising skill levels of American workers. Broadly speaking, the initiative has two components: strengthening traditional apprenticeship, which is concentrated in construction and manufacturing, and extending apprenticeship-like concepts to other industries and to nonunion firms. To achieve the second component, DOL’s newly established Office of Work-Based Learning has given demonstration grants to organizations like the AFL-CIO, the 70,001 Employment and Training Institute, and the National Alliance of Business.

It remains to be seen whether the projects will have a lasting impact on trade associations, unions, or industry groups. However, earlier efforts by DOL to expand apprenticeship to “nontraditional” industries had mixed results. DOL’s “New Initiatives in Apprenticeship” program, launched in 1973 and expanded in 1977, was not so much a demonstration as a continuing program, lasting several years. DOL contracted with 18 unions and trade associations to develop new apprenticeship programs. Of these, nine programs, aimed at fire fighters, emergency medical technicians, police officers, electrical workers, machinists, auto sales representatives, auto mechanics, vending machine repair technicians, and cooks, were evaluated in 1979 and 1980.<sup>1</sup>

The evaluation concluded that promoting apprenticeship through existing industry organizations was a “valuable and workable concept,” but that it had “inherent limitations.”<sup>2</sup> In general, the union programs had positive outcomes, while those operated by national industry associations did not. The problems with those run by industry associations, such as the National Auto Dealers Association and the National Automatic Merchandising Association arose from a lack of cohesive structures within the associations themselves. For example, staff levels were inadequate to reach the many small shops belonging to the Automotive Service Council.<sup>3</sup>

While some industry associations have long and extensive involvement in training, most do not. Hence, building up the capacity of the staff of these organizations will be critical if industry groups are to deal with training issues at a broader and deeper level. There are special problems in reaching small businesses. Small employers are less likely to belong to national associations than larger firms and are less likely to be aware of the training resources these associations might make available.

<sup>1</sup>Kirschner Associates, *bc*, *Evaluation of the National Industry Apprenticeship Promotion Program*, prepared for Employment and Training Administration, under Contract Number 23-11-78-04 (Washington, DC: National Technical Information Service, 1980), p. ix.

<sup>2</sup>*Ibid.*, p. xii, xiii.

<sup>3</sup>*Ibid.*, p. 59.

(with staff positions reduced to 239 full time employees). If Congress wishes BAT to expand its efforts, BAT will need more funds to increase staff, to provide technical assistance, and to develop and register new programs. Congress also might direct BAT to work with employers, employees and State agencies to revamp quality standards for apprenticeship programs, a move that could enhance the portability of the apprenticeship credential. If BAT’s technical assistance capabilities are to be strengthened, the agency will also need an adequate travel budget, and money to train and develop current and new staff. (As noted in Option 6, proposed amendments to Federal vocational education programs would authorize some funds to be used for apprenticeship.)

#### Option 6: Adequately Fund Federal Support for Vocational Education Programs (Table 2-3)

The Federal Government has supported vocational education since 1917. Over the years, Congress has periodically revised and expanded vocational education programs—although Federal vocational funds account for less than 10 percent of total expenditures. In 1984, Congress passed the Carl D. Perkins Vocational Education Act, a law that, among other things, placed somewhat more emphasis on vocational opportunities for adults. On average, the States used roughly 40 percent of the Federal funds they received under the Perkins Act to support vocational programs at post-secondary educational institutions.

A need to reauthorize the Perkins Act has provided the 101st Congress with the opportunity to consider some new priorities for Federal support for vocational education. The House and Senate passed quite different vocational education bills (H.R. 7 and S. 1109). As this report went to press, a House-Senate conference committee had just reported a vocational education bill, the proposed Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990, to resolve the differences.<sup>20</sup> The conference committee's version of H.R. 7 would authorize a \$1.6 billion package of support for vocational education in fiscal year 1991 (and such sums as needed for subsequent fiscal years through 1995). Nearly 80 percent of the authorized funding for fiscal year 1991 would be for basic State grants. These basic grants would be used to, among other things:

- support better integration of vocational and academic curricula in vocational education to give students both academic and occupational competencies;
- promote partnership efforts among industry, labor, community based organizations, and education groups;
- support so called tech-prep partnerships covering the 2 years before high school graduation and 2-year postsecondary or apprenticeship programs;
- support leadership and instructional programs in technology education.

The bill also authorizes several special grants to States of relevance to school-to-work transition programs, apprenticeships and employer involvement in vocational education. (See ch. 8 for discussion of these issues.) The tech-prep education special program would be authorized at the \$125 million level for fiscal year 1991. Another special program (authorized at \$10 million for fiscal year 1991) would provide cost-sharing support for business-labor-education partnerships in training. Among other things, these partnerships could be used to provide apprenticeships and internships in industry, to **encourage** business and labor representatives to be involved in the classroom, and to provide training and counseling that would help workers retain or upgrade their jobs. (The Federal cost-share would be somewhat higher when small business were involved.)

Several national or federally administered programs would be authorized by the bill. Among others, these programs would support:

- development of national standards for competencies in industries and trades. The Secretary of Education, in consultation with the Secretary of Labor, would be authorized to make grants to trade associations and labor organizations to organize business-labor-education technical committees, which in turn would propose the standards.
- development of interactive teaching materials that could be delivered through telecommunications. (Projects serving workers in need of improving basic or vocational skills to retain employment would be among those given priority).
- model programs for regional training in the skilled trades, including prejob and apprenticeship training and career counseling and upgrade training in specialized crafts.
- cooperative demonstration programs, including cooperative efforts between the **private sector** and vocational education agencies to address school-to-work transitions.

Assuming that the conference version of the bill is ultimately enacted, the issue of funding for vocational education will continue. A high level of overall funding may well be needed if the new special and national programs discussed above are to be fully implemented. In this regard, it is worth noting that Congress authorized (but never funded) a special State program for adult training and retraining when it originally enacted the Perkins Act in 1984. This unfunded special program was not proposed for reauthorization in the 1990 bill.

#### Option 7: Fund Workplace Basic Skills Programs (Table 2-3)

As discussed more fully in chapter 6, the basic skills problem in the United States affects many employed workers. Inadequate basic skills are no longer seen as the problem of the individual worker alone; many companies have discovered that one-fifth or more of their workforces need basic skills upgrading before participating in **technical** training. Demographic change in the workforce—in particular the smaller number of new workers who will

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<sup>20</sup>The Senate passed the conference committee version of H.R. 7 on August 2, 1990.

enter the workforce in the next few years-will also make it harder for employers to be selective, assuming that relatively low levels of unemployment continue.

While the long-term solution to the basic skills problem lies in better preparation of primary and secondary school students, major efforts will be needed to upgrade the basic skills of adult workers for the foreseeable future. Even if new high school graduates in the next few years have far stronger basic skills-an outcome that, despite years of curriculum reform, has been slow in coming-the workforce over the next two decades will still have many employed workers with basic skills problems that need to be remedied. Many Federal literacy programs do not focus on the employed, although, by some estimates, half of the adults with limited basic skills are working.<sup>21</sup>

Workplace basic skills remediation is not likely to happen without more government support. Despite expressions of concern, few employers see development of the basic skills of their employees" as a primary training responsibility-nor should they necessarily see it so. While firms often encourage workers to improve their basic skills or get a high school equivalency diploma, it is doubtful that even 10 percent of large firms make a significant effort to upgrade the reading, writing, arithmetic, and oral communication skills of their employees. (See table 6-2 inch. 6.) Smaller firms are far less likely to have such programs.

Support for workplace efforts has been ad hoc until recently. As part of the 1988 amendments to the Adult Education Act,<sup>22</sup> Congress authorized a workplace basic skills demonstration program. The demonstrations aim to foster partnerships that include educational institutions and business or labor.<sup>23</sup> Interest in this program has been keen. For example, in fiscal year 1988 when \$9.5 million were available for award, the U.S. Department of Education received over 350 applications requesting nearly \$100

million for workplace-based literacy programs. Just 37 projects in 26 States were selected.<sup>24</sup>

Bills pending in the 101st Congress when this report went to press would, in essence, elevate Federal support for workplace literacy beyond the demonstration phase. A Senate-passed bill, S.1310, the proposed National Literacy Act of 1990, would, among many other things, authorize \$50 million in fiscal year 1991 (and such amounts as necessary in fiscal 1992 and 1993) for business, industry, labor, and education partnerships for workplace literacy. The workplace literacy program would continue to be administered by the Department of Education, in consultation with the Department of Labor and the Small Business Administration. (Priority would be given to partnerships that include small businesses.)

On the House side, an adult literacy initiative is contained in Title V of H.R. 5115, an omnibus education act passed by the House in July 1990. Title V of H.R. 5115 would, among many other things, make up to \$40 million in grants available annually through fiscal year 1995 for large-scale, strategic approaches for improving the basic skills of the current workforce. One purpose would be to develop and evaluate approaches to improve workplace basic skills that would encourage business investment and be cost-effective for individual employers to use. The emphasis would be on regional, State and industrywide cooperative ventures.

H.R.5115 would also authorize appropriations of up to \$15 million annually through fiscal year 1995 for a National Institute for Literacy. The Institute would conduct basic and applied research on literacy. It would assist in developing, implementing and evaluating adult literacy policy. It would also provide technical, policy and training assistance to government agencies to help improve the effectiveness of literacy programs. The bill also has provisions for coordination of Federal and State literacy efforts.

Both the Senate and House bills would increase funding for other Adult Education Act activities.

<sup>21</sup>As is discussed in Forrest p. Chisman, "The Federal Role in Developing an Effective Adult Literacy System," *Leadership for Literacy*, Op. cit., footnote 13, p. 244. The explanation appears to be that Congress, in the last few years, has given literacy mandates to several social service programs serving specific groups of people (e.g., welfare recipients, immigrants) that are not generally available to employed workers. Most Federal assistance for employed workers is through the Adult Education Act, the oldest and, until recently, the largest Federal program for adult literacy.

<sup>22</sup>Public law 100-297.

<sup>23</sup>"The Workplace Literacy Program," U.S. Department of Education, mimeo, no date.

<sup>24</sup>Congress appropriated \$11.9 million for a second round of demonstration projects in fiscal year 1989. Due to delays in approval of other regulations related to the Adult Education Act, implementation of this program was delayed. Grants were not awarded until May 1990.

Whether or not a new bill is enacted, continuing oversight and monitoring of the existing workplace literacy demonstration projects would be useful. It is not clear at this point that these projects will provide the kind of experience base needed to enlist significant employer involvement in upgrading the basic skills of their workers. After the first demonstration grants have been evaluated, Congress may want to review progress to determine whether fine tuning is needed to address the needs of employed workers and their firms.

It is important to recognize that basic skills upgrading programs in the workplace need to be customized to meet the needs of both business and workers:

- In many workplaces, the problem is not an illiterate workforce, but rather an essentially literate workforce that needs upgrading. Often, the need for upgrading may not be apparent to anyone, including the worker, until a workplace change (such as adoption of a new technology or management approach) requires formal training for which the worker does not have the requisite basic skills to complete. In such instances, the traditional adult basic education approach could be quite inappropriate.
- The most effective workplace-based approaches often involve materials and tasks that have direct relevance to the workers' current jobs. This relevancy helps initiate learning and makes it more likely that learning will transfer back to the job. Also, workers and employers often perceive benefits stemming from the program.

It will be particularly important to see that the needs of small business and its employees are met. Very few of the initial workplace demonstration grants focused specifically on small business. This is unfortunate, since small firms face special difficulties in supporting basic skills education. Unlike training intensive large firms, which may assign staff to seek out government assistance for training, managers at small firms seldom have the time or resources to seek out such programs. Yet, employees of small firms, on average, have less education than

their counterparts at larger firms. Setting aside some funds for small business projects may be essential if appropriate ways to involve small firms are to be developed. Beyond this, it will require outreach services and technical assistance to get small firms to participate.

#### Option 8: Provide Favorable Tax Treatment for Continuing Education

How the Internal Revenue Code treats education expenses can affect workers who take courses on their own time to improve their jobs skills or to learn new ones. One issue concerns how the tax code treats tuition assistance employers provide. A second issue is how the tax code treats money the employee spends on job-related education.

(a) *Employer-Assisted Education:* Many employers provide tuition assistance or other educational benefits to their workers. About 300,000 workers, or 2 percent of all post-secondary students taking classes in fall 1986, received some financial assistance from their employer.<sup>25</sup> Under a provision in the Internal Revenue Code, workers do not have to treat this assistance as taxable income when it is provided under an employer's educational assistance program that meets Federal requirements. This exemption covers most courses, even those not directly related to a worker's current job. It is due to expire at the end of September, 1990. Unless extended by Congress, assistance received thereafter could be subject to Federal income taxes, unless related to the employee's current job.

The exemption was first authorized in Section 127 of the Revenue Act of 1978.<sup>26</sup> Since then, Section 127 lapsed several times before Congress acted to temporarily extend the exemption, usually with retroactive coverage. The current law places a cap on the amount of tax-free tuition assistance and excludes graduate level courses from the tax exemption.<sup>27</sup> Participation in tuition assistance plans offered in some joint labor management training assistance programs fell off when companies began to withhold income tax on the value of tuition benefits after Section 127 lapsed temporarily. (See figure 8-2 inch. 8.)

<sup>25</sup>Steven R. Aleman, Library of Congress, Congressional Research Service, "Employer Education Assistance: A Profile of Recipients, Their Educational Pursuits, and Employers" (January 1989), p. 7.

<sup>26</sup>Public law 95-600.

<sup>27</sup>The authorization last expired at the end of 1988. This most recent extension was provided under the Omnibus Budget Reconciliation Act of 1989, which made the provision retroactive to cover the tuition assistance employees received after Dec. 31, 1988.



With the exemption again slated to expire, Congress might consider making Section 127 permanent. In weighing such a decision, Congress may wish to consider several factors, including the original objectives of the law, its cost, and its benefits. The legislative history suggests that Congress had several objectives for first enacting Section 127—to simplify the tax code and remove burdensome paperwork, to make treatment of taxpayers more equal<sup>28</sup>, and to enhance upward mobility by encouraging employers to provide transferable training. The first goal has been achieved; Internal Revenue Service personnel, employees, and employers no longer have the cumbersome administrative burden of determining whether the assistance is job-related.

There are mixed views about the second goal—the extent to which Section 127 benefits less educated or lower income workers.<sup>29</sup> One recent study contended that Section 127 has done relatively little to help those with the least previous education; however, this study compared the income of Section 127 beneficiaries with the income of other students, including full-time students who are not employed.<sup>30</sup> A more recent study comparing the incomes of those benefiting from Section 127 with those of other full-time workers concluded ‘benefits do not accrue disproportionately to higher paid employees.’<sup>31</sup>

While the costs of Section 127 to the Federal treasury are not known precisely, Congress’ Joint Tax Committee estimates that, if Section 127 were made permanent, Federal revenue losses would be \$255 million in fiscal year 1991 and \$331 million in fiscal year 1992, with the amount increasing to \$372 million in fiscal year 1995. By making Section 127 permanent, Congress would forego this amount to make continuing education more attractive to workers at all income levels. Although they may benefit less, some less-educated and lower level workers do benefit from the tax exemption. If Section 127 were repealed, some less-educated workers who took training to prepare for new jobs or occupations might

face tax payments for employer-provided educational assistance.<sup>32</sup>

If Congress made Section 127 permanent in its current form, workers at all levels, including those with higher incomes, could be assured that they would not be taxed on these educational benefits. If Congress is more concerned with increasing access to education for those with the least skills and incomes, it could target Section 127. For example, the tax exemption could be made available only to workers earning \$25,000 annually or less.

(b) *Individual Investments in Training*: Section 127 is not the only, tax incentive for worker training that has been affected by recent changes in tax law. Many workers enroll in training at public and private schools and colleges at their own expense for courses directly related to their current jobs. They have long been able to deduct these expenses as a cost of employment when calculating their income tax. However, under the 1986 Tax Reform Act, these expenses are considered deductible only to the extent that they and all other miscellaneous deductions exceed 2 percent of the individual’s adjusted gross income.<sup>33</sup> To encourage workers to invest in their own training, Congress might place the job related education deduction among the items that are fully deductible and allow them to record the deduction on the short form. Otherwise, the benefits of the change would accrue exclusively to tax payers who can itemize deductions on schedule A.

#### Option 9: Evaluate Ways to Help Finance Workers’ Continuing Education (Table 2-3)

Only part of the education needs of workers are likely to be met by employers. Structural changes in the economy, the likelihood that most workers can expect to develop new job skills during their work lives, the aging of the workforce, and the growth of the contingent workforce all suggest the kinds of employment security concerns that might attract individual workers to seek education and retraining. Often, these workers may not be able to get

<sup>28</sup>Prior to enactment, only job-related educational assistance was tax-exempt. IRS examiners decided on a case-by-case basis which expenses qualified as job-related.

<sup>29</sup>United States Code Annotated, vol. 6, Legislative History, “Revenue Act of 1978, Senate Report,” p. 6864.

<sup>30</sup>Aleman, *op. cit.*, footnote 25, p. 14.

<sup>31</sup>Coopers & Lybrand, *Section 127 Employee Educational Assistance: Who Benefits? At What Cost?* (Washington, DC: Coopers & Lybrand, 1989).

<sup>32</sup>*Ibid.*

<sup>33</sup>Richard H. Mansfield III, “Training and the Law,” Robert L. Craig, ed., *Training and Development Handbook*, 3rd Ed. (New York, NY: McGraw Hill, 1987), p. 101.

education assistance from their employers. Moreover, workers may not be willing to make education investments on their own if they are concerned about possible loss of employment.

The Federal Government might evaluate alternative incentives for post-secondary education and training, expanding on the existing system of education loans and grants. With some modification, a payroll-based levy (see discussion of Option 4) could be made to serve the continuing education needs of employees as well as the needs of employers. The payroll tax could be levied on employers, employees, or both to create a human resource investment account that workers could tap when needed during their work lives.<sup>34</sup> Another option would be for funds to be loaned to workers, subject to repayment through a surcharge on their income tax while they work.<sup>35</sup> Various forms of individual training accounts or funds also have been proposed. Yet another approach would be to guarantee financing of a specified amount of post secondary education and training for all Americans at some point during their lives.

### **ISSUE AREA C: LINKING TRAINING AND TECHNOLOGY ASSISTANCE (Table 2-4)**

As discussed in chapter 4, training can make an important contribution to efforts by firms to implement new technologies and work practices aimed at improving quality and productivity. Yet, many companies—by no means all of them small—have difficulty in adopting and using technology effectively. Some managers underestimate the training that may be needed when introducing new technology. Others may avoid new technology because of uncertainty about whether their workforces have the skills to use it.<sup>36</sup> Many firms are unaware of the training practices used by leading edge companies.

Effective use of new technology often requires firms to change their management practices and human resource policies. Yet few small firms have the resources to identify the needed changes or to implement them—a circumstance that may partly

explain the relatively slow pace of diffusion of new technology among small firms.

Small and medium-sized businesses typically have been slow to adopt new technology—with such exceptions as small firms in high technology areas or supplier firms facing customer pressures to revamp their operations. This may change as more companies that were once shielded from international competition are thrust into it.

There is a large gap between the best practices for training and the training that usually takes place in industry. Much existing training fails to be effectively transferred back to the job. Often, training decisions are made in a haphazard way, so that the purposes of the training are neither well defined, nor closely related to changes in technologies or management practices. Many firms depend almost entirely on equipment vendors for training when new technologies are installed.

While knowledge about effective training is increasing, the process of diffusion can be quite slow. Few firms share successful techniques with potential competitors. Expansion of government efforts to disseminate information and provide technical assistance could help speed the diffusion process. The discussion that follows looks at options Congress might consider to better coordinate Federal technology and training activities and to support State government efforts to provide training and technology services to business.

#### **Option 10: Coordinate Technology and Training Assistance (Table 2-4)**

Several Federal agencies, including the Commerce, Labor, and Education Departments, administer programs, mostly small, that provide technology or training assistance to firms—either directly or through the States. Other agencies, e.g., the Small Business Administration (SBA), also administer assistance to firms. Most of the existing training and technology services are funded at a low level or are demonstration projects. If these programs are expanded along the lines discussed in this report, the

<sup>34</sup>For discussion, see *Training America: Strategies for the Nation*, op. cit., footnote 10, p. 60.

<sup>35</sup>Commission on the Skills of America's Workforce, op. cit., footnote 14, Supporting information V.

<sup>36</sup>For example, one survey of small West Virginia firms found inability of workers to make good use of new technologies to be one of the top barriers to adoption of computer numerically controlled machinery. See Phil Shapira and Melissa Geiger, "Survey of Technology Use in West Virginia Manufacturing—Preliminary Report" (Morgantown, WV: Regional Research Institute, 1990) pp. 3-4.

agencies will need to coordinate services to a greater degree than currently.

The recent report by the Commission on the Skills of the American Workforce called for all Federal assistance to employers to be coordinated through a Commerce Department clearinghouse.<sup>37</sup> At least in theory, such an approach might permit better integration of Federal assistance with the needs of firms and their workers.

#### Option 11: Help States Expand, Combine Industrial Services With Training (Table 2-4)

Several States now offer technology services to firms, as well as separate training services, either through State agencies or through other providers (such as community colleges). There is good potential for better coordination of these services at the State level. Although the current level of State activity is modest, expansion could occur in the future, especially with Federal incentives.

It would be logical for State industrial services to help firms identify their training needs during their consultations about manufacturing technology. In reality, most extension services do little more than make referrals to local training providers.<sup>38</sup> There are exceptions. The Michigan Modernization Service (MMS), set up in 1985 to help firms adopt programmable automation, is the most salient example. MMS field representatives (engineers with manufacturing experience) help firms develop a technology deployment strategy. Usually, the engineer is accompanied by a training specialist, who will evaluate the clients' training needs, prepare a training plan, and help the customer apply for training assistance through the Governor's Office for Job Training. This special grant program supports training of current employees for company modernization.<sup>39</sup> Firms receiving grants may use the funds for in-house training or outside training from community colleges, equipment vendors, or consultants.

As pointed out in the recent OTA report, *Making Things Better: Competing in Manufacturing*<sup>40</sup>, the United States, in contrast to Japan and West Germany, does not provide extensive institutional support for technology diffusion to small enterprises. State technology transfer and technology/management assistance programs for all business amounted to about \$58 million in 1988, with the Federal Government contributing a small amount through its own programs. It would cost between \$120 million and \$480 million to provide a modest level of extension services to 24,000 small firms per year—or about 7 percent of the Nation's small manufacturers. If the Federal Government picked up 30 percent of the costs (as it does in agricultural extension), the cost to the U.S. Treasury would be \$36 million to \$144 million.<sup>41</sup>

More than likely, an increase of this magnitude would need to be phased in over a few years to give State and Federal officials time to expand programs incrementally. Congress, in the 1988 trade act, authorized a small amount of assistance (\$2 million annually) for State industrial extension programs; funding in fiscal year 1990 amounted to \$1.3 million, but the Bush Administration sought no funding for this program in fiscal year 1991.

If Congress were to expand this program along the lines discussed above and in *Making Things Better*, it could call on States to better integrate training assistance with their technology extension services. It could also direct the Commerce Department to move aggressively in implementing the State technology extension clearinghouse called for in the trade act. This function also might be performed by one of the organizations representing the States. The move would also facilitate coordination with State industrial training activities.

State industrial training programs, like industrial services, reach only a tiny portion of firms and workers. OTA's survey of State programs found that the median program reached only 64 employers—

<sup>37</sup>Commission on the Skills of the American Workforce, *America's Choice: High Skills or Low Wages!* op. cit., footnote 14.

<sup>38</sup>In a recent survey, more than half of the State industrial extension services said they often or frequently referred clients to training sources. However, only 24 percent helped firms identify training needs, and less than one-fifth actually provided the training. See Phil Shapira, *Towards Industrial Extension: Modernizing American Manufacturing*, January 1990.

<sup>39</sup>Jack Russell, "Manufacturing Base Modernization: A Michigan Strategy," Ann Arbor, MI, Industrial Technology Institute, November 1988.

<sup>40</sup>U.S. Congress Office of Technology Assessment, *Making Things Better: Competing in Manufacturing*, OTA-ITE-443 (Washington, DC: U.S. Government Printing Office, February 1990). The report discusses these State technology assistance programs, along with policy issues and options associated with expanding their coverage, in detail.

<sup>41</sup>*Ibid.*, p. 27.

Table 2-4-issue Area C: Linking Training and Technology Assistance to Firms

**Option 10: Coordinate Federal technology and training assistance to firms:**

- Several Federal agencies now have programs (mostly small) that assist industry, either directly or through the States, in such areas as manufacturing technology transfer, training technology transfer, workplace literacy, and small business development. If Congress expands these programs, better coordination, with the possibility of one-stop shopping for firms or industry groups seeking assistance, could facilitate integrated provision of services. One possibility: give the Commerce Department, now involved with technology transfer, lead agency responsibility for coordinating with other agencies (especially Labor, Education and the Small Business Administration).

**Advantages:**

- *Better* coordination of services would make it more likely that firms would get assistance in the most useful manner.

**Disadvantages:**

- Coordination efforts are often exercises in paper shuffling, with few real results.

**Option 11: Help States expand industrial services, combined with training:**

- Substantially expand the Commerce Department's now tiny State industrial services program, administered by the National Institute of Standards and Technology (NIST). The purpose would be to help States expand their technology services to firms (now less than \$50 million per year) with added support for assessment, consultation, and referrals on training. This Option would not be meaningful unless current funding (just \$1.3 million) were expanded many fold over the next few years.
- Direct Commerce to work with Labor and the Department of Education to help States expand and better integrate training, education, and industrial extension services available to small firms. The NIST industrial extension program might also be a vehicle for training technology transfer through close coordination with another Commerce Department agency, the National Technical Information Service, and the Department of Education's newly established Office of Training Technology Transfer.
- Fundevaluation research on the effectiveness of State training assistance to private industry, and establish a single clearinghouse to disseminate best practice information to industry and State governments. One of the national organizations representing the States might be willing to undertake the clearinghouse function. The effort would complement other state clearinghouse activities on industrial extension and basic skills. A modest level of funding, less than \$1 million per year, would be needed.

**Advantages:**

- Small-firms frequently need impartial advice about the most suitable technology and training choices. Very few small businesses are currently served by state training or technology extension services, let alone combined services. A more supportive Federal role could help more States offer one stop consulting services to small business. This type of assistance could increase the quality and productivity of small and medium size supplier firms, helping them compete against firms in other countries.
- Few firms now undertake evaluations of training activities; this option would provide a low-cost way to conduct evaluations and disseminate information on what works best in firm-related training. It would also help policymakers at the State and Federal levels assess relative success and failure of different kinds of public support for private-sector training.

**Disadvantages:**

- Federal support, unless well balanced, might further exacerbate competition among individual States for new business, to the detriment of other States. If the individual State programs are biased in favor of attracting new businesses into the State, existing businesses within the state could be adversely affected. Federal funds could substitute for State and private funds.
- There are now a plethora of clearinghouses on an assortment of human resource topics. Adding one more could simply add to the confusion. Coordination efforts are often haphazard.

**Option 12: Support creation of an employer institute for work-based learning:**

- To encourage employer involvement, the Federal Government could cost-share start-up costs for a nonprofit institute with employers. The institute could be structured to include: 1) employer involvement in direction of the institute (with the Federal Government serving as a member by virtue of its status as an employer); 2) institutional location outside any Federal agency; 3) sufficient start-up funding guarantees for several years of operation. Once underway, the institute might perform some technical services otherwise provided by government. Initially, the Federal cost-share might be \$10 million out of general revenues, with private employers providing a similar amount. The employer-contribution also could come from a national training levy (see Option 4 in Table 2-2).

• By and large, trade and industry associations and other employer-institutions in the United States have not been heavily involved in developing training for firms. This proposal would attempt to draw employer-institutions (including small business groups) more directly into the effort to improve training. The organizations could work with specific industry sectors to build their training capacities. The institute would be outside the government, with extensive private sector involvement in setting research priorities and activities—an arrangement likely to be favored by employers. The fact that government could join the institute as an employer would facilitate close interactions and more rapid spread of best practice approaches between the public and private sector.

**Disadvantages:**

- Employers could set up such an organization 'on their own if they wished; the Federal funds going to start up the institution, therefore, might have little impact. If the start-up phase were successful, on the other hand, pressures to continue Federal funding would mount.
- The public interest in supporting such an institute rests in activities that would benefit a broad spectrum of the workforce, while employers might see the institute's mission as narrower.

SOURCE: Office of Technology Assessment, 1990.

and just under 4,000 employees—per year. The Federal Government could help States develop and diffuse information about what works and what doesn't work in these programs. This could pay off not only through more effective use of State funds, but also improved employer understanding about the relative effectiveness of different training approaches, and the impact of training on corporate performance.

Very few firms evaluate training. Those that do are reluctant to share the results. State-supported training projects can be useful sources of information about effectiveness. They, too, however, have received little evaluation, and States have few channels for communicating results. The National Governor's Association, with funding from the Federal National Commission for Employment Policy, has undertaken some research on the feasibility of evaluating State training assistance at specific firms.

However, there is no existing program of ongoing evaluation, research, and information dissemination on best training practices to States and firms. The Federal Government could help States perform this clearinghouse function. Not much money would be required. If a total of up to \$1,000,000 were available, much useful information for firms and States to consider in designing and implementing training programs would be produced. The clearinghouse could be run by the National Governor's Association

or another organization representing State governments. Or, it might be part of the mission of an employer institute on work-based learning. (See Option 12.)

#### Option 12: Support Creation of an Employer Institute for Work-Based Learning (Table 2-4)

Although technical assistance and other government supporting roles can help, employers will continue to have the primary responsibility for workplace training. It seems logical, therefore, that an institute representing employers could be very important in encouraging more firms to develop new approaches to work-based training. Yet, few industry associations or other employer-based institutions in this country consider training a top priority. A recent report by the American Society for Training and Development found that only 6 percent of American trade and professional associations offered training programs; 3 percent provided training as part of a certification program.<sup>42</sup> With some exceptions like apprenticeship, there are also few national-level committees or other employer-based institutions focused on training in specific industry sectors or more broadly.

Nor are there many equivalents in the private sector (or in the civilian agencies of government) to the human resource research institutes that advise the U.S. military with its training requirements (e.g.,

42 Anthony p. Carnevale, Leila J. Gainer, Janice Villet, and Shari L. Holland, *Training Partnerships: Linking Employers and Providers* (Alexandria, VA: American Society for Training and Development, 1990), p. 25.

the Human Resources Research Organization, the Institute for Defense Analyses). A few universities and organizations now have small programs that explore work and learning relationships—largely funded by the Federal Government. However, these programs tend to be small in scale, with limited funds, or too narrowly focused in mission to address the full spectrum of workforce related learning needs now emerging. Many of these centers exist on short-term Federal grants.

A more visible institution to focus the attention of employers on human resource issues associated with the rapidly changing American workplace could be helpful. Such an institution, to accomplish its purposes, would need to encompass more than employee training and development; it would need to address work organization questions, incentive systems, and management approaches, as well as the ways in which employers address technology needs. To succeed, such an institution would need extensive employer involvement.

Ideally, employers would act on their own to set up and fund such an institution. The fact that they have not done so suggests that public funds could be needed not only for start-up but to share in the costs of sustaining the organization in its first few years. However, employers and labor representatives would need to play major roles in the direction of the organization, and a substantial amount of the funding would need to come from employers. (With public funds, there would need to be public accountability to assure that the institute benefited a broad spectrum of the workforce. Once the institution became self sufficient, the Federal Government's role in direction could be as an employer.) With strong sectoral involvement, the institute might be able to address industry specific needs, e.g., building and strengthening the training capacities of trade associations and other employer groups.

If given sufficient resources—say \$10 million or \$15 million per year—the institute could begin to develop the linkages among employers, the educational system, and the training community needed to improve workforce effectiveness. The organization could support research, development and diffusion of best practices. It could encourage private research through cost-shared projects with private firms. The institute could also encourage more use of learning-technology innovations, such as distance learning and computer-based training, in small business, at

homes, and in other places convenient for adults. The institute could also work to enhance the development of the training profession through support of graduate programs.

If Congress were to adopt a national training levy, some money from the levy might be used to fund the institute. How much impact the institute would have in the long term would depend on how useful its work was to industry.

## **ISSUE AREA D: IMPROVING THE QUALITY AND EFFECTIVENESS OF TRAINING (Table 2-5)**

The high cost of training and its uncertain quality may keep many companies from expanding training beyond the minimum. Poor timing of training, lack of reinforcement at the work site, and other factors often prevent effective transfer of knowledge to the job. Moreover, there are a limited number of people who are conversant with the best ways to integrate training techniques with the subject matter to be taught.

Training can be improved when systematic approaches are used. This way, companies can select the most appropriate and cost-effective training techniques from the many choices available. These choices range from traditional pencil-and-paper approaches to use of instructional technologies e.g., computer-based training, interactive videodisk, and satellite delivery with one- or two-way video and audio links.

New instructional technologies also have the potential to expand access to company-provided training. As discussed in chapter 7, the growing presence of personal computers in the workplace make them well suited for use in training. In time, they can help bridge the gap between formal and informal training by bringing sophisticated performance support systems to the workstation. Many large corporations already run satellite and other communication networks that could be used more extensively for training. Small firms, too, can benefit from the use of new instructional technologies. The costs of satellite receiving dishes are coming down to the point where smaller businesses can afford them. It is possible that, working through consortia or trade associations, small businesses could pool the costs of developing courses to be delivered by computer or by satellite.

The Federal Government has long played a major role in supporting training research and instructional technologies, primarily through the military. An expanded Federal role, with more emphasis on the civilian sector, could benefit not only private-sector employers but also government agencies in training their personnel. It also could benefit job training programs aimed at the unemployed and the disadvantaged.

Option 13: Encourage Adoption of Best Practice Training Techniques and Technologies (Table 2-5)

Best-practice instructional approaches and technologies are relevant to most of the options discussed in this chapter—whether for workplace basic skills, industry training consortia, or industrial extension. Whether or not Congress adopts these options, it could direct relevant Federal agencies and departments—whether Education, Labor, or Commerce—to develop and disseminate information about best practice approaches and technologies. Thus, for example, the Department of Labor, in offering planning and technical assistance to multi-firm training consortia of the sort discussed in Option 1, might direct the consortia to information about best-practice approaches, as might the Department of Education, in offering workplace literacy grants discussed in Option 7. Projects using best-practice approaches and technologies might be given funding priority.

There are some specific activities now underway or proposed that could contribute to better dissemination of information. As is discussed in chapter 6, a National Basic Skills Consortium has been proposed to help States and local service providers share information about the best techniques, including technology-based techniques, for basic skills instruction. Officials at several Federal agencies, meanwhile, have set up a roundtable which meets periodically to share information on training technology. Both activities are now undertaken informally, with no funding sources. With modest funding, the two activities could be placed on a freer foundation. If the two shared resources, initial year funding of \$350,000 to \$500,000 would be sufficient for them to build a small staff and undertake

outreach activities. In time, the State consortium could be supported by membership fees.

The Federal Government could also continue to play a supporting role in gaining industry acceptance of standards for training technologies and related software. Federal agencies have a major stake in standard setting efforts because they are major purchasers of training products. Some technology-based training products acquired by Federal agencies have been incompatible with other systems, thus limiting their use. Support for standard setting activities by the Commerce Department's National Institute of Standards and Technology and various industry groups could end up benefiting trainers in Federal agencies as well as the private sector.

Option 14: Fund the Training Technology Transfer Program (Table 2-5)

As mentioned, many companies do not apply systematic approaches to their training functions. Yet, these approaches are well known—the outgrowth of earlier research and development on training, much of it sponsored by the Federal Government, in particular, the military. (See ch. 7 and report appendix.)

The Department of Defense (DoD)—the largest single trainer in the United States—has made major contributions to the development of effective training techniques and technologies. A conspicuous example was the U.S. Air Force's role in the development of instructional systems design (ISD) in the 1950s and 1960s. Originally conceived as a component of “programmed instruction,” ISD has proven useful in the development of all types of training, whether delivered by hardware or more traditional methods.<sup>43</sup> Instructional systems design approaches have slowly diffused to the private sector and are widely used in training intensive companies.

DoD funding for research and development of educational technology averaged \$42 million per year in the 1970's and \$56 million per year in the 1980s, far more than the National Science Foundation and the Department of Education, which together averaged \$4 million annually in the 1970s and \$7 million per year in the 1980s.<sup>44</sup> Military agencies supported development of computer-assisted in-

<sup>43</sup>Charles Blaschke et al., “Support for Educational Technology R&D: The Federal Role,” contractor report prepared for the Office of Technology Assessment, Sept. 30, 1987, p. ix. (Report prepared for Power On: *New Tools for Teaching and Learning*, OTA-SET-379, September 1988.)

<sup>44</sup>*Ibid.*, p. vi.

Table 2-5-issue Area D: Improving the Quality and Effectiveness of Training

<p><b>Option 13: Encourage adoption of best-practice approaches and technologies:</b></p> <ul style="list-style-type: none"> <li>For example, Congress could direct the Departments of Labor and Education to give funding priority to projects that use best-practice approaches, and to support dissemination of research findings, including research directed at evaluating the effectiveness of work-based programs, and instructional technology use where cost-effective and appropriate.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>Identification and dissemination of best-practice approaches would help improve the quality of training. Research could bring long term improvements in quality and effectiveness of education and training practices in both the public and private sector.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>Requirements for best-practice application could become micromanagement if rigid criteria were applied. Rapid expansion of research could result in funding of duplicative or poorly thought out projects.</li> </ul>
<p><b>Option 14: Fund the Federal training technology transfer program:</b></p> <ul style="list-style-type: none"> <li>The 1988 Trade Act assigned the U.S. Department of Education responsibility for a governmentwide training technology transfer program, but no funds have been appropriated for this purpose to date. Congress could provide initial funding (beginning at \$3 million per year) to get the transfer office started. Subsequent funding levels would need to be evaluated when realistic estimates have been made about the potential for training technology transfer.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>Initial funding would help to determine how much relevance training technologies developed to meet the mission needs of Federal agencies (such as the U.S. military) have for private sector trainers and the education system. If funded, the program could in time transfer promising training approaches and technologies to the private sector.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>The transfer activity could divert some resources and staff from primary agency missions. The inventory would be of little use unless the quality and utility of the materials were assessed.</li> </ul>
<p><b>Option 15: Fund more civilian sector learning research/technologies:</b></p> <ul style="list-style-type: none"> <li>One possibility: earmark at least 1 percent of Federal education and training program funds for R&amp;D activities (in addition to continuing to fund existing research programs). Another possibility: establish a special institute for learning technology and research. A third possibility: direct the Department of Education's Office of Educational Research and Improvement to give more priority to work-based learning in its funding of research centers. A final possibility: give the National Science Foundation a mandate to conduct research on connections between new technology adoption, work organization, and training.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>Even highly effective transfer of military research and instructional technologies would only meet a small part of civilian sector needs. These alternatives would complement the training technology transfer efforts by creating a research and technology base for civilian needs.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>While earmarking funds at the 1 percent level would have little impact on program functions, it might contribute to more frequent use of this tool, and overly prescriptive micromanagement in the long term.</li> </ul>
<p><b>Option 16: Improve information on work-based learning:</b></p> <ul style="list-style-type: none"> <li>Provide funds to the Bureau of Labor Statistics and the Census Bureau to periodically update surveys of workers about the training they receive in relationship to employment;</li> <li>provide funds to the Department of Education and the Census for updating the survey of adult education (last completed in 1984) on a 3-year schedule;</li> <li>Provide funds for continued longitudinal studies of worker careers and education;</li> <li>Provide funds to the Census Bureau to undertake special surveys and studies of technology adoption by firms and associated human resource development practices, such as training;</li> <li>Require an overall review of Federal statistical priorities, including whether the Federal statistical agencies need to give greater priority to workplace, education and training statistics.</li> </ul>	<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>Much of the current data on workplace training is dated, incomplete, or based on proxy data. The steps listed, if undertaken, could begin to remedy this situation.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>There probably never will be fully satisfactory information on these topics; a data collection effort, if it resulted in postponement of needed actions, could be counterproductive.</li> </ul>

SOURCE: Office of Technology Assessment, 1990.



struction, research on human cognition, and the development of simulations for skills training.<sup>45</sup>

With DoD still the largest sponsor of learning research and educational technology development, there is continued interest in transferring promising DoD sponsored approaches to the private sector and to educational institutions. Several other Federal agencies, including the Department of Energy and the Office of Personnel Management, also develop training technologies that might be relevant to users outside government as well as to other Federal agencies.

As part of the Omnibus Trade and Competitiveness Act of 1988, Congress called for the creation of a formal mechanism for transfer of training technology from Federal agencies to the private sector and educational institutions.\* The law gives the Education Department major responsibility for coordinating the development of a government-wide mechanism for training technology transfer, including the Departments of Defense and Energy.

To date, progress in implementing the Trade Act initiative has been slight. No funds have been allocated to the Education Department for fulfilling this purpose. As this report went to press, the Department had yet to act on the law's requirement for an Office of Training Technology Transfer (OTTT), although a plan for organizing OTTT was under consideration. Another Education Department office, the Office of Educational Research and Improvement (OERI) has taken up some of the slack. It is, for example, preparing a report for Congress (due in August 1990) on conversion of education and training software. It has also been working informally with other agencies to setup training technology information transfer processes.

However, OERI cannot assume the full responsibilities given to OTTT and its Director (still to be appointed) under the Trade Act. In theory, the law gives the Director powers intended to spur commercialization of federally sponsored training technology. Specifically, the Director could sell or lease public domain copyrights and patents for Federal training software to commercial users and could

waive the purchase price or lease fees when the commercial user agrees to pay to make the software usable by nonprofit education or training groups. The law's requirements for developing a clearinghouse on federally developed education and training software will require funding to fulfill as will efforts to convert training technology to non-Federal use.

While OTTT has the formal governmentwide responsibility, other agencies also play a role. For several years, the Commerce Department's National Technical Information Service has disseminated information about Federal training technology to interested parties. All of NTIS training technology transfer activities, however, are undertaken on a cost recovery or reimbursable basis with clients. NTIS does not have funds to maintain or update products. Nor does NTIS have the power to assign copyright. Other agencies, including the Department of Labor's Center for Advanced Learning Systems and the Smithsonian Institution, collect, disseminate, or have demonstration facilities for training technologies.

Obviously, it takes money to conduct a detailed inventory of federally developed training products or to set up a training product evaluation process or to fulfill the other requirements of the Act. A 1987 study estimated that it would cost about \$1,500,000 to undertake a comprehensive inventory of federally developed training products; far more money would likely be required if the quality of the materials were assessed. If Congress wishes these activities to proceed, initial funding at the beginning level authorized in the Trade Act (\$3 million per year) would no doubt allow staffing of the office, completion of an inventory, and further work on the feasibility of transferring training products on a regular basis.

Whether or not funds are appropriated for a training technology transfer office, private sector trainers might benefit if individual Federal agencies did a better job of keeping track of their own training materials. Most Federal agencies, including some that are extensively involved in training, do not have policies for agency-wide inventorying of their training packages.<sup>47</sup> This inefficiency can lead to dupli-

<sup>45</sup>U.S. Congress, Office of Technology Assessment, *Power On: New Tools for Teaching and Learning*, OTA-SET-379 (Washington, DC: U.S. Government Printing Office, 1988), p. 152.

<sup>46</sup>The Training Technology Transfer Act of 1988 was one chapter in Public Law 100-418.

<sup>47</sup>An exception is the Department of Energy, which has developed an on-line database covering 3,000 training packages. Recently, the Department of Defense has taken some steps to collect more complete information about its training products.

cation of effort, since some training programs are generic in nature and could be applied in many settings. If more agencies developed inventories of their training packages, and made this information publicly available, private-sector access could be increased. This information would be particularly useful if evaluation information were included.

Federal agencies occasionally cooperate to transfer training technologies on an ad hoc basis. One of the more ambitious of these efforts (involving the Departments of Defense, Labor and Education) aims to adapt the Job Skills Education Program (JSEP), a computer-based remedial education program developed by the Army for about \$11 million in the early 1980s, to civilian use. This conversion process, formally underway since 1987, has been protracted and expensive, entailing \$600,000 in Federal funds to date, and legal issues associated with transfer of JSEP to commercial use are still in negotiation between the Army and JSEP's developer. Although this effort may in the end pay off the process is by no means predictable.

Even if transfer activities are stepped up, only a small part of the Nation's need for better training materials can be met by converting materials developed for one purpose and mission to another purpose. In each case, developers and users need to evaluate whether it would be better to take existing training programs and convert them to other uses or to develop new materials.

#### Option 15: Fund More Civilian-Sector Learning Research/Technologies (Table 2-5)

While military training approaches and technologies may continue to provide models for the private sector, there could be significant risks in over reliance on military funds to support the Nation's learning research and instructional technology needs:

- Some of the military's research and development (R&D) is too specialized to have much immediate relevance to private sector training. Also, even general purpose instructional programs developed for use in the military often have to be modified before they can be widely used in civilian settings. As the JSEP example above suggests, the expense involved can make the routine transfer of military training technol-

ogies to the private sector difficult, expensive, and time consuming.

- Military resources are more limited now than in the past. During the 1980s, both the Army and Navy reduced expenditures for learning and training research, while Air Force expenditures increased only slightly.<sup>48</sup> The Defense Advanced Research Projects Agency, which played a unique role in support of research in cognitive and computer science, has redirected its R&D to more strictly military applications.<sup>49</sup> These trends may reduce the opportunities for continued transfer of state-of-the-art training techniques to the private sector even though a formal process for technology transfer is in place.

Thus, broader support for adult learning and other training research and for civilian development of learning technologies would be useful. Various possibilities are listed under Option 15 in table 2-5. (See also the discussion of adult literacy under Option 7, and an employer institute for work-based learning under Option 12.) These include:

- establishing a national learning and technology institute (an approach proposed in S. 2114 introduced in the 101st Congress);
- earmarking a portion of Federal agency education and training budgets to research and development. Earmarking 1 percent of program budgets would result in a substantial supplemental increase in research now conducted primarily through separately funded research programs. Of course, funding levels in the existing research programs would need to be maintained for this to do much good.
- directing the Education Department, through the Office of Educational Research and Improvement, to give more attention to workplace and adult learning issues in its research agenda. (Two of OERI's 18 educational research and development centers focus primarily on workforce issues.) This should not come at the expense of other education research, which has generally been funded at a low level.
- giving the National Science Foundation (NSF) a role in research on work organization and training. For example, if Congress were to upgrade the status of manufacturing sciences at

<sup>48</sup>Blaschke et al., op. cit., footnote 43, p. 59.

<sup>49</sup>Power On, op. cit., footnote 45, p. 157.

NSF from the Divisional to the Directorate level, it could specify that part of the mission would include research on shopfloor training and work organization.<sup>50</sup>

A special need, given the aging of the workforce, is for more research on the older worker. If Congress were to earmark research funds for adult learning, research on the older worker could be one important component. Alternatively, Congress could increase funding (now minimal) for older worker research in the budgets of the Department of Labor or the Health and Human Services Department's Administration on Aging.<sup>51</sup>

#### Option 16: Improve the Information Base on Work-Based Training (Table 2-5)

As is discussed in chapter 5, data on private sector training (including the amount of money firms spend on training and the nature and quality of training) is limited. Most national estimates about training in firms is based on proxy data—some 10 or more years old—or very limited empirical information that has been extended to the economy as a whole. While there are many uncertainties, information deficiencies are not so great as to preclude rational debate about policy now. Whether or not Congress expands the Federal role, better information would help inform future choices made by decisionmakers in the public and private sectors.

The need for better information is clear. Therefore, Congress might choose to direct Federal statistical agencies—such as the Bureau of Labor Statistics, the National Center for Education Statistics, and the Bureau of the Census—to prepare and regularly update surveys of industry training or adult education and earmark funds specifically for this purpose. Since many firms do not track their training expenses carefully, there would more than likely need to be an initial effort to develop an appropriate survey instrument. (This need would exist even if firms reported training data to the government as

part of a national training levy, discussed in Option 4.)

There also is a growing need for regular collection of data about adoption of new technology by firms and about changes related to work organization and human resource practices. The Census Bureau, which undertook an initial survey of manufacturing technology in 1988, would be a logical organization to develop this information. A relatively modest amount of money—say \$750,000 per year—would give the Census Bureau the resources needed to undertake periodic surveys on new technology adoption by firms and special studies on training, work organization, and other human resource practices in firms.

From time to time, the government also collects information from individuals about their training. However, this information quickly becomes dated. The Survey of Adult Education, issued by the Education Department's National Center for Education Statistics, contains information about the portion of adults who received company-provided education. The last survey, however, was conducted in 1984. Similarly, the last detailed survey of how workers get their training, conducted by the Bureau of Labor Statistics in conjunction with the Census Bureau, was undertaken in 1983.<sup>52</sup>

The shortcomings in the available data about industry training are just one of many areas that complicate public and private sector decisionmaking on human resource policies. Several recent studies have pointed out the attrition in Federal statistical series during the 1980s. Without increases in funding, it will be extremely difficult for the Federal statistical agencies to develop new information series without cutting into existing programs. As an example, the Bureau of Labor Statistics, which has suffered significant budget cuts since the late 1970s, has eliminated many of its data collection programs and now devotes much effort to maintaining the integrity of existing data series.<sup>53</sup> Similarly,

<sup>50</sup>For further discussion, see U.S. Congress, Office of Technology Assessment, "U.S. Manufacturing: Problems and Opportunities in Defense and Commercial Industries," staff paper, May 1990.

<sup>51</sup>For a more detailed discussion of the range of issues and options for older worker research, see Frances R. Rothstein and Donna J. Ratte, *Training and Older Workers: Implications for U.S. Competitiveness*, report prepared for the Office of Technology Assessment under contract N3-1630, March 1990.

<sup>52</sup>Results were reported in Max Carey and Alan Eck, *How Workers Get Their Training*, U.S. Department of Labor Bureau of Labor Statistics Bulletin 2226, 1985. Earlier BLS surveys were conducted in 1977 for metalworkers and in 1964 on occupation training.

<sup>53</sup>As discussed by the Commission on Workforce Quality and Labor Market Efficiency. The Commission noted that BLS curtailed 19 data series in 1982 alone. See *Investing in People: A Strategy To Address America's Workforce Crisis*, op. cit., footnote 7.

the Education Department's National Center for Education Statistics has had a hard time maintaining some of its data series, including longitudinal studies.

The need to periodically reexamine workforce statistics—to establish new priorities where needed—would remain even if the Federal statistical agencies had not lost ground. While the Bureau of Labor Statistics and the Census Bureau do reexamine their priorities, the last major external review of workforce statistics—conducted by a congressionally mandated commission with members appointed jointly by Congress and the President—was completed over a decade ago.<sup>54</sup>

In another report, OTA examined Federal statistical series and possible measures for improving data on a governmentwide basis, and found a pressing need for an organization to reexamine Federal statistical priorities.<sup>55</sup> While the Office of Management and Budget has formal responsibility for

statistical policy, its implementation effort has been flawed. Not much effort is made at present to evaluate whether current statistical efforts really meet contemporary needs. If Congress elects to redirect Federal statistical policy, it might emphasize the need for Federal agencies to expand their perspective to encompass previously underreported areas, like work-based training. Congress also might wish to direct the Administration to appoint an external review group on workforce statistics as part of its efforts to review Federal statistical policy.

The options discussed in this chapter are only a small fraction of the possible actions available if Congress wishes to provide broader support for work-based training. The issue of work-based training itself is only one part of the broader spectrum of human resource development issues now facing the Nation. Nonetheless, the issue is an important one—one that cannot be safely ignored.

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<sup>54</sup>For a review of changes in data needs since this group—the National Commission on Employment and Unemployment Statistics—completed its work, see Sar A. Levitan and Frank Gallo, *Workforce Statistics: Do We Know What We Think We Know—and What Should We Know?*, U.S. Congress Joint Economic Committee, Dec. 26, 1989. Levitan chaired the Commission.

<sup>55</sup>U.S. Congress, Office of Technology Assessment, *Statistical Needs for A Changing vs. Economy*, background paper, OTA-BP-E-58 (Washington, DC: U.S. Government Printing Office, September 1989).