

Expanding Apprenticeship

A Way to Enhance Skills and Careers

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An Overview of U.S. Apprenticeship

Apprenticeship is a time-honored method for preparing workers to master occupational skills and achieve career success. Under apprenticeship programs, individuals earn a salary while receiving training primarily through supervised, work-based learning but also with related academic instruction. Employers, joint, union-employer agreements, government agencies, and the military all sponsor apprenticeship programs. Apprentices are employees at the firms and organizations where they are training, and combine productive work along with learning experiences that lead to demonstrated proficiency in a significant array of tasks. The programs usually last three to four years and require students to complete course work that includes math, verbal, and occupation-specific content. Apprenticeship helps workers to master not only relevant occupational skills but also other work-related skills, including communication, problem-solving, allocating resources, and dealing with supervisors and a diverse set of co-workers. The course work is generally equivalent of at least one year of community college. In completing apprenticeship training, workers earn a recognized and valued credential attesting to their mastery of skill required in the relevant occupation.

Young people reap many developmental benefits from engaging in apprenticeships. They work with natural adult mentors who can guide them but allow them to make their own mistakes. Youth see themselves judged by the established standards of a discipline, including deadlines and the genuine constraints and unexpected difficulties that arise in the profession. To quote Robert Halpern, “Young people learn through observation, imitation, trial and error, and reiteration; in other words through force of experience. Though professionalism and care are expected, perfection is not. Adult mentors hold the discipline for the apprentice, sequencing and controlling task demands to keep them on the constructive side of difficulty. They direct apprentices’ attention, demonstrate and sometimes collaborate.”ⁱ Supervisors provide the close monitoring and frequent feedback that helps apprentices keep their focus on performing well at the work site and in the classroom.

Apprenticeship in the United States focuses primarily on construction and manufacturing occupations, with large scale programs in electrical, pipe-fitting, carpentry, shipbuilding, maintenance, machining, and welding. This type of training is particularly relevant today as a way of dealing with the current mismatch between available workers and openings for skilled occupations in manufacturing and other industries. Tens of thousands of apprenticeships are learning occupations in other fields as well, including utilities, auto and truck repair, police and

fire, trucking, child care and long-term care. The range of occupations relying on apprenticeship training is far more extensive in several Western European countries, where apprenticeship is a mainstream route to career success, than in the United States. Apprenticeships provide training for 50 to 70 percent of young people in Switzerland, Austria, and Germany. The strength of Germany's apprenticeship system contributes a great deal to their ability to maintain a vibrant, high quality manufacturing sector. Apprenticeships are also expanding rapidly in other advanced economies, including Ireland, Australia, and the United Kingdom. Apprenticeships have been extended to many occupations, including nursing, information technology, finance, and advanced manufacturing. Since apprenticeship is driven by employer demand, mismatches between skills taught and supplied and skills demanded in the work place are less likely to occur than when training is provided in school-based or community-based courses.

The U.S. apprenticeship system is highly decentralized, although most programs are governed by the "Registered Apprenticeship" system. These registered programs operate under the supervision of the U.S. Labor Department's Office of Apprenticeship (OA) and State Apprenticeship Agencies. The responsibilities of the OA include issuing certificates of completion to apprentices, protecting the safety and welfare of apprentices, providing guidance and technical assistance to program sponsors, monitoring program equal opportunity plans to prevent discrimination against women and minorities, and expanding the use of apprenticeship by employers.

As of 2008, about 27,000 registered apprenticeship sponsors were training about 480,000 apprentices. Apprentices make up only about 0.3 percent of total work force and nearly 4 percent of a cohort's entrants to the work force.ⁱⁱ Though only a fraction of the students in colleges and universities, the number of registered apprentices is comparable to the combined number of individuals receiving training through three federally sponsored Labor Department programs: the Workforce Investment Act's Adult and Dislocated Worker programs, a formula-funded federal program that provides local workforce boards with funds for training and other services; the Job Corps, and the Trade Adjustment Act.ⁱⁱⁱ The Department of Labor spent almost \$3.9 billion dollars on these programs in 2007, or more than 190 times more funds that was spent on the Office of Apprenticeship to promote and monitor registered apprenticeship in the U.S.

Who Can Benefit From Apprenticeship?

Apprenticeship is particularly appealing as a way of integrating minorities, especially minority young men, into rewarding careers. Having learning take place mostly on the job, making the tasks and classroom work highly relevant to their careers, and providing participants wages while they learn can give minorities increased confidence that their personal efforts and investment in skill development will pay. In addition, mastering a skill by completing an apprenticeship gives graduates a genuine sense of occupational identity and occupational pride.

Perhaps the most persuasive argument for making apprenticeship more central to U.S. skill development is that the evidence that the rates of return to apprenticeships far exceed alternative training methods for middle-skill jobs. Kevin Hollenbeck studied the earnings gains of individuals who exited various education and training programs, including community colleges, Workforce Investment Act, or WIA, training, and apprenticeship. Hollenbeck examined earnings gains relative to program costs to calculate social benefits using a matching strategy that allowed for comparisons of workers with similar characteristics.^{iv} Looking at earnings impacts during the first 2.5 years after exiting the program, he estimated that the net social benefits to apprenticeship were about \$50,000 per apprentice, far more than minimal gains accruing to community college students and WIA trainees. In other words, it takes little time for a significant payoff to apprenticeship training to accrue to the worker and society at large. On a lifetime basis, Hollenbeck projects the present value of earnings gains less costs at \$269,000 per apprentice, compared to \$96,000-\$123,000 per community college attendee, and about \$40,000 per WIA trainee.

Nearly all the countries that use apprenticeship extensively have relatively low youth unemployment rates because apprenticeships result in much smoother transitions from school to careers than does most school-based preparation. Moreover, because apprenticeship provides workers with a full salary and wage progression so that participants can support their living standards without a government stipend. These features are especially important for low-income workers.

Despite these substantial benefits, federal support for apprenticeship training is meager. Although the Obama administration recently awarded grants of \$6.5 million to assist national industry and employer associations and labor-management organizations in advancing Registered Apprenticeship, the ongoing budget for the main agency helping to expand and monitor the apprenticeship system is only about \$28 million of the nation as a whole. Apprenticeship sponsors generally receive no direct support, though some of their apprentices obtain subsidies through community colleges.

Generally, policymakers view community colleges and apprenticeships as two approaches that substitute for one another. But, the two systems can complement each other as well. Community colleges frequently provide academic instruction required for apprenticeable occupations. In some cases, apprenticeship programs build in sufficient courses for the apprentice to earn an associate's degree. Having apprentices attend community colleges provides a signal that higher education and continuous learning are useful for the employer and the apprentice.

For community colleges, apprenticeships open interactions with businesses and insure that the occupational training provided by community colleges is up-to-date. Community college instruction provides the assurance that students have jobs linked to their education and training, thereby lessening the concern of a mismatch between skills taught and skills demanded. Unlike many community college students, who work part-time in jobs unrelated to their degrees, apprentices will see a close connection between their course work and their

careers. The apprenticeship connection can improve student performance in the classroom and increase program completion because employer (or union-employer) sponsors mentor and monitor the apprentice/student on a frequent, at least monthly basis. Currently, community colleges lack the resources for effective counseling of students on an individual basis.^v Apprentices will be motivated to do well in order to keep their jobs and move up in the organization sponsoring them. The added motivation and improved performance of apprentice students will raise retention and completion rates at community colleges and possibly positively enhance the learning atmosphere in classrooms.

Apprenticeship can serve as a foundation for completing further education. The completion of an apprenticeship involves great dedication, attention to detail, near-perfect attendance, an ability to listen and learn from peers and more knowledgeable colleagues, and demonstrating a mastery of complex material. By the time apprentices graduate and become certified, their confidence in their ability to learn and their awareness of what learning requires has increased substantially. At some later point, many will attend courses that update their skills. If entering and completing college degrees became more of a seamless process, the number of apprentices with college degrees would probably increase significantly. At the same time, the high return to apprenticeship training is likely to cause many skilled workers to become satisfied with their existing careers.

How Can We Expand Apprenticeship Training in the U.S.

It is important to expand the scale of apprenticeship training to increase skills and help more workers enter rewarding careers. One recent example from South Carolina shows the potential for expansion at modest cost. Since the state government funded a \$1 million a year expansion initiative housed at the state's technical college system and annual employer tax credits of \$1,000 per apprentice per year, Apprenticeship Carolina™ has stimulated the registration of an average one new employer-sponsored apprenticeship program per week and more than doubled the number of apprentices in the state. Program staff have and continue to work closely with a representative from OA in the Labor Department's Employment and Training Administration. The expansion has created opportunities across broad industry sectors including advanced manufacturing, health care, and information technology. Moreover, the effort is adding to the linkages between the technical colleges and the business community. Although the technical college system's career programs generally have business groups that offer advice on curriculum and program development, the direct linkage between the technical college and the apprenticeship system raises collaboration to an unusually high level.

Federal subsidies to employers adopting or expanding apprenticeship are likely to help but effective marketing of the apprenticeship concept will remain a critical ingredient. According to staff in South Carolina, the availability of the modest \$1,000 per year tax credit for each apprentice for each year opens the door to conversations about establishing an apprenticeship program. One way to target such subsidies in ways that do not pay for all the existing apprenticeships is to use a marginal credit, whereby employers would receive tax credits of perhaps \$4,000 for each new apprenticeship position beyond 80 percent of last year's level.^{vi}

A federal subsidy for expanding apprenticeship makes sense on several grounds. First, while apprenticeships significantly increase human capital at least as much as community colleges, they receive no governmental support, except for some indirect subsidies based on low community college tuition. Subsidies to the general educational component of apprenticeships are as justified as subsidies to college and university education. Second, the expected benefits from subsidies to stimulate added apprenticeships are likely to far exceed the costs.

Apprenticeship can and sometimes does serve as a foundation for completing further education. The completion of an apprenticeship involves great dedication, attention to detail, near-perfect attendance, an ability to listen and learn from peers and more knowledgeable colleagues, and demonstrating a mastery of complex material. By the time apprentices graduate and become certified, their confidence in their ability to learn and their awareness of what learning requires has increased substantially. At some later point, many will attend courses that update their skills. If entering and completing college degrees became more of a seamless process, the number of apprentices with college degrees would probably increase significantly. At the same time, the high return to apprenticeship training is likely to cause many skilled workers to become satisfied with their existing careers.

The Role of States

States influence the skill development process not only through the K-12 school system, but also by providing about \$60 billion to fund higher education and serving as the largest funder of community colleges. In addition, governors often lead job service and training programs sponsored by the Workforce Investment Act, or WIA. About half of all state governments operate State Apprenticeship Agencies that approve programs as registered in the federal system.^{vii} Other states can promote apprenticeship by sponsoring staff in government or in other organizations work closely with federal apprenticeship representatives in the area.

States can in principle coordinate joint initiatives involving not only community colleges and apprenticeships, but also WIA and high school programs given their deep involvement in this mix of education and training for careers. States also can use their funding of construction projects and other activities to promote apprenticeship or other types of career-based training. Under WIA, governors have discretionary funding that could be used to stimulate apprenticeship and improve linkages with community colleges. Other approaches to expand apprenticeship programs at the state level might involve focusing on target groups, such as ex-offenders and dislocated workers. Many groups place a high premium on earning money while undergoing training. Funds designated for these groups could be used to develop new apprenticeships and link individuals to existing apprenticeships.

States that take the initiative to expand apprenticeship and offer links to community/technical colleges are likely to find a receptive audience politically. The public realizes the importance of insuring that training programs are well-matched to the job market and to actual careers for graduates. Also, most people recognize that college should not be the only pathway to a

rewarding career. Businesses and other employers continue to emphasize the importance of skills that can be best learned at the workplace. Current sponsors of apprenticeship programs highly recommend the strategy to other employers and certainly would support the initiative. These are among the reasons that apprenticeship has long attracted bipartisan support.

Conclusions

Sound strategies to educate and train individuals for rewarding careers are critical for achieving high productivity but also for raising the earnings of workers at the middle and lower middle of the educational distribution. Today, the country offers several strategies that often operate independently of each other, including formal apprenticeships, community colleges, for-profit career colleges, and purely employer-sponsored training. Unfortunately, the systems are often opaque and hard to navigate for individuals. Firms can often locate local training providers to satisfy their demand for skilled workers, but sometimes find the system quite difficult to penetrate. Gaps between skills learned and skills needed are common, whether they involve machinists in Texas or long-term care workers in the western parts of the country.

Over the next decades, jobs will be emerging in fields amenable to collaborative apprenticeship-community college training. Other countries with advanced economies are demonstrating that the apprenticeship model can lower youth unemployment and help young people master critical occupational skills that lead to rewarding careers. Currently, apprenticeship yields high social returns in the U.S. as well, but the system lacks the necessary public support to expand. It is time for political leaders, policymakers and the public to recognize and embrace the potential of apprenticeship to generate a high skilled workforce, one well matched to current and future jobs and one that encourages employers to create more highly productive, well-paid jobs. Promoting more apprenticeship training and apprenticeship-community college collaboration will not only expand the effectiveness of education and training and enhance productivity, but it will also integrate many workers who prefer learning-by-doing and the earning-when-learning aspects of apprenticeship training.

ⁱ As Robert Halpern points out, youth see themselves judged by the established standards of a discipline, including deadlines and the genuine constraints and unexpected difficulties that arise in the profession. To quote Halpern, “Young people learn through observation, imitation, trial and error, and reiteration; in other words through force of experience. Though professionalism and care are expected, perfection is not. Adult mentors hold the discipline for the apprentice, sequencing and controlling task demands to keep them on the constructive side of difficulty. They direct apprentices’ attention, demonstrate and sometimes collaborate.” See Robert Halpern, 2009. *The Means to Grow Up. Reinventing Apprenticeship As A Developmental Support in Adolescence*. New York: Routledge.

ⁱⁱ According to the website of the U.S. Bureau of Labor Statistics, the U.S. labor force stood at 153.6 million at the end of 2007. Dividing the 468,000 apprentices by the 153.6 million in the labor force equals 0.3 percent. A cohort of 22 year-olds entering the labor force is about 3.4 million. Since apprenticeships usually last about 3.5 years, the number of apprentices per single year of age is 134,000. Dividing 134,000 by 3.4 million equals 3.9 percent.

ⁱⁱⁱ Kelly Mikelson and Demetra Nightingale. 2004. “*Estimating Public and Private Expenditures on Occupational Training in the United States*.” Report to the US Department of Labor. Employment and Training Administration. www.urban.org

^{iv} Kevin Hollenbeck. 2008. "State Use of Workforce System Net Impact Estimates and Rates of Return." Presented at the Association for Public Policy and Management Meetings. Los Angeles, California. November.

^v James Rosenbaum, Regina Deil-Amen and Ann Person. 2006. *After Admission: From College Access to College Success*. New York, NY: Russell Sage Foundation.

^{vi} The marginal nature of the subsidy was less important in South Carolina because of the very small number of apprenticeships at the base period.

^{vii} Under regulations issued in 2008, the SAAs, which are state government entities, have the registration responsibility. Previously, State Apprenticeship Councils (SACs), which included labor and business members, carried out the registrations.