# Chapter 10
# Apprenticeship in the United States

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## 10.1 Apprenticeship and Vocational Education in the United States

Apprenticeship in the United States in the tradition of master craftsman training plays only a minor role in the qualification and credentialing of employees for careers in the intermediate sector. Although vocational education is common, it operates mainly through school-based programs in high schools and postsecondary education with little related work experience or direct involvement of employers. Schools often offer general work experience for course credit through what is known as "cooperative education" but often the connection with an occupational program is minimal. Formal apprenticeships called "Registered Apprenticeships" and overseen by the Office of Apprenticeship in the U.S. Department of Labor train nearly 500,000 adult workers for occupations though the system is unlinked to high schools and only sometimes linked with community colleges or other postsecondary educational institutions.

Some attempts to integrate apprenticeship training into the higher secondary level through youth apprenticeship began in the late 1980s, yet failed almost completely (Lerman, 2003). Apprenticeship training of the European type exists in a few states, including Wisconsin. But, a dual system of school-based and work-based training leading to an occupational qualification high school has not emerged. One reason is that the providers of adult apprenticeship programs, in the "registered apprenticeship" system opposed youth apprenticeships and wanted to restrict the "apprenticeship" label for use in their own programs (Glover & Bilginsoy, 2005, p. 346).

Recent years have witnessed efforts to improve the transition from vocational education to higher education (Glover & Bilginsoy, 2005, p. 345). The Carl D. Perkins Act is the most important legal basis for the public funding of vocational

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and preparatory programs (Katzis, 2001). The 1998 amendments to the Perkins Act aimed to promote the integration of academic and vocational education and to improve the preparation of vocational education students to enter colleges.

Debates over extending vocational education into an apprenticeship or work-based system arose in the late 1980s and early 1990s. In 1992, as part of his Job Training 2000 initiative, the first George Bush administration called for including "...voluntary apprentice programs for high school students, combining quality education, on-the-job training, and mentoring." This Bush administration sponsored youth apprenticeship demonstrations in several sites. The idea of "youth apprenticeship" emerged out of concern for the unstructured school-to-work transition (Lerman & Pouncy, 1990; Hamilton, 1990; Commission on the Skills of the American Workforce, 1990). Between 1990 and 1992, Republicans and Democrats in Congress introduced four bills proposing federal government support for youth apprenticeship. The National Youth Apprenticeship Act established as criteria "a comprehensive program of instruction which merges learning in the classroom and in the workplace." This program was intended for high school juniors and seniors as a way of improving the school-to-work transition.

The efforts to develop youth apprenticeship resulted partly from frustration with the dispersed and uneven nature of the existing vocational education and training system. The high school vocational education programs looked largely disconnected from employers. Federal job training for youth was proving unsuccessful (Lerman, 1996), and many programs were poorly coordinated. In 1992 the General Accounting Office prepared an overview for the Senate of all programs financed as job training by the national government. In fiscal year 1991 a total of 125 different national programs "in education and employment training" were funded with $16.4 billion and administered by 14 governmental departments and agencies (National Youth Employment Coalition and Youth and America's Future, 1992, p. i).

Efforts to coordinate these programs using "Private Industry Councils (PICs)" were proving ineffective as well. To cite one study, "It is amazing when you talk to business persons how little thought is given beyond the next board of directors meeting or the next quarter or the next profit and loss statement. A human development system is a long-term plan and a long-term investment" (Barrios-Paoli, 1992, p. 38).

The Clinton administration entered with a strong interest in improving job training and especially the school-to-work transition. Training was viewed as a cornerstone of their economic and social policy, a way of reconciling open trade policies with concerns about workers. Some favored the youth apprenticeship model similar to a dual system of vocational training following the model of European states like Germany, Switzerland, and Denmark. "The German 'dual system'—so named because students are taught both in schools and workplaces—has attracted particular attention," as Richard Mendel summarizes the attitude widely held among VET experts in the United Staes during the early and mid-1990s (Mendel, 1994, p. 12). For the first time talk was not about national *programs*, but about *system-building*. To implement this vision, Congress passed and President Clinton signed the School-to-Work Opportunity Act (STWOA) of May 1994. Along with STWOA, Congress established the National Skill Standards Board aimed at providing the industry-based and occupation-based credentials that might be achieved through youth apprenticeship.

Yet, two problems arose in the process of implementing STWOA. First, the legislation did little to emphasize apprenticeship, in part because of concerns by labor unions that youth apprenticeship might conflict with the existing adult Registered Apprenticeship system. In addition, the administrators of the new law did little to nothing to promote apprenticeship as a major part of state programs to improve the school-to-work transition. One reason was the worry that having high school students select an occupational, work-based option would involve tracking and stigmatization of the program. Instead of promoting in-depth interventions for a segment of young people interested in work-based learning, STWOA pushed state programs to provide low-intensity interventions (career plans, job shadowing) for all students.[1] Federal officials failed to draw on the successes of the Youth Apprenticeship initiative taking place in the state of Wisconsin.[2]

The second problem was one of federalism, with an awkward division of roles for national and state governments. When passing the STWOA, Congress emphasized "that ultimate responsibility for system-building lies with the states." Congress could only take the role of a catalyst in order to initiate this process. The optimism that accompanied this initiative was supported by a sort of grand coalition between the two big parties, the industry and the trade unions, representatives of the educational system, the departments of labor and of education as well as renowned VET researchers. But at the time, distinguished VET experts Steve Hamilton and David Stern warned of the illusion that it was possible to create a VET system comparable to those existing in Central European countries without establishing a stable national framework for a training system at the level of the federal government and with the support of a well-developed VET research and governance. Steve Hamilton wrote, "It's very hard to find an existing organisation that has the confidence of both the 'business' community and the education community." David Stern stated, "That unless and until such an institution is put into place, the US will not have widespread participation in apprenticeship" (quoted in Mendel, 1994, p. 22). Unfortunately, the ambitious initiatives to establish vocational education and training using models like the European dual systems shared the fate of their predecessors: they failed. Despite this and other failures, debates on initiatives to establish an "apprenticeship system" obviously reemerge periodically.

In a recent book chapter, one of us (Lerman, 2008) argued that the considerable skills gap in the American employment system cannot be easily overcome by the community colleges or by high schools. The chapter criticized the American "college for all" policy as being costly and ineffective for the United States (Lerman, 2008, p. 20) and called for expanding apprenticeship in the United States. The crucial argument is "that doing better requires public policymakers and education and training practitioners must recognize and address the multidimensional nature of skills, the variety of learning approaches, including the value of contextualized

[1] The motto of the first director of the School-to-Work office was "All Means All."

[2] The Wisconsin Youth Apprenticeship program remains strong, with 22 programs, about 2,000 youth apprentices, and continuing financial support (albeit modest) from the state government.

learning, and the desirability of close links with employers and workplace" (Lerman, 2008, p. 23). Thus, a fundamental problem of American education research and policy is the inattention toward all educational contents and types of learning not established in colleges and higher education. Literacy research and the practice of assessment have concentrated on fundamental skills in mathematics, languages, and natural sciences. Ignored is the great variety of domain-specific (vocational) competences as developed in vocational training systems.

A necessary component to a skills strategy is qualification and competence research that builds upon Howard Gardner's concepts of *multiple competence* and *intelligence* (Gardner, 2002). Otherwise wrong data would lead to wrong conclusions and to political decisions in the wrong direction: "Given the uncoordinated and opaque approach to occupational certification in the US, it is not surprising that policymakers rarely incorporate this dimension into deliberations about the skills of American workers" (Lerman, 2008, p. 38). Lerman draws the following conclusion: "One highly successful system to train adults for rewarding careers is apprenticeship. While apprenticeship provides a large component of training for careers in some countries and is growing in others, only a small and declining share of adults in the US participate. One way to shore up and expand apprenticeship in the US would be to increase its federal budget allocation, which at present is minimal. Expanding apprenticeship is likely to prove far more effective in raising long-term earnings at modest costs than is increasing the share of students entering college" (Lerman, 2008, p. 70).

In the pedagogical debate, workplace learning has played a considerable role for decades. The important studies on the relationship of working and learning by Lave and Wenger (1991), Collins, Brown, and Newman (1989), Schön (1983), Garfinkel (1986), and Polanyi (1966) continue to shape the international debates in vocational pedagogy, and increasingly those in the German-speaking countries (cf. Grollmann, Luomi-Messerer, Stenström, & Tutschner, 2007).

Opinions on whether strengthening vocational education in general and apprenticeship training in particular can improve the competitiveness of the US economy remain controversial. In several studies on the relationship between education and competitiveness, the education system is blamed for the shortcomings of the US economy especially in the manufacturing sector (US Congress, 1988; US Congress, 1990; Hatsopoulos et al., 1988; Kazis, 1989; Berger et al., 1989; Tenbrock, 1994). The MIT study "Made in America" concluded that ". . .without major changes in the ways schools and firms train workers over the course of a lifetime, no amount of microeconomic fine-tuning or technological innovation will be able to produce significantly improved economic performance and a rising standard of living" (Dertouzos et al., 1989, p. 81). Moreover, the relationship between vocational education and competitiveness has changed little over the past 18 years (Hall & Soskice, 2001).

Vocational education is rarely mentioned in studies highlighting the importance of educational improvement on the economy. In the tradition of American industrial culture, vocational education that includes the process of qualifying for an occupation is a contradiction in terms. Vocational *training* is traditionally perceived as

"in-plant training" and "on-the-job training." Vocational *education*, on the other hand, is a part of public education and aims not so much at the impartation of professional skills, but rather at vocational guidance and prevocational education. "Schools should educate, industry must train" (Phillips, 1984, p. 253) is a position that is widely shared by enterprises, trade unions, pedagogues, and educational practitioners. But, the vocational dimension has always attracted advocates as well. In 2009, President Barack Obama proposed substantial increases in funding for US community colleges, highlighting the ability of these schools to provide training for careers. In addition, there have been frequent attempts to adapt the school system (especially the high school) better to the qualification requirements of the employment system.

Several elements of the education system have played and continue to play crucial parts in the ambivalent development of the US education system. People see the school as a *central social and cultural institution of the community* and often the social center of the township; at the same time, the school is viewed as a *regional agency of democratic development* and a provider of skills for the job market. More recently, the goal of equality in outcome as well as opportunity is coming into conflict with the recognition that people should have a variety of pathways to rewarding careers. When university education is viewed as the only nonstigmatized route for everyone, it becomes difficult to adopt effective career-focused policies.

The next sections examine and draw lessons from two elements of the US skill development system. The first is the school-based vocational education that developed in high schools but has now largely eroded over time, though replaced with some new institutional forms. The second is the employer-based US apprenticeship system, regulated primarily through the U.S. Department of Labor's Office of Apprenticeship.

## 10.2 The Historical Evolution of US Vocational Education

When the European immigrants came to America, apprenticeship came as well. In the colonial era, however, apprentices were often treated only as cheap workers who had no rights. The period of "apprenticeship" was therefore extended to up to 14 years. The continuous flow of immigrants served to fulfill the increasing demand for skilled workers in the age of industrialization at the end of the nineteenth century. Apprenticeship training therefore played only a minor part.

Herbert Kliebard dates the emergence of a national movement for the establishment of vocational education at the time following the World's Fair of 1876 in Philadelphia (Kliebard, 1999). In the course of the rapid industrialization the educational system became increasingly important for the economy and faced pressure from business to improve the preparation of the work force. The presentation of training methods from various industrial countries played a surprisingly central part in the world's fairs in Philadelphia and later in Chicago (Gordon, 1999, pp. 10 ff.). Particular attention was paid to the Russian "training method" as well

as to the vocational-pedagogic concept of "Sjöld" developed in Sweden (Reincke, 1995). The Russian method was characterized by a course-based manual training in training centers, which imparted basic skills in a systematic way.

US responses to the Russian method varied. One group of work and vocational pedagogues enthusiastically adopted this method and acknowledged its high efficiency. Their objective was to organize vocational schools according to the model of German vocational schools and to integrate them in the public school system. Opponents of the Russian method came from pedagogues who adhered to the Swedish pedagogy of work. Gustav Larsson formulated the distinction between training oriented toward operational tasks and a work pedagogy oriented toward understanding and education (Larsson, 1902). Bennett criticized the Russian method as incompatible with the paradigms of American education and as "...military in character..." and with an emphasis on "...rules, orders, dictation..." (Bennett, quoted from Reincke, 1995, p. 262). At the International Congress of Education within the Columbia World's Fair in Chicago (1893), the dispute between the two groups was decided in favor of the American Sjöld, an approach involving the integration of vocational education into the public school system. Over time, schools added vocational preparation, guidance, and ultimately created vocational education concentrations in comprehensive schools as well as separate vocational schools. But, the vocational tracks became stigmatized because of their extensive use by students who underachieved in academic subjects.

The introduction of vocational contents in school attracted opposition by many in the progressive education movement, who argued that schools should be creators of democracy and not tools of efficiency. Wirth (1972) refers to a controversy at the end of the nineteenth century between followers of a vocational education system integrated into the educational system (Literal Vocational Education) and proponents of an "industrial education" unequivocally oriented to labor-market demands.[3]

In the US educational system, "vocationalism" has long been suspected of an antidemocratic education policy. The great American philosopher John Dewey tried to reconcile vocationalism and political emancipation in an egalitarian and democratic concept of education. He attempted to counter attempts to bring a business-oriented, one-dimensional functionalism to education. In Dewey's view, work-related education is a contribution to democratic education as it gives young people the opportunity to learn to master their own living conditions. The school is a "testing ground" for work-related contents that are free from any immediate influence of business, "Vocational Education" is a means to the reform of industrial society: "...there is danger that vocational education will be interpreted in theory

[3] This conflict overlapped the debate between the African-American activists Booker T. Washington and W. E. B. Du Bois about the adequate schooling and vocational education for African Americans. While Washington held the position (and fought for it) that African-American pupils and young people should be qualified for the labor market in order to become economically independent from the whites, Du Bois regarded this as a strategy to uphold the existing power structures and social segregation of blacks and whites (Parnell, 1985).

and practice as trade education: as a means of securing technical efficiency in specialized future pursuits. Education would then become an instrument of perpetuating unchanged the existing industrial order of society, instead of operating as a means of its transformation. . .” (Dewey, 1966, pp. 316 and 319).

A turning point in vocational school development came with the Smith-Hughes Act (Federal Vocational Education Act) of 1917. Since then, vocational education at the high school has been contested terrain, with some seeing a conflict between the democratic ideals of education and the demands of the industry for highly qualified workers and diversified production processes. The results have been largely an uneasy and unsatisfactory compromise. Although vocational education developed into a separated branch of the public school system, the programs lacked direct linkage with in-company training and high-quality training. To this day, Americans make a sharp distinction between “education” as a task of the communities and “training the workforce” as a task of the enterprises. The approach leaves little room for a type of high school vocational education that leads to valued vocational qualifications.

In fact, while high schools became comprehensive in combing academic and vocational courses, they increasingly focused on preparing students for college. One result is that vocational education came to be considered an inferior option, one for those with weak academic skills. Schools began to face harsh criticism for the practice of “tracking” students to vocational programs. Of special concern was that tracking was channeling students to academic, vocational, or general diplomas based not only on their performance but also on their expected performance using social class and race as proxies (Rosenbaum, 2001). Subsequently, counselors have overreacted and become reluctant to encourage noncollege routes even for students highly unprepared for college.

Today, only a small minority of schools in the United States is a vocational or technical high school. These supplement the educational program of the high schools especially for those students who consider undergoing practical training or attending a community college for vocational education. The share of seniors who were occupational concentrators and took at least one advanced course in the occupational field declined from 24 to 14.4% from 1982 to 1998. At the same time, an array of other career-focused programs have surfaced, including Career Academies (high schools organized around an occupational or industry focus) and Tech-Prep programs (occupational-related instruction with links between high schools and two-year community colleges).

Some vocational preparation takes place through internships arranged by the high schools. Often, they are carried out in the context of the relevant “vocational courses.” However, most students who work part-time outside a school context do not view this work as part of their “education.” These students constitute more than 30% of high school students, especially among those in their last or senior year.

The clear separation of “education” and “work” has intensified. A relatively high youth unemployment as well as an overly long period of working in low-paid and semi-skilled jobs after finishing high school (floundering period) is the consequence. All regional and national efforts to solve this problem remained more or less

unsuccessful. One positive sign is the creation of the national "Tech-Prep" program, which for the first time attempts to link vocational education at high schools with studies at the community colleges. The "2+2 Curriculum" that ranges across school levels increased the attractiveness of vocational education at high schools as a part of an integrated educational program that also gives access to higher education.

## 10.3 Adult Apprenticeship Training in the United States

The Registered Apprenticeship system of the United States operates with virtually no connection to the formal education system of high schools and colleges. Young people up through their mid-20s and even 30s have long entered apprenticeships either by having a job and bidding for an apprenticeship slot or entering through a union as part of a joint apprenticeship program run as part of a collective bargaining agreement between unions and employers. Unlike their German counterparts, US apprentices are typically in the mid- to late 20s and often already have relevant work experience. The older age of entry in the United States is not because of age restrictions. Individuals can enter as early as age 16 with a parent's permission or 18 otherwise.

The governing law, which emerged from a joint effort that involved employer associations and trade unions and few, if any, education representatives, is the National Apprenticeship Act (Fitzgerald Act) on August 16, 1937. Under this law, the US Department of Labor as well as state apprenticeship councils have been in charge of promoting, overseeing, and regulating apprenticeship.

The law put together regulations that had already existed in various laws of single states. Whereas more recent laws on employment and training such as the "Job Training Partnership Act" (1982) and the "Vocational Education Act" of 1989 had a length of 77 and 56 pages respectively, the National Apprenticeship Act is only one page in length. To this day there has been no amendment. This illustrates the minor social and economic relevance of this type of vocational education in the United States.

Though coordination between apprenticeship and the educational administration was foreseen in the act, it has never been put into practice. In the oversight hearing of 1984, almost 50 years after the enactment of the law, this lack of coordination was unanimously regarded as a fault (cf. Oversight Hearings on the National Apprenticeship Training Act). Within the Department of Labor, the responsibility is now with the Office of Apprenticeship (OA). The OA has major responsibilities in the following areas:

- Registration of new "apprenticeable occupations" and publication of these in a bulletin.
- Review of the legitimacy of the agreement on new occupations at the lower levels of VET administration.
- Registration and evaluation of apprenticeship programs.
- Counseling and support for regional OA offices and "apprenticeships councils" in the states and at the local level.

The OA is supported in its advisory activities to the federal government by the "Advisory Committee on Apprenticeship" (ACA).

In 26 states, State Apprenticeship Agencies (SAAs) decide on registration of apprenticeship programs, provide technical assistance, and monitor compliance with regulations.[4] The "Apprenticeship Agencies" are institutions at the state level that are meant to be comparable to the OA at the federal level. In states that have not obtained state authority for registration, the federal OA oversees the program. Both the federal and state authorities who deal with apprenticeship are woefully understaffed. In some states, only one or two people provide the staffing for the apprenticeship program in the entire state. Some regard this organizational dualism of states with SACs and those subject to a central administration as in need of reform. But, without additional budgetary authority, the issue is somewhat moot.

Joint Apprenticeship Committees (JACs), in which employers and trade unions are each represented, and other union-affiliated programs are responsible for about two-thirds of apprentices and act as contractual partners in defining apprenticeship standards. In other cases, employers play the central role in adapting standards. The OA helps develop and oversees apprenticeship standards in cooperation with the state bodies, supervises compliance with these standards, and initiates and advises apprenticeship programs. At the federal level, the expectations are broad. They include (1) a schedule of work processes for which the apprentice will train; (2) organized, usually classroom instruction expected to be 144 hours per year; (3) progressive wage increases over the training period; (4) supervision of and adequate facilities for training; and (5) no discrimination. Beyond these features, the OA approves the specific plans put forward by employers or joint programs when they meet reasonable criteria for occupational mastery. Recently, OA specified that apprenticeships could be approved that base completion on a competency-based standard, in addition to a time-based standard, and hybrid standard. Because the specifics of programs are designed in a decentralized fashion, there are large numbers of individual occupational profiles—over 900.

Job profiles may be recognized as "apprenticeable" at the local level in accordance with these standards. All attempts to limit the number of occupations and to concentrate on broad and comprehensive occupational profiles have failed so far. New apprenticeship occupations can arise very quickly; for example, between March 1988 and June 1989, BAT (the predecessor agency to OA) registered 26 new apprenticeship occupations. Under the US approach, apprenticeship occupations have a different legal quality from the vocational training curricula in Germany, which are enacted as statutory instruments by the ministry in charge. In addition, all the procedures for VET planning differ considerably. In the United States, the initiative to develop a new occupation may be launched by an enterprise. If the profile complies with the criteria for apprenticeable occupations and follows generally

[4] In 2008, the Department of Labor issued regulations that grant exclusive authority for registering programs to State Apprenticeship Agencies (which are government entities). State Apprenticeship Councils (which included labor and business representatives) are required as advisory groups, but no longer have registration authority.

accepted standards for the occupation, there is usually no obstacle to the recognition of the occupation by OA.

Instead of an occupational profile or a training curriculum, typical work processes are used to describe an apprenticeable occupation. These work processes roughly correspond to the training modules in German training curricula. For each of these work processes the training time is specified in hours or days. In case the training process involves several companies under the coordination of a training provider, this list serves for the supervision of training.

Until recently, one expectation of programs has been theoretical instruction of a minimum of 144 hours per year. Usually, these instruction hours have not counted as working time. However, regulations vary at the state level. In general, theoretical instruction is more similar to in-company instruction than to school instruction at vocational schools in Germany. This is already expressed by the term "related instruction" or "related (classroom) teaching." This instruction takes place at schools of various types (high schools, vocational training centers, technical schools, community colleges), as well as in company institutions and training centers operated by Joint Apprenticeship and Training Committees (JATC). Theoretical knowledge acquired before the beginning of apprenticeship training may be accredited. If school lessons are organized as block courses, the apprentice is unemployed during that period and receives unemployment benefits unless stipulated otherwise by collective agreements or the standards agreed upon.

A key element of the apprenticeship standards is the fixing of the salary. Often, salaries are based on a collective bargaining agreement. The definition of the training time is also part of the apprenticeship standards. Until recently, the standard hours for work-based training was 2,000 hours.

Several national programs are based on agreements between trade unions and employer associations at the federal level. In these cases joint training committees are established. One well-known example is the "National Joint Apprenticeship and Training Committee for the Electrical Industry." The apprenticeship standards are directly negotiated and agreed upon with the OA and the "State Apprenticeship Councils."

Regulations issued by OA in 2008 aim to increase the portability and flexibility of the registered apprenticeship system. On portability, the OA requires states to accept on a reciprocal basis the apprenticeship qualifications of individuals meeting the standards applied in other states. The added flexibility comes by allowing for intermediate qualifications—called interim credentials—that allow programs to shorten training programs and to allow credentialing at a middle-skill level. At the same time, the interim credential must be a step toward a full credential in an occupation. The regulations allow for competence-based criteria rather than simply the completion of a specified number of hours of work-based and classroom-based learning. Programs can also use a combination of time-based and competence-based criteria.

The trainee concludes an apprentice agreement with the relevant OA authority (state or federal) and with the apprenticeship committee that is responsible for his or her program. Although the OA is responsible for overseeing the quality of the programs, both the relevant federal and state authorities are woefully understaffed.

In some states, only one or two people provide the staffing for the apprenticeship program in the entire state.

One indication of the low interest by the US Congress in apprenticeship is that in the course of 70 years after the enactment of 1937 Act, very few hearings have been held and very few, if any, amendments to the Act have been passed. The Congress and various administrations have emphasized issues of discrimination, against minorities (especially black and Hispanic workers) and women. But, no effort has been launched to legislate concerning the structure, funding base, scale, mode for developing occupational standards, or governance during the act's history. Occasionally, new regulations are issued, as with the 2008 rules and those promoting cooperation between school-based VET and apprenticeship training in the Vocational Education Act (Carl Perkins Act) of 1984.

Recent data from most of the states in the United States show apprenticeship training in the United States is predominantly rooted in the craft trades. Five of the top six occupations in 2007 are linked with the construction industry (electrician, carpenter, plumber, construction craft laborers, and pipe fitters). About 36% of apprenticeship sponsors but over 50% of apprentices are in the construction industry. By implication, the construction programs are considerably larger than average.

Despite the rapid growth in US employment since the 1950s, the amount of training through apprentice has not kept pace with demands. In 1952 the Bureau of Labor Statistics reported a dramatic shortage of skilled workers in the aeronautics and automotive sectors, but also in other sectors of metal works. "The bureau noted, with some alarm, that the pool of these skilled workers was drying up, due to retirement and reduced immigration from Europe, and a lack of adequate apprenticeship programs" (Nobel, 1986, p. 39). In recent years, shortages of skilled workers have appeared in a range of areas, from nursing to welding to machinists. Still, apprenticeship has not reached sufficient scale to satisfy the demand. While other modes of vocational education, particularly in community colleges, have increased substantially, they often are ill-matched to the skills required in many occupations. As of 2007, about 480,000 workers were training as apprentices. This number made up about 0.3% of total employment. Even if the nonregistered apprenticeships are included, the proportion of apprentices remains less than 1%. Even relative to the numbers entering the workforce, the figure is still low, about 3% for registered apprenticeships and perhaps 6–8% for all apprenticeships.

Trade unions have a considerable influence on apprenticeship training via the "Joint Programs." Although programs connected with unions make up less than 30% of all registered apprenticeship programs, union-connected sponsors provide nearly two-thirds of all registered apprenticeships. Given that the rate of unionization of American employees is less than 10% in the private sector and that many "modern" enterprises consider being "union free" as a part of their image, those trying to expand apprenticeship face the challenge of persuading employers that apprenticeship can be a sound training solution for non-union firms. Still, in a recent survey of apprenticeship sponsors, 85% of non-union apprenticeship sponsors reported they were highly satisfied with their programs (Lerman, Eyster, & Chambers, 2009).

## 10.4 Apprenticeship 2000 and Other Policy Forums

In December 1987 the Department of Labor launched an initiative called "Apprenticeship 2000." Its purpose was to evaluate the current training situation in the United States and to highlight the role of apprenticeship in meeting the increasing demands for skill likely to arise in the US economy by the year 2000. The effort reached out to a broad audience, especially VET experts, and involved written and oral surveys, hearings and discussions.

The public dialogue on the future of apprenticeship training concentrated on five questions.

1. Can and should apprenticeship training be expanded to all sectors of the employment system?
2. What constraints and parameters of the employment system should determine a possible expansion of apprenticeship training?
3. What should be the "delivery system" for an expanded training system?
4. What role should the government play in an expanded training program?
5. How can apprenticeship training be linked more effectively to the employment system?

The answers to these questions given by industry and trade unions, JATCs, government agencies, education offices, and other interest groups were systematically analyzed by the predecessor agency to the OA, then called the Bureau of Apprenticeship Training. A vast majority of respondents was in favor of an expansion of apprenticeship training. Remarkably however, only 82% of the JATCs answered the question and only 50% were in favor of an expanded apprenticeship system. A minority of respondents held the opinion that high-skill occupations, especially in sectors like banking and insurance, petrochemicals, services, high technology and electronics, federal agencies, and healthcare should be excluded.

Two-thirds of respondents held the opinion that the expansion of apprenticeship training should not include all sectors of the employment system. However, there was little agreement as to how far and according to what criteria apprenticeship training should be limited. There was a balance of the arguments in favor of further specialization on the one hand and broader occupations on the other.

The answers to questions concerning the delivery system roughly mirror the current distribution among JATCs, enterprises, and other providers of apprenticeship programs. A majority of respondents favored a strengthening of related instruction outside the workplace in order to lay more emphasis on "education" in apprenticeship. This opinion was held mainly by respondents from education, government, and business.

The question of the future role of government in vocational education and training found a relatively big response. On the whole an intensification of all activities was favored that were already undertaken by the federal government and the states. The answers may well be interpreted as a support for the strengthening of the government's responsibilities in the development of the VET system. The generalization

of "standards" at the federal level as well as support for the development of curricula are positions that are now more widely held than at the time of the 1984 oversight hearing in Congress. Only 12% of the respondents favored a reduction of the government's responsibilities.

One question asked whether and how the connection between in-company training and school instruction, or between practical and theoretical vocational education, might be developed further. A majority of 90% supported a close linkage of in-company and school-based vocational education. Only in the JATC group there was a significant proportion against this idea. Despite the broad approval for a support of theoretical instruction and a close connection between school and company the proposals as to how this might be achieved were highly divergent. Moreover, the heterogeneous interests of business and training providers became quite obvious.

One can hardly fail to notice the critical attitude toward the school system and the resulting reservation using schools, since many have failed to provide skills in reading, writing, and mathematics. Many were explicitly critical of the education system for the alarming number of graduates who lack basic competences.

The review included a discussion about whether alternative models for apprenticeships could improve overall effectiveness and thereby attract more employers to sponsor programs. As noted, registered apprenticeships have historically been designed around 2,000 hours of on-the-job training and 144 hours of formal instruction, although on-the-job training can vary up to approximately 8,000 hours. During the course of Apprenticeship 2000, the possibility of using competences and milestones rather than a required number of hours to define completion of an apprenticeship gained support. Although some raised concerns about maintaining quality and not diluting the concept of apprenticeship, many recognized that incorporating competence-based apprenticeship might open up new options for credentialing and engage more and more varied participants, both workers and employers. This position has now been incorporated under the latest regulations.

With the passage of the 1997 Workforce Investment Act (WIA), the Bureau of Apprenticeship and Training (now the Office of Apprenticeship) and the National Association of State and Territorial Apprenticeship Directors (NASTAD) cosponsored four 1-1/2-day forums in 1999 as part of the *Apprenticeship Impact Project (AIP)*. The AIP forums explored ways to expand and strengthen registered apprenticeships in the context of the new emerging workforce development system. Among the critical issues raised in these discussions were

- Concern about negative images and misconceptions about apprenticeships;
- Challenges resulting from the reported shortages of skilled workers;
- Special training needs of women and minorities, who now constitute the largest number of new entrants to the labor market;
- The need for improved linkages with community-based organizations and educational institutions from elementary through postsecondary levels in order to spur outreach and recruitment; and
- Creating opportunities for effective linkages with the new One-Stop Career Center system (Coffey Communications, 2000).

The forums identified tools and strategies to address each of these issues and to strengthen linkages to the new One-Stop Career system. The OA developed new marketing materials, including the dissemination of brochures describing promising practices and evaluation findings and other material produced under the Advanced Apprenticeship Initiative.

In 2001, the Government Accounting Office published a review of apprenticeship that contributed to the ongoing discussions about how apprenticeship relates to broader labor-market policies. The GAO report concluded that DOL should be more active in identifying new apprenticeable occupations and enlisting new sponsors. Rather than relying mainly on employers' requests for apprentice programs, GAO recommended more use of systematic labor-market analysis to identify potential apprenticeable occupations. GAO also recommended placing more emphasis on addressing employer apprehension or concerns about some structural components of apprenticeships, such as mandated incremental wage increases.

As the Office of Apprenticeship moves forward to try to encourage more apprenticeship programs, it must consider how potential sponsors see the barriers as well as advantages of the registered apprenticeship approach. Among the key barriers identified are the following:

1. *Costs.* An apprentice often receives, in the first year of his or her traineeship, 50% of the wages of a skilled worker. Depending on the agreement, the amount will rise, usually by 10–15%. In addition, smaller enterprises worry about the start-up costs of apprenticeship programs.
2. *Control by trade unions*. Some employers see apprenticeship programs used only for trades with high rates of unionization. This opinion is widely held, even though the greater part of apprenticeship programs is established in "non-union" enterprises.
3. *Fear of "pirating."* Many companies fear that costs are incurred when their training investments are exploited by nontraining companies through the poaching of qualified trainees (the "free rider" argument).
4. *Lack of structural support.* Enterprises abstain from starting an apprenticeship program above all when they are small businesses. The reason is that setting up a program is costly, especially with the minimal assistance and infrastructure available.
5. *Role of the government.* Many enterprises in principle choose not to participate in programs that have any connection to public institutions. This traditional aversion to government programs also exists with regard to apprenticeship programs, although public administration plays a relatively unimportant part in this case. Programs with at least five apprentices must have plans to insure equal opportunity to women and minorities.

Many employers see the benefits of apprenticeship as well worth the costs (Lerman et al., 2009). Nearly all sponsors report that the apprenticeship program helps them meet skill demands. Also viewed as an important benefit of apprenticeship was reliably documenting appropriate skills, raising productivity and worker morale,

and reducing safety problems. Only 5–8% did not find these benefits of apprenticeship at all important. Nearly 87% of sponsors reported they would strongly recommend registered apprenticeship and another 11% would recommend apprenticeship with some reservations. Only about 2–3% answered that they would not positively recommend apprenticeship. Surprisingly, only about one-quarter of sponsors regarded poaching as a significant problem. In fact, 46% of sponsors reported that was not a problem at all and another 29% perceived poaching as only a minor problem.

Whether these positive attitudes and renewed marketing efforts at the Department of Labor and in particular states will lead to an expansion of registered apprenticeship is uncertain at best. Continuing vocational education and training at the community colleges appears to attract more attention though the gains appear well below those accruing to apprenticeship training. Without strong action and leadership, the education-oriented approach through community colleges and technical colleges will become the default option for transitioning between high schools and the employment system.

## 10.5 Conclusion

Vocational education remains an underappreciated aspect of education in the United States. As a result,

1. the qualification of workers for the intermediate sector of the employment system takes place predominantly in the enterprises via on-the-job training;
2. an important exception is apprenticeship, where employer-sponsored and joint employer-union programs provide high-quality training, especially in the construction sector;
3. skill preparation for workers in the intermediate sector also takes place in community colleges and for-profit career schools, although the quality of training and the match between curriculum and career are uneven;
4. training for less-advantaged youth, adults, and displaced workers comes through the Workforce Investment or WIA system; local boards govern programs that provide grants for training often through community colleges and local nonprofits; evidence from past similar programs (the Job Training Partnership Act—JTPA) suggests workers gain only modestly from the training (Orr, Bloom, Bell, Doolittle, & Lin, 1996);
5. overall, the US education policy has not been successful in integrating the variety of programs for vocational education and training into one VET system.

What should guide an integrated system? At the moment, the United States has a dispersed array of providers of training, with only modest quality assurance. Some governors provide leadership but the problem is complicated not only by uncertainties in the job market but also by the strength of political forces that

emphasize academic education over other routes to career success. Further, training providers—whether they are high school vocational education, community colleges, for-profit programs, or local community groups—will be difficult to displace. In this context, the public sector can lead through three concrete steps.

- Help industry associations, labor associations, and apprenticeship programs develop transparent and high-quality occupational credentials. In August 2009, the Office of Apprenticeship awarded industry groups to incorporate competence-based apprenticeship models as well as hybrid models (combining time-based and competency-based criteria). The awards went to industries that traditionally sponsor apprenticeship programs, such as construction, and to other industries, such as computer learning.[5] These grants follow earlier efforts that funding industry groups to build or improve apprenticeship models in metalworking and nursing.
- Increase funding for apprenticeship training and for training with a high track record of meeting these credentials; offer companies modest subsidies to expand registered apprenticeship, a known high-quality and cost-effective training approach. Since 2007, South Carolina has been offering subsidies of $1,000 per apprentice for up to four years. The subsidy is apparently helping the effectiveness of outreach consultants approach employers under the Apprenticeship Carolina program and to attract employer sponsors into the registered apprenticeship system. Expanding the budget of the Office of Apprenticeship from about $20 million to $40 million would likely yield important net benefits. Given the expected present value of the lifetime earnings gains associated with apprenticeship training (about $200,000 or more), the doubling of OA's budget would at least break even if the added staff could generate 100 more apprentices. In South Carolina, a budget of about $1.5 million over 1.5 years directed toward recruiting employers to join or expand apprenticeship programs managed to generate about 800 new apprentices.
- Conduct research on training outcomes as well as impact studies on the net effects of alternative types of training. Research on the impact of apprenticeship training in the state of Washington reveals very substantial earnings gains for apprentices. To make the evidence more complete, the government should undertake projects to replicate the Washington findings in other states and to conduct experimental studies on the impact of apprenticeship training on the earnings of workers. In addition, demonstration projects should be undertaken to estimate the costs and benefits of apprenticeship training from the perspective of employers involved in sponsoring the training.

In the history of vocational education in the United States, the idea of dual apprenticeship training always fascinated and inspired VET experts. As noted, one of the authors (Lerman) proposed dual training or youth apprenticeship system back in

[5] See http://www.dol.gov/opa/media/press/eta/eta20090916.htm for the announcement.

1990. The case for such an approach remains strong: "A large scale youth apprenticeship system has the potential for dealing effectively with the nation's two youth problems: the low skills, motivation and career options of none-college-bound youths and the more intractable economic and social problems of inner-city youths" (Lerman, 2007, p. 166).

Finally, we may ask why some countries have and others have not adopted significant, work-based and high-quality vocational education systems. One possibility is that if vocational education is viewed as a dimension of different market economies, then countries with a coordinated (social) market economy and a long-standing tradition of social partnership are more successful in establishing such vocational education and training systems. However, the remarkably stable establishment of dual apprenticeship training in Switzerland appears to contradict this thesis. A related possibility is embedding apprenticeship training into the industrial culture as a crucial factor (Ruth, 1995; Laske, 1998; Rasmussen & Rauner, 1996).

The political system of the United States with its pronounced federalism and the structure of a liberal market economy were key factors that impeded the development of a vocational education and training system. The institutions for management and coordination at the different levels as well as their vertical cooperation are underdeveloped. They do not provide a basis for a top-down, coordinated administration of a large vocational education and training system. However, creative public policies can still make a difference and shift the paradigm toward dual systems that involve high-quality work-based training linked with academic instruction and well matched toward the careers of the future.

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