

APPRENTICESHIP TRAINING IN THE UNITED STATES

by

Robert W. Glover

A manuscript chapter  
prepared for the  
Yearbook of the  
American Vocational Association

March 1981

Center for the Study of Human Resources  
The University of Texas  
107 West 27th Street  
Austin, Texas 78712  
(512) 471-7891

Despite decades of effort by the U. S. Department of Labor and various state agencies to promote apprenticeship, there remains a pervasive ignorance among the general public in America regarding apprenticeship. Even those who have heard of apprenticeship have major misconceptions about it.

Some think apprenticeship is an obsolete form of training no longer practiced. In fact, the apprenticeship system currently has more than 300,000 American workers in training. Although apprenticeship dates back to colonial days in America, it has evolved considerably from the residential indenture system between master and apprentice. Today's apprenticeship is a structured system of formal training leading to careers in high-paying craft occupations. In some trades, apprenticeship offers the most modern and best quality training available in America.

Some consider apprenticeship to be an informal or loose mode of training in which a young person learns on the job under the guidance of a master craftworker. In fact, today's apprentices work under formal training programs that specify work processes and rotation schedules so that apprentices learn all facets of the trade. Almost all apprenticeships also require related

instruction in a classroom to supplement learning that occurs on the job.

Perhaps the most pervasive misconception is that apprenticeship programs are union programs. In fact, over 80 percent of apprenticeship programs are sponsored unilaterally by employers. Not a single apprenticeship program is sponsored exclusively by a union. Certainly several unions have been strong supporters of apprenticeship, but whenever they are involved as sponsors of apprenticeship, unions work jointly with employers.

Some view apprenticeship to be a closed system that is reserved largely for sons and nephews of current craftworkers and discriminates against minority applicants. In fact, fewer sons are following in their fathers' footsteps in the trades, and the proportion of relatives working in most apprenticeable crafts is probably no larger than that found in many occupations. Further, over the past dozen years, in response to affirmative action pressures and with the help of special outreach efforts, apprenticeship has made great strides in including members of minorities. By the end of 1978, 18.2 percent of apprentices were from minority groups.

Public ignorance regarding apprenticeship is compounded by inadequate career counseling in school. Few

school counselors have any familiarity with apprenticeship. Information on apprenticeship is not a part of any regular curriculum for training school counselors. Further, the attitudes of school counselors tend to reflect our society's bias against manual work and in favor of college education. Thus, better students who could make excellent apprentices are steered away from working apprenticeable trades and towards college.

#### American Apprenticeship: An Overview

American apprenticeship is a highly diverse and largely decentralized institution. Thus, any candid attempt to describe apprenticeship must start with a warning, namely: there is as much variation among apprenticeship programs as there is among programs of vocational education. Each apprenticeship program has its own jurisdictional area, selection methods and criteria, starting wages, techniques of job dispatching, credit provisions for prior education or experience, and so on. There is also considerable variation in the quality of training offered through apprenticeship. Moreover, some programs attract huge numbers of applicants, whereas others have difficulty finding sufficient numbers of qualified candidates. Some programs show

high dropout rates, whereas others are known for their exceptionally high rates of completion.

In this brief article, only a few common features can be discussed. Anyone who plans to work effectively with apprenticeship programs in this country must have a clear understanding of the system and its actors. Such readers are encouraged to consult further references on the topic.

#### Common Features of Apprenticeship

Perhaps the most sensible way to begin is to define the term "apprenticeship." Beatrice Reubens, in a review of apprenticeship practices in several nations, concludes that:

Apprentices are those who participate in an industry-based initial training system under a contractual employment relationship in which the firm promises to make available a broad and structured practical and theoretical training of some length in a recognized occupational skill category. Completion of the apprenticeship establishes skilled worker status and transferable qualifications,

although it may not be the only route to skilled employment. (Reubens, 1980, p. 7)

Apprenticeship is one form of alternating work-study training schemes among many. Two other examples of common work-study schemes are cooperative education and clinical education, such as used in medical occupations. There are at least four features that distinguish apprenticeship from the other forms of work-study arrangements: (1) Apprenticeship is conducted in occupations recognized as apprenticeable. (2) Apprenticeships are jobs rather than just training positions. (3) Most of the training occurs on the job. (4) Most important, apprenticeship is industry-based rather than school-based. Let us review each of these in turn.

#### Occupations Deemed Apprenticeable

Apprenticeship training is conducted in an occupation recognized as "apprenticeable" by the Bureau of Apprenticeship and Training of the Employment and Training Administration, U.S. Department of Labor, or one of 32 other apprenticeship agencies in the states

and territories which can interpret the federal criteria for apprenticeability.

According to Department of Labor regulations, an apprenticeable occupation is a skilled trade which possesses all of the following characteristics:

1. It is customarily learned in a practical way through a structured, systematic program of on-the-job supervised training.
2. It is clearly identified and commonly recognized throughout an industry.
3. It involves manual, mechanical, or technical skills and knowledge which require a minimum of 2,000 hours of on-the-job work experience.
4. It requires related instruction to supplement the on-the-job training.

(Federal Register, 1977, p. 10141)

As one can see, these criteria are quite broad. Indeed, these 1977 criteria represented a substantial broadening of the definition of apprenticeship used in previous years.

The issues of what occupations are apprenticeable and how apprenticeability is determined are matters of

some confusion, controversy, and disagreement. Officially, the Bureau of Apprenticeship and Training (BAT) recognizes approximately 450 occupations as apprenticeable. However, in March 1980 a consolidated list compiled to show the occupations recognized as apprenticeable by the BAT or by state apprenticeship agencies revealed 723 occupational titles. The occupations ranged from accordian maker to x-ray equipment tester.

In practice, apprenticeship training is concentrated within a few occupations and industries. Among the March 1980 list of 723 occupations deemed apprenticeable, not a single apprentice nationwide was registered in approximately half of these occupations. Indeed, only 10 occupations accounted for more than 60 percent of all the 290,224 apprentices registered as of the end of 1978. These were carpenter, electrician, plumber, pipe-fitter, machinist, tool and die maker, sheet metal worker, automotive and related mechanic, bricklayer, and structural steelworker. Of these 10, seven were building trades. Apprenticeship institutions--such as joint sponsorship by a group of employers and a union and the apprenticeship trust fund concept--are especially suitable to unionized construction labor markets. The construction industry has been a major

user of apprenticeship in the United States, and in turn apprenticeship has been influenced significantly by construction industry perspectives. Thus in order to understand American apprenticeship, it is essential to have some knowledge of the construction industry and construction labor markets.

A second area of concentration is among metal workers and craft workers in the maintenance departments of large scale manufacturing firms. Such firms suffer little turnover among their employees and do not fear losing workers, once trained. Also, their operations are so large that they can enjoy economies of scale in establishing training workshops.

With the sole exception of cosmetology, apprenticeship is concentrated in jobs traditionally held by men. Thus it became a target for women's activists during the 1970s. In 1978, under pressure from a court suit, the U.S. Department of Labor applied affirmative action goals and timetables for women to apprenticeship. According to these goals, approximately twenty percent of all new apprentices were to be women. Various outreach groups also increased recruiting activities for women in apprenticeship. In 1973, only .8 percent of all newly indentured apprentices were women. Five

years later, the figure was 4.3 percent. Today, it is a little more than 6 percent. Progress has been made, but there is a long way to go, and simply getting women to enter apprenticeships may not be sufficient to integrate the skilled crafts. Major concerns have surfaced recently over the fact that women in apprenticeship have higher attrition rates than men.

#### Apprenticeships as Jobs

An apprenticeship is a regular job--not just a training position. The apprentice is paid progressively increasing wages according to a predetermined agreement, and assuming he or she performs satisfactorily, the apprentice will be retained beyond the duration of apprenticeship. In fact, since employers often consider apprenticeship training an expensive investment, it is in their interest to keep apprentices after training. An important point here is that since apprenticeships are jobs, the number of positions available is limited by present labor market conditions even though future labor market conditions ideally should be considered in determining the number of craftworkers to be trained.

Because apprenticeships are jobs, they offer a special opportunity to apprentices of earning while

they are learning. This reduces the opportunity cost of training and makes skill training affordable to those who might not otherwise be able to consider it. This feature also lengthens the term of apprenticeship since apprentices are involved in regular production work rather than only concentrated training.

#### The Balance between Classroom and on the Job Training

The bulk of the time in apprenticeship is spent learning on the job rather than in school. Federal apprenticeship regulations specify that apprenticeships should involve a minimum of 2,000 hours of on-the-job work experience, whereas a minimum of only 144 hours per year is required for related training. In practice, most American apprenticeships run about four years, and apprentices spend less than one hour in the classroom for every 10 spent on the job.

#### Apprenticeship as Industry-Based Training

In America, apprenticeship programs may be sponsored by single employers, by groups of employers, by single employers working jointly with a union, or by groups of employers working jointly with a union.

The government plays a limited role in promoting, supporting and regulating apprenticeship through registering apprenticeship programs and certifying that they comply with minimum standards. Government apprenticeship agencies recognize occupations deemed apprenticeable, provide technical assistance to program sponsors, keep records, and grant certificates of completion to apprentices who successfully pass their apprenticeships. Since the mid 1960s, the government also has promulgated a series of measures to assure that apprenticeship is open to everyone on an equal opportunity basis regardless of race, sex or ethnic background. Through vocational education, the government has partially funded the institutional or classroom portion of the training for many programs.

Apprenticeship in the United States remains primarily a private institution almost entirely privately sponsored and funded. Further, the apprenticeship sponsors are quite committed to retaining the essentially private character of the system, and they are highly resistant to any effort which they view as government intervention. Partly because of this suspicion of public sector involvement and partly resulting from the failure of public schools to understand

apprenticeship and reach out to industry in the past, meaningful alliances between vocational-technical schools and apprenticeship programs are sensitive and difficult to build despite the fact that related classroom instruction is often provided to apprentices by local school systems or community colleges.

Apprenticeship is industry-based rather than school-based. In practice this means that industry generally has primary influence over decisions regarding training. Key areas of concern to industry include the following:

1. The number of applicants admitted to training, what their qualifications should be and selection of those to be trained.
2. The length, coverage and organization of the curriculum.
3. The qualifications of the instructors and who should teach.
4. Determination of progress (and thus wage rates) through the apprenticeship.
5. The design of the training facilities.
6. The equipment used in training.

There are several advantages to leaving such decisions regarding the training program to industry

officials. First, the training is likely to be more job relevant and will be more likely to keep pace with technological changes in the job. Secondly, the training is more likely to be geared to the labor market in that those who complete the program have greater assurance of continued employment.

On the other hand, there are potential shortcomings to industry decision-making in these matters. For example, left unchecked, an individual employer may train the individual narrowly and specifically to fit the needs of his or her firm so that few transferable skills are taught. Apprenticeship provides an important counterbalance to these tendencies since, by design, it is aimed at producing broad and transferable skills applicable across industry. Another shortcoming is that due to adverse economic conditions in the present or to lack of accurate long-range forecasting, conservative outlook, or general reluctance to invest in training, industry may undertrain for a given occupation. Thus, although those who do complete apprenticeship have high assurance of obtaining and maintaining continued employment related to their training, there are often too few trained to meet full labor market needs.

Industry-School Cooperation in Apprenticeship:

Difficult but Possible and Rewarding

Decision making in the six areas of concern to industry can be made jointly by industries and schools. Indeed, perhaps some of the best decisions are made jointly. But joint decisionmaking can only be effective if industry is at least an equal partner with schools. Even then, it is no secret that schools and apprenticeship sponsors often have difficulties working together. Due to fundamental differences in perspective, reaching agreement between schools and industry may not be easy. For example, take the issue of instructor selection. Industry officials will generally seek out master craftworkers who may have no teaching background but have plenty of practical and technical knowledge. School officials, on the other hand, tend to choose those who are trained and credentialed to teach but do not necessarily have indepth experience at the trade.

Reasonable people will see that the best apprenticeship instructors are those with both technical background and teacher training. Apprentice instructors may have a masterful knowledge of their crafts, but be unable to communicate this knowledge effectively in the classroom.

As apprenticeship sponsors increasingly recognize, in addition to technical proficiency at the trade, apprentice instructors need to know how to teach. As some educators are coming to realize, it is often easier to train skilled craftworkers to teach than it is to train teachers to be craftworkers. Many apprenticeship programs have found public vocational institutions to be of significant assistance to them in providing instructor preparation. Perhaps some of the best apprentice instructor training is being conducted at Purdue University and Ohio State University under contracts with various national industry apprenticeship training trust funds. All parties report that they have gained and learned much from the experience.

Another example which illustrates the difficulties of industry-based apprenticeship programs and schools working together can be found in the trend among the better-financed apprenticeship programs to build their own training facilities. In a few areas, several trades are pooling their resources to construct multi-trade training facilities. Although there are many factors involved in this movement away from public schools, a primary ingredient is dissatisfaction with the treatment that programs receive in public vocational education facilities.

Whether correct or not, many program sponsors feel that they have received low priority in the allocation of public facilities.

The advantages of having one's own facility are numerous and include the following:

- Full access to facilities at convenient times
- Access to space adequate for "hands-on" practice with tools and materials
- Greater control over the use of proprietary curriculum materials
- Greater identity for the program (i.e., a building)
- Reduction of concerns about minimum class size
- Ability to leave standing mock-ups and to leave equipment out and undisturbed between instructional periods
- Access to expensive and technologically current equipment not available in public schools

What the future will bring is uncertain, but certainly most apprenticeship sponsors and apprenticeship

coordinators look with envy on those programs that have their own facilities. At the same time, some public vocational education officials and some apprenticeship officials are asking, "What is the need for such duplication?" (Glover, 1980, p. 12)

Indeed in some places, schools and industry have pooled their resources to build and equip facilities for apprenticeship training. This sort of cooperation upgrades school facilities beyond what they might have hoped to achieve on their own while reducing the cost of training for industry.

#### Is Apprenticeship an Alternative to Vocational Education?

Some observers view apprenticeship and vocational education as parallel and competitive training systems for occupational preparation. Although it must be acknowledged that there is often antipathy between the two systems, this need not be the case. We have many fine examples of cooperation between apprenticeship and public vocational education. Further, there is extensive interaction between the two. A 1979 survey of apprenticeship in Texas revealed that approximately 12,000 of the 17,000 registered apprentices in Texas

were receiving some form of assistance in related training through public vocational education. The most common form of assistance was partial subsidization of apprentice instructors' salaries. If these data were to hold true nationally, public vocational education provides assistance in some form to over 2 out of 3 apprentices across the country, or 200,000 apprentices.

There is much to be gained by improving cooperation and fostering better working relationships between local apprenticeship programs and local public vocational education. Further, there is much room for it in at least two areas: First, vocational education can help to channel well-prepared and well-informed candidates into apprenticeship. For example, a series of seven pilot school to work apprenticeship linkage projects funded by the Department of Labor have proven that apprenticeship can be piggy-backed on high school cooperative education so that high school graduates can move right into apprenticeship at an advanced stage. Second, public vocational education can serve as a resource for providing the related training portion of training in apprenticeship. By training apprentice instructors in teaching methods, by helping to develop curricular materials, providing technical assistance in

such innovations as performance-based training and helping to defray the cost of related instruction, public vocational education can be an excellent resource to apprenticeship.

It is time to ask: Are apprenticeship and public vocational education really alternatives or partners?

## REFERENCES

"Apprenticeship Programs: Labor Standards for Registration." Title 29, Code of Federal Regulations, Part 29, as published in the Federal Register, Vol. 42, No. 34, February 18, 1977, pp. 10138-10144.

Glover, Robert W. Apprenticeship in the United States: Implications for Vocational Education Research and Development. Columbus, Ohio: National Center for Research in Vocational Education, Ohio State University, Occasional Paper No. 66, 1980.

Reubens, Beatrice G. with Harrisson, John A. C. Apprenticeship in Foreign Countries. Washington, D. C.: U. S. Department of Labor, Employment and Training Administration, R & D Monograph 77, 1980.