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ABSTRACT

This document contains executive summaries that report on short-term projects undertaken as part of the U.S. Department of Labor's Apprentice hip 2000 initiative, the purpose of which is to determine the future role of apprenticeship in meeting needs for a skilled work force. The 13 studies are on the following subjects: (1) issues relating to expansion of apprenticeship to new industries and occupations; (2) review issues and barriers relating to women in apprenticeship; (3) financial and nonfinancial incentives for apprenticeship programs; (4) vocational education, counseling, and information process; (5) issues relating to equal employment opportunity apprenticeship regulations; (6) state role and responsibilties; (7) ratios; and (8) teaching and learning on the job. (CML)

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EXECUTIVE SUMMARY

1. Project Statement

This report is one of a series of research projects which examines why labor market forces have not resulted in significant expansion of apprenticeship -- especially into occupations and industries in which apprenticeship has not been traditionally used but where it would seem appropriate.

This report first defines apprenticeship, describes its essentials, and identifies the advantages and benefits of apprenticeship for employers, the economy, and workers. It then reviews the range of occupations and industries for which apprenticeship seems appropriate (noting the experience of other industrialized nations and high tech industry).

This report then examines available information on the actual use of apprenticeship in America. Facts are compiled on the numbers of registered apprentices and placed into perspective by comparing the use of apprenticeship with labor force growth by industry and occupation.

An analysis of the various explanations of the patterns in the use of registered apprenticeship is conducted. These include lack of employer incentives to participate, labor market instability, lack of promotional efforts, and institutional/organizational arrangements.

Gleaning lessons from the experience of industries where American apprenticeship is successfully established, and research on the various initiatives to expand apprenticeship undertaken during the 1970s, the report discusses institutional considerations affecting the use of apprenticeship. Particular attention is paid to organizational arrangements to facilitate the sponsorship of apprenticeship by smaller employers. Finally the report outlines various actions and approaches that could be used to expand and extend the use of apprenticeship.

Impediments to the Growth of Apprenticeship in America

The barriers to growth of apprenticeship can be summarized as follows:

Lack of Financial Incentives for Employers to Participate

(1a) Other than certifications under the Davis-Bacon Act, there are currently no significant financial incentives for employers to participate in registered apprenticeship. Some employers --especially smaller employers--fear that if they invest in training, their investments will walk off to work for another employer. These employers find it cheaper to pirate the skilled workers they require from fellow employers.

Industry is not well organized to promote apprenticeship

(2a) No one speaks for apprenticeship across all trades.

(2b) With a few exceptions, the organization of training on industry-wide basis is weak. Unlike every other country in the English speaking world, the U.S. has no system of industry training boards.

(2c) Arranging for related training can be a significant problem. For example, minimum class size requirements can be an impediment to providing related training for apprentices of small employers. In view of the increasing role of smaller employers in the job market, the organizational factors are likely to become exacerbated.

Inconsistent and Inadequate Governmental Support for Apprenticeship

(3a) As a federal-state system, the administration of apprenticeship is incomplete.

(3b) Many existing state apprenticeship agencies whose job it is to promote apprenticeship are in weak condition.

(3c) Apprenticeship receives little attention in the U.S. Department of Labor because there is "little government money" involved. (but certainly not little private sector money). The Department of Labor undercuts its own apprenticeship promotion efforts through such measures as opening up Davis Bacon to "trainees"--thereby undercutting one of the few incentive employers have to register their programs.

(3d) Apprenticeship receives inadequate attention and support from the Department of Education as well.

(3e) Uneven support for apprenticeship through the years from various "GI Bill" measures.

(3f) Some vocational educators do not promote apprenticeship because they view apprenticeship as competitive with cooperative education. There is more funding available to schools for financing cooperative education than there is for apprenticeship. Apprenticeship also is a more difficult training model for teachers who have to conduct job development because apprenticeships are jobs--not just training slots that are continuously available on a rotational basis.

Management Practices

(4) "Scientific management" philosophy which has been pervasive in American companies has emphasized deskilling of work, which fragmented work into many separate tasks has discouraged the use of broad training fostered in apprenticeship.

Image Problems

(6a) Apprenticeship has significant image problems, especially with employers and members of the general public who are not well acquainted with it. Apprenticeship is strongly associated with unions in part because the largest and most visible programs are in unionized construction and because unions are well represented on BAT/SAC staff. To the extent that unions are out of favor with employers and the public, apprenticeship suffers. Apprenticeship is perceived by some as "obsolete training provided by traditionalists" who resist change. Apprenticeship is perceived as "too lengthy."

(6b) Apprenticeship is affected by a general bias against manual work in American society.

Unrealized Potential

(7a) Apprenticeship does not gain the support it could have as a program for youth because it largely serves adults in the U.S. If available data on the ages of apprentices in California applies nationally, only an estimated 10 percent of starting apprentices are teenagers (California Division of Apprenticeship Standards 1987).

(7b) There is inflexibility on the part of the apprenticeship system itself. As in any system with a long tradition, there is resistance to change.

CONCLUSIONS AND RECOMMENDATIONS

1. A Training Resource Center should be established to provide backup expertise to BAT/SAC staff in the design and implementation of training. Staff of this Training Resource Center would help on request to locate available instructional materials for related training, participate in task analysis/job analysis and otherwise assist in the design of training, and otherwise provide a bank of training expertise on which field staff could draw.

The Training Resource Center also could have a role in training of BAT/SAC field staff. Through its various training and technical assistance activities, the Training Resource Center would help to upgrade the technical training skills of the BAT/SAC field staff over time.

This Center should be conducted and staffed nationally by the BAT with the authority to contract for certain technical work. It should become a regular and permanent national institution within the BAT. In establishing the Training Resource Center, the resources of previous and existing efforts -- such as the project to gather information on apprenticeship instructional materials conducted by Lane Community College in Eugene, Oregon for the Fund for the Improvement of Postsecondary Education--should not be overlooked.

This Center would collaborate with industry associations, community colleges, and others involved in the apprenticeship training system to work toward the improvement of training. It would serve as a key source for the dissemination and exchange of innovative training practices. It would convene industry committees to help determine standards to be met by registered programs.

2. The image of apprenticeship needs to be improved. It is not fully appreciated that among industries and companies where apprenticeship is established, it is increasingly a system of training --including journeyman update or technical update training, foreman training, and instructor training.

In addressing the question of the relevance of apprentice-ship to high technology, we ought to remember that many American apprenticeship programs are actually a part of a larger apprenticeship and training system. Most JATCs offer various journeymen upgrading/updating courses. If apprenticeship is a "best kept secret," then certainly journeymen

training is ultra-secret. This is so in part because it is virtually invisible in public records. Journeymen upgrade/update training is not counted as a part of the AMS or any other public apprenticeship record system of which I am aware. Likewise, there has been little research conducted on it.

Given the public perception of apprenticeship as an antiquated and tradition-bound system of training, it is important to obtain better information on journeymen training so that the full story about the apprenticeship system can be told. After all, the Bureau is not called that "Bureau of Apprenticeship" but rather the Bureau of Apprenticeship and Training.

In another step to improve the status of the manual work conducted by employee trained through apprenticeship, consideration ought to be given to the revival of the designation of "master craftworker" or "master mechanic." The International Masonry Institute (IMI) has devised perhaps the best conception of this idea. According to the new IMI National Regional Training Plan, one can extend his or her skills through three separate routes and thus achieve the "master" status:

(1) Through extending one's skills horizontally across related trades by cross-training (e.g. a bricklayer learns stone masonry, a tilesetting or a plastering);

(2) Through accumulated experience and professional development as a supervisor; and
(3) Through continued professional development and technical updating as an instructor.

Each of these routes involve a mix of formal and informal learning beyond apprenticeship. While there remain significant issues to be explored (e.g. assessment and certification procedures), reviving the master craftworker/mechanic designation could help accomplish several worthy goals for the workers involved, for the industry and for the general public; namely:

(1) It could help create better "career ladders" in apprenticeable occupations;

(2) It places useful emphasis on lifelong or continuous learning;

(3) It could help increase the status of the trades, thereby countering some of the anti-manual work bias that unfortunately infects American society; and

(4) It would help to put a premium on broad and diversified skills, thereby encouraging a move away from narrow "Tayloristic" type training (for narrow repetitive tasks, many of which alone could be performed more cheaply abroad).

3. The incentive for employers to participate in registered apprenticeship needs to be strengthened. My own preference is to institute a small payroll tax dedicated to training (probably as part of the unemployment insurance), and provide a tax credit for employers who train their employees to approved standards or who contribute to industrywide nonprofit dedicated training funds operated by industry. Employers who do not train would thus be taxed, and the proceeds of the tax could be used to fund training of workers who do not have access to training and to improve industrywide training capacity. The details of this concept need to be hammered out in consensus by employers, labor, and representatives of education and government.

Whatever funding is provided by government to the private sector ought to be on a matching basis in a way that fosters institutional commitment to quality training and judicious spending. The support ought to be sustained over longer than a one or two year demonstration period (though the proportion of support could decrease over time). Probably the best justification could be made for funding the training of individuals not likely to be trained by industry on its own (i.e. using public funding to "fill in the gaps").

4. Consideration needs to be given to using some form of the apprenticeship concept to assist the transition from school to work for non-college bound youth.

5. There needs to be established some sort of permanent tripartite entity that speaks and acts for apprenticeship at the national level. Since the apprenticeship system is primarily privately financed and sponsored, it follows that this group should be primarily private. The details of the group and its functioning should generated by a consensus process involving representatives of all participants in the apprenticeship system.

EXECUTIVE SUMMARY

Five specific issues were identified in the study proposal as major points to be addressed. in the study report:

1. *The shrinking of apprenticeship in terms of relative share.*
2. *The effect of the diminished role on the employer,the economy and the worker.*
3. *The barriers that prevent expansion into non-traditional areas.*
4. *The actions that business, government organizations, and education should take to expand apprenticeship.*
5. *The economic, budgetary, political and social effects of these actions.*

This report is based primarily on the information obtained through interviews with 26 companies located in the Indianapolis, Indiana metropolitan area. It is not national study and cannot be expected to be a definitive study of the national apprenticeship situation. It does, however, provide information that has national application and, in the author's opinion, does reflect problems and situations relevant to any city or state in the country. As such, the findings and recommendations are very useful.

The five issues listed above are discussed in the report. The depth of discussion on each varies according to the information and resources available to the report. The main thrust of this report involves issues number 3 and 4 -- the barriers that prevent expansion of apprenticeship into non traditional areas, and actions that should be taken to expand apprenticeship. The other issues are factors of these two issues.

The shrinking of apprenticeship is not necessarily a natural evolution of training strategies. The shrinkage can be reversed if constructive, effective programs are devised to overcome the barriers. For example, very few of the 26 employers had any knowledge of the national apprenticeship program. One of the recommendations stresses the need for a greater effort in promoting apprenticeship, by government, unions, employers and private organizations. Another recommendation, which is part of the expansion plan, is to divert or provide from existing funds financial assistance for employers' training programs.

The Summary of Responses section, beginning on page 1, and the Recommendations section, beginning on page 10, contain detailed information on the barriers and corrective actions. In addition, the section on Employer Responses, page 20, reflects what each employer thought about training and its problems. The main points given in these two sections will be discussed later in the summary.

The effect of the diminished role of apprenticeship on the employer, the economy and the worker can only be measured in general terms within the limited scope of this study. A more precise measure requires a large, national study. The basic conclusion, even unsupported by empirical data, is that poorly trained skilled workers have an adverse effect on their employment opportunities and wages, productivity, efficiency, product quality, competition between domestic and foreign manufacturers, tax income, trade deficits and general health of the national economy. Investing in new plants and equipment, without investing in improved worker training and education, is an incomplete plan for national economic progress. An expanded role for apprenticeship, updated and adjusted to current and future employer needs, is a key element in economic planning.

The two issues, barriers to expansion and actions to create expansion of apprenticeship, are two parts of the same issue. These factors are discussed in detail under the two sections - Summary of Responses, page 1, and Recommendations, page 10. Supplemental information to the above is given in the section on Responses from Employers, Individuals and BAT Representatives, beginning on page 20.

Highlights of the employers comments, as to their arguments against apprenticeship, are listed on pages 3 and 4. Overcoming the reluctance of employers to utilize apprenticeship can be accomplished through aggressive promotion of apprenticeship and by providing technical and limited financial assistance to

employers. Specific recommendations on these preceding points can be found on the following pages:

1. *Employer reactions pages 3 and 4.*

2. *Financial assistance page 5.*

3. *Technical assistance pages 5 and 6.*

4. *Changes in the expectations of the Bureau of Apprenticeship and Training pages 11, la and 15.*

5. *Changes in the apprenticeship system pages 12, 13 and 14.*

6. *Changes in vocational education pages 15, 16 and 17.*

7. *Changes recommended by individuals pages 29, 30 and 31.*

8. *Comments by Indiana BAT staff pages 32, 33 and 34.*

The final issue, the effects of actions taken to expand apprenticeship, is not covered in detail by this report. The scope of this issue is very broad and needs to be studied on a national basis. with inputs from all the sectors involved with the issue. One recommendation in the study would help address the questions raised by this issue. On page 12, item number 6 urges the re-establishment of the Federal Committee on Apprenticeship to provide the leadership in the expansion and revision of apprenticeship as a vital training strategy for the nation.

It is obvious that the skilled training needs of the nation, and the current problems endemic to the area of training, cannot be resolved without an effective blending of education, vocational education and on-the-job training programs. Leadership from all the groups involved in education and training is absolutely necessary, and a Federal Committee on Apprenticeship or Skilled Training could be the focal point of a successful effort.

EXECUTIVE SUMMARY

This report responds to two Apprenticeship 2000 studies requested by the Bureau of Apprenticeship and Training: 1) Barriers to expanding apprenticeship (Project 1A), and 2) Alternative apprenticeship models that might be emulated within the apprenticeship system (Project 2A). The approach to combining these two studies begins with the premise that the entire world of employer-based training is undergoing rapid change and that, in this shifting environment, apprenticeship (as it currently exists or in an expanded form) is only one of numerous options open to employers in the training "marketplace".

Because apprenticeship's position in the marketplace for training services cannot be understood in a vacuum, it is important to examine the context in which apprenticeship must operate, including how employers are thinking about the workplace and occupations, and then appraise the appropriate "niche" for apprenticeship within the array of available employee training options. Hence, as outlined in our proposals, in many respects, this research was seen as an apprenticeship market study -- with an emphasis on understanding the "customer" (in this case, the employer), the competition (alternatives to apprenticeship), and potential "complementary services" (training that might be sold in combination with apprenticeship), and any institutional barriers and negative perceptions that might inhibit the marketing of apprenticeship services.

APPROACH/METHODOLOGY AND SCOPE OF STUDY

Findings in this report are based primarily on interviews conducted with representatives of employers, unions, schools and related institutions during the Summer of 1988. While this is not a statistically comprehensive study, we were able to cover a wide range of industries and occupations including:

- *o Traditional manufacturing (large and small firms)*
- *o High-tech research (and related manufacturing)*
- *o A wide range of service employers including utilities (energy and telecommunications), banks, hospitals and other health care institutions, auto dealerships (mechanics), construction, opticians, surveyors, hotels, firefighting departments, law enforcement agencies, distribution firms, fast food chains (management training), and express mail courier services.*

IMPLICATIONS FOR EXPANDING AND PROMOTING APPRENTICESHIP

Review/Summary of Major Findings and Issues

One of the overriding conclusions of this study of employer-based training activities is that the climate is ripe for new ideas and approaches. Changes in the economic environment, especially heightened competition and technological change, are rapidly altering occupational structure and skill needs across a wide range of industries and occupations. Skill requirements are rising; manual labor and "repetitive-motion" jobs in which human beings mimic simple machines are on the wane. Employers need personnel with more background in basic skills and academically-oriented technical and learning capabilities; at the same time, there also is a need for highly specific and technical job-related skills such as operating new equipment, using new computer software and similar tasks. Thus, the need for background education and training is on the rise and, simultaneously, the need for targeted job-specific technical training also is increasing.

Despite these changes, employers retain a certain mindset toward training: training tends to be utilized only when skill needs cannot be fulfilled by hiring from the outside or by redeploying personnel internally. Many employers still rely heavily on informal on-the-job learning rather than structured training and remain unconvinced of the need for in-depth, structured, comprehensive training for many employees. When in-depth training (such as apprenticeship) is utilized, it frequently is to train a small cadre of elite technical personnel -- perhaps first-line supervisors, or highly skilled mechanics that can troubleshoot difficult problems.

Some employers, however, are moving toward more comprehensive approaches to training. A number of larger firms, for example, have recently established major in-house training

centers that offer a wide range of training regimens and methods for employees. Many such employers, however, appear to be at an experimental, even embryonic stage, are dealing with the issue on a piecemeal basis (one plant or division at a time) and are still grappling with the basic issues of how to go about the process most effectively.

Perhaps because employers are struggling with training issues, they appear to be reaching out more frequently to schools, consultants, vendors and other external parties, even other companies that have experienced success.
At the same time, many schools, especially community colleges, are adopting a more aggressive stance in marketing to the employer community to forge partnerships. Thus, from both the public and private sides, a more open environment for packaging a diversity of training approaches, (including apprenticeship models) customized to the needs of each employer appears to be emerging.

Another key conclusion of our research is that employment and training strategies cannot afford to concentrate exclusively on white collar occupations and ignore blue-collar occupations using the rationale that blue-collar jobs are not in demand. Even the Workforce 2000 report projects a fairly brisk demand (and substantial overall share of employment) for "mechanics, installers and repairers", "construction trades" and "transportation/heavy equipment operators". Add up these plus all other blue-collar occupations and a large segment (25-30 percent) of the workforce is represented. And blue-collar occupations will continue to represent an especially large proportion of the jobs that will be available to individuals who have not completed their B.A. degree -- a prime target group for apprenticeship-style training. Even production jobs could be somewhat more in demand than forecast by Workforce 2000, which was completed at a time when most experts were extremely pessimistic about the fate of domestic manufacturing. The swiftness of the recent upsurge in some manufacturing sectors has surprised many economists.

On the supply side of the labor market, the study reveals a mixed picture. Respondents confirm widespread employer dissatisfaction with the basic education that students are receiving from the nation's public schools. This undoubtedly comes as no surprise, given the litany of reports on the subject during the past several years; this summer's interviews corroborate a general negative perception from the employer side.

Paradoxically, while skilled labor appears to be a scarce commodity in some labor markets, individuals who work at the low end of the skill/wage ladder appear to be experiencing difficulty in upgrading their skills and occupational status. The most common route for acquiring technical skills is to go to a community college or four-year college as a full-time student, an option which many cannot afford -- and experiential-based or cooperative earn-while-learn training programs are not common for many occupations. In some occupations, in fact, there are institutional barriers to establishing such programs. Thus, we observe the specter of unemployment and underemployment among certain groups amidst skill/worker shortages in critical occupations.

Finally, there appear to be a range of human issues -- perceptions and social behavioral patterns -- related to blue- vs. white-collar occupations and academic vs. vocational/apprenticeship modes of learning, which are pervasive, powerful forces shaping the role of individuals, occupations and training institutions in our society. An important symbol of perceptions and trends along these lines is the rise of the Associate Degree (an academic, "white collar" credential) as the predominant credential in many technical occupations below the B.A. level. Some institu-tions are even establishing parallel Associate Degree and apprenticeship programs for traditional apprenticeable occupations (e.g. machine science and machinist), thus providing individuals with an avenue to pursue these skills/occupations in a white collar or blue collar mode and setting. Some employers have expressed a desire for individuals who have both the journeyman and the more "academic" type of background -- such individuals can communicate with white collar and blue collar personnel and often function as excellent first-line supervisors.

The above scenario can be interpreted as an opportunity and a challenge: the climate is ripe for change, creating opportunities for apprenticeship to expand into non-traditional areas of skill training, but there will be certain critical issues, both substantive and image-related, that must be addressed before the apprenticeship concept can or should be widely expanded.

The following reviews some of the principal opportunities and obstacles seen facing apprenticeship.

PERCEPTIONS OF BLUE-COLLAR OCCUPATIONS AND APPRENTICESHIP

Perceptions of Blue-Collar Occupations and Vocational Skills

Many implications for apprenticeship relate to its "vocational" identity and that of the blue collar worker in general -- the general issue of breaching the gap between the blue collar/white collar and the vocational/academic worlds is an overarching issue that affects almost every sphere of employment, education and training. One of the paradoxical trends noted is that within context the blue collar world, the journeyman's card is a highly respected, even revered, credential. But in the broader society, apprenticeship is equated with blue collar work, and is somehow considered less worthy -- in general, there is a strong trend in this society toward aspiring to be administrators, managers, technicians and executives and being academically- credentialled. Perceptions and biases relating to the general blue collar vs. white collar and vocational vs. academic worlds are pervasive and are perhaps more of a barrier to the expansion of apprenticeship than employer perceptions about apprenticeship being union and government-dominated, etc.

Part of what is needed to counter these perceptions is a more accurate picture of the hourly and hands-on worker. While employers are realizing that the days of the simple, repetitive-task job are going, this remains the picture in many people's minds. The fact is a growing number of "hands-on" employees deal with complex technical matters, have significant input into decision-making, and must exercise judgment on the job. Some of these are hourly workers, others are salaried, some work in manufacturing, others in services -- and the annual income of both is generally in the same range.

A complementary strategy -- perhaps an effective way to go about changing perceptions and images -- is to increase sensitivity to the semantics and labels used to describe certain occupations and training regimens. In one apprenticeship program in California (registered by the Bureau of Apprenticeship and Training) for correctional officers, the trainees are referred to as "cadets", not apprentices. Even the contract language avoids the term "apprentice", because it was felt that "apprenticeship" has connotations of manual, blue-collar work.

Another related means of changing perceptions and images relating to apprenticeship and blue collar occupations is to build-in some formal academic credentials into the apprenticeship training regimen. Recognizing the somewhat "parallel" nature of the A.A. degree and the Journeyman's card, a number of schools and employers already have begun to link the two credentials, offering credit for (apprenticeship) related-instruction toward the A.A. degree as well, and encouraging apprentices to complete both -- this is especially common for machining and electrician/electronics- related occupations.

A related strategy is to explore options for building more career paths that cross the line between so-called blue and white collar occupations (opportunities, which heretofore have been very limited). There are a number of instances in construction and manufacturing industries in which journeymen become technicians and supervisors with upward career paths that cross the hourly/salaried line. In many service industries, the line is not distinct to begin with: a sales clerk or hamburger flipper can rise to supervisory, administration and management levels. Apprenticeship potentially could play a strategic role in helping individuals break down the old barriers. This would mean, however, that the journeyman's card would not be seen only as an end in and of itself. Like the B.A. degree, the journeyman's card can also represent a step along the way toward more advanced education, training and career status for many individuals.

Finally, shifting attitudes about apprenticeship and hands-on occupations, may require changing perceptions from within apprenticeship system. Those within the apprenticeship system often equate apprenticeship with the construction trades and machining. It is possible that one barrier to the expansion of apprenticeship is that there is not a clear vision from within the apprenticeship system, of what apprenticeship would be like outside of the traditional context. One of the implications here is that, as experience is gained with piloting non-traditional apprenticeship programs, information dissemination efforts must focus on explaining the "big picture", meaning what apprenticeship can look like in other settings.

Another category of "perceptions" issues relates to how employers and others see the apprenticeship system -- not perceptions of the blue-collar world in general, but perceptions relating to federal and state bureaus/agencies, registration and standards-setting processes, JACs, the union role in apprenticeship and related issues.

Several key issues arise in this area:

1) ISOLATION OF APPRENTICESHIP AND OTHERS' LACK OF KNOWLEDGE AND FAMILIARITY WITH APPRENTICESHIP:

Apprenticeship is one of the best-kept secrets in the employment and training world. Many employers that are not operating registered apprenticeship programs indicated that they were relatively unfamiliar with the apprenticeship system and could provide only vague impressions.

2) NEGATIVE EMPLOYER PERCEPTIONS:

An equally serious barrier to expanding apprenticeship is that many employers have negative perceptions about apprenticeship institutions. An interesting pattern noted, for example, is that a significant number of employers operate quasi-apprenticeship (non-registered) training programs very closely patterned on registered models. Some of these employers formerly operated registered programs and then dropped the relationship with the registered system; some employers, especially non-union firms, never had registered their programs.

When asked why they do not register these quasi-apprenticeship programs, such employers typically say that they see no need to register: the training serves its intended purpose of providing the firm with rigorously trained employees without being registered. Moreover, they cite certain perceived disadvantages of registering the training such as:

a) Having to deal with government oversight and regulation which rarely is welcome among companies. More specifically, employers cite paperwork, EEO requirements and other state requirements relating to the training itself as burdensome and unnecessary to get the job done effectively.

b) Having to deal formally with any labor unions that might be involved. In general, there is a perception of the apprenticeship system as being labor-dominated.

PROMOTION & PACKAGING OF APPRENTICESHIP AND RELATED TRAINING SERVICES

Promoting Training Generically

A wide range of issues have emerged during our research regarding how apprenticeship services are (and are not) promoted to employers. Many respondents have noted that the principal selling point for training today is the opportunity to improve competitiveness and productivity. One such approach is to point out that successful competitors here and abroad have built success and keyed strategies on the long-term development of their human resources. Promotion should not focus primarily on "corporate image" or community-relations issues aimed at making a firm appear progressive. While these are real issues for many companies, respondents indicate that it is the bottom-line arguments that will change minds, especially among employers that have been reluctant to invest heavily in training to date.

Marketing Apprenticeship in Conjunction With Other Training Services

Another important element of broadening the marketing approach is promoting apprenticeship as part of a larger menu of training services. Apprenticeship cannot easily be sold in a vacuum, nor can any other training program. This survey of employers suggests that, in most situations, traditional apprenticeship training will not apply to the entire workforce of a firm, or even the majority of the workforce in many cases.

Furthermore, one of the tough problems of program administration in employment and training (and economic development) is a multiplicity of programs, with each -- be it JTPA, or a local school, or apprenticeship or some other entity --- having only one kind of service to offer. Amidst this proliferation of narrow options (many of which are confusing to employers to start with), a "brokering" party is needed who can analyze the complete range of the "customer's" needs and put together a comprehensive training package that addresses those needs comprehensively.

The implication is that apprenticeship representatives and consultants can no longer afford to promote apprenticeship in isolation from other training and economic development programs. This is especially true given the general lack of knowledge, misperceptions and biases about the apprenticeship system that exists among representatives of other programs.

Preparing for Improving and Broadening the Promotion of Apprenticeship

Developing a broader approach to promoting apprenticeship would require a strategy, supported by the U.S. Department of Labor, other federal agencies and state agencies, designed to accomplish the following: 1) reach a wide range of employers and "sell" them on the critical value of intensive skill-training for their employees as a prime contributor to long- term competitiveness; 2) clearly delineate where the apprenticeship paradigm and concept fits into the whole array of employment and training services, and identify apprenticeship's unique selling points; 3) develop more articulated, coordinated approaches to education and training which

involve apprenticeship and work out joint marketing and service delivery models and programs with other training institutions; 4) develop more "wholesale" approaches to marketing apprenticeship in addition to the standard one-employer-at-a-time retail approach.

Some of the specific issues and challenges related to planning and implementing such a strategy are briefly discussed below.

Delineating Apprenticeship's Niche & Selling Points

A broader, more articulated marketing and service delivery approach requires an understanding of where and how the apprenticeship training paradigm fits into the bigger picture, and identifying apprenticeship's key selling points.

There are many key features of the apprenticeship approach which are potentially very attractive to employers as well as trainees. Among these positive characteristics and selling points:

a) Much evidence suggests that the combination of experiential training and related instruction is highly effective -- perhaps the most effective learning mode -- in a wide variety of settings over a wide range of skill levels.

b) Apprenticeship provides in-depth, intensive skills training that combines related instruction and job-specific training. This rigorous training regimen produces employees who are especially well-prepared to assume positions of greater responsibility.

c) Apprenticeship provides individuals who have limited resources with a means of financing their training/education while continuing to work and earn a living.

On the other hand, some of apprenticeship's limitations with respect to the broader market for training services include:

a) Apprenticeship often does not address the many short and medium-term skill training demands of employers. Short-medium term skill training is a growing area as employers upgrade low-skill and semi-skilled jobs to a fairly skilled level, but less than the journeyman level of training. Some shorter-term apprenticeship programs do exist (e.g. Emergency Medical Technician -- Ambulance, a one-year program, and numerous others), and the apprenticeship system does sponsor certain "training" programs, often for veterans, that are shorter-term. However, the focus of the system as a whole is on longer-term training regimens.

b) Apprenticeship tends to lock-in on a firmly established occupational skill in an environment increasingly characterized by occupational fluidity, experimentation, diversity and mobility.

c) Apprenticeship does not provide a formal framework for the continuous, lifetime updating of job-specific skills that is becoming more the norm.

d) Some respondents, even with the apprenticeship system, indicate that regulatory requirements and restrictions in some states can inhibit the marketing of apprenticeship and the establishment of new programs.

More generic apprenticeship paradigms could potentially occupy a broader niche in the skills training market: providing solid, technical, experiential-based training and related instruction for production workers and other occupations below the journeyman level; for supporting "earn-while learn" training approaches in many occupations to facilitate upward mobility for working individuals in skill-shortage areas; and for upgrading journeyman level employees to specialized technical and supervisory positions.

"Wholesale" Marketing Approaches

Another difficulty apprenticeship faces in selling to employers is the extremely decentralize nature of the market. Thus, selling apprenticeship may require some innovative "wholesale" approaches to marketing in addition to the one-employer-at-a-time retail approach that is common.

Encourage more articulation and "joint credentialling" arrangements with Community Colleges, secondary schools and other training programs: This approach is discussed in the following section as being a substantive modification of apprenticeship training regimens. However, it also may be very effective as a long-term marketing strategy. If, for example, joint credentialling between apprenticeship and the Associate Degree is pursued successfully for existing apprenticeship programs, this may set a precedent which opens doors to applying the apprenticeship model to new non- traditional occupations in concert with the schools involved. Community colleges and other technical schools are becoming more open to non- traditional modes of education and training because the number of student applications is beginning to decline nationwide. Thus, apprenticeship has an opportunity to expand its presence generally among institutions which have become mainstays of the U.S. technical training world.

Another means of facilitating promotion

to a decentralized market is to take measures to reduce fragmentation of the market -- specifically, encourage the formation of consortiums of employers and consortiums of schools to meet specific occupational training needs. This approach applies not only to smaller employers, but seems to apply to larger employers which have common training needs. Many large firms resist establishing comprehensive training programs for occupations where the number of employees trained will be relatively small.

In addition to forming employer consortiums, encouraging the formation of school consortiums can help the apprenticeship system in two ways: 1) it could help apprenticeship work with schools on a more centralized basis, and 2) it helps to strengthen and facilitate employer-school linkages in general which indirectly should help the apprenticeship system.

Another "wholesale" promotional strategy would be to increase the use of business/trade groups, unions, publications and media to support promotion, especially if targeted to employers and occupations where apprenticeship seems to have a natural comparative advantage.

Another potential market for apprenticeship is labor unions, which may sometimes be taken for granted as a participant and supporter of the apprenticeship system. With increasing union interest (across a wide range of industries) in training as a substantive need and also as a bargaining chip, apprenticeship might play an expanded role in the future of union input into the overall employer training agenda.

Targeting Promotional and Expansion Efforts

A critical issue is to focus scarce promotional resources where they are likely to be most effective and to concentrate pilot efforts for expansion of apprenticeship in areas where the chances for success are high.

One strategy for targeting promotion and expansion efforts is to key off the tremendous progress that already has been made in expanding apprenticeship into a wide range of non-traditional occupations. While many non-traditional apprenticeship programs are small, many also are high-quality and they represent a "foothold" in certain areas -- a concrete starting place for expanding apprenticeship to new employers.

Highly successful apprenticeship programs, for instance, have been developed in culinary occupations; national apprenticeship standards now exist for a whole range of health and dental occupations; stage technicians was recently added to the national approved apprenticeable occupation list; and the State of California has apprentices registered in a wide range of non-traditional occupations including accountant, jeweler and youth counselor.

Rather than constantly seeking out new occupations, it may be more cost- effective to build on the small, but credible foundations that have been established in many existing apprenticeable occupations outside the traditional construction and machining-oriented trades.

Another strategy for targeting promotion and expansion efforts might be to concentrate non-traditional pilot efforts in areas where serious labor and skill shortages are being felt by employers. The "brief peek at the future" observed in some very tight labor markets suggests that employers' receptiveness to investing in training, coordinating with schools and experimenting with non-traditional approaches can increase dramatically in tight labor markets when the option of hiring skilled personnel off the street becomes extremely difficult. In some areas, employers suddenly are lining up to hire and train school students, are welcoming women into skilled trades, and are supporting programs to assist minorities and disadvantaged individuals in order to fill skilled labor gaps in new ways. Also, in this environment, employers tend to be faring well and may take a more long-term, strategic view of human resource development issues.

Overcoming Negative Perceptions of the Apprenticeship System

A final critical issue associated with marketing apprenticeship programs is overcoming employers' negative perceptions of the apprenticeship system. It is hard to make generalizations about how to overcome these barriers but more successful programs seem to have some hallmarks:

1. Cultivating a relationship of trust between the employer and program representatives.

2. Adopting the approach of starting with the employers' needs and working from there, and generally approaching the employer with an open, flexible attitude.

3 Streamlining planning and service delivery as much as possible.

4. Providing financial incentives for employer participation, including means for cost-sharing between the employer and public sectorprograms.
5. Coordinating with other programs and

services in the community to provide a comprehensive range of services tailored to the employers' needs.

6. Giving the employer a substantial and ongoing role in all phases of planning, implementation and oversight.

7. Providing ongoing staff support to assist employers through the complexities of the program development and implementation process.

8. Providing useful technical expertise and guidance related to choosing training methods, vendors and related options.

9. Being able to clearly explain the benefits of participation to the employer and provide successful examples of the particular type of program being proposed.

In addition, the apprenticeship system might increase its appeal to employers by studying and experimenting with new institutional arrangements. Among JTPA and other programs, for instance, there has been a strong movement toward performance-based contracting -- a direction that has been welcomed by employers because of its orientation toward outcomes rather than process, and its overall flexibility. The availability of performance-based or competency-based options could be an effective marketing tool if:

a) these approaches can be proven workable from the standpoint of preserving and promoting the quality of apprenticeship training, and b) new approaches can be used to reduce some of the process-oriented requirements associated with apprenticeship that some employers find burdensome.

Providing Financial Incentives for Employer Participation

Ultimately, among the most potent "carrots" a training program can offer are financial incentives for participation. The apprenticeship paradigm builds in some financial incentives: the apprenticeship wage-stepping approach is sometimes seen as a financial plus for employers. Another financial advantage of apprenticeship is that related-instruction can be required of apprentices but does not have to be taken on company time (unlike any non-apprenticeship training required by employers). However, apprenticeship has some features that could eventually have negative financial implications: ratio requirements and intensive supervisory costs, for instance, are sometimes seen by employers as a financial burden. Experience with the discontinued California Worksite Education and Training Act (CWETA) program, suggests that "sweetening" the deal with financial incentives can make a significant difference in employer participation rates.

IDENTIFYING SPECIFIC OPPORTUNITIES FOR EXPANDING APPRENTICESHIP AND ADAPTING THE APPRENTICESHIP TRAINING TO NON-TRADITIONAL SITUATIONS

This section discusses issues associated with identifying specific opportunities for expanding apprenticeship into non-traditional areas, and also discusses some of the risks and challenges associated with expanding and modifying apprenticeship training to fit new situations:

Defining Skill-level Boundaries

We have noted strong support for experiential learning at every skill level, ranging from training for top level executives to high school dropouts. Evidence includes Fortune 500 corporate studies, recent academic studies of employee training, the experience of schools and apprenticeship programs, and general learning theory.

Despite the wide applicability of experiential learning, however, other criteria should be taken into consideration in defining realistic skill boundaries for the apprenticeship paradigm: even a considerably modified apprenticeship model would presumably retain some of the outstanding hallmarks of apprenticeship, including a technical orientation, a structured training regimen, related instruction, and a minimum of several thousand hours of training. Considering these characteristics, our research indicates that training along these lines could (and in various forms, does) apply to a fairly wide range of skill levels including: other "skilled, post-high school" level (e.g. skilled production worker, practical-vocational nurse, lower-level administrative occupations) which represents a level below the current journeyman level.

- *the current journeyman level, which tends to correspond with the Associate Degree skill niche, and which remains a prime candidate for expanded apprenticeship.*
- *some "professional" level jobs such as engineers, airline pilots, teachers and health professionals.*

These boundaries would exclude most training for higher-level managers or for

low-skilled occupations.

Minimizing the Potential Risks Of Expanding Apprenticeship

Among the outstanding achievements of the apprenticeship system is that it has maintained a reputation for high standards and quality over a period of time when many other elements of the education/training establishment have been criticized for allowing standards to be eroded.

For this reason, a key issue related to expansion of apprenticeship is developing a system of safeguards to protect existing apprenticeship programs. When developing pilot projects or new initiatives, for instance, it may be important to make a distinction between the new initiatives and well-established traditional apprenticeship programs. If the new initiatives fail, or even succeed but represent a lesser skill level, a clear distinction will help to protect pre-existing apprenticeship programs from any watering-down effect. This is perhaps another rationale for applying a different name besides "apprenticeship" to certain new initiatives, especially ones that are highly non-traditional in character. BAT is called the Bureau of Apprenticeship AND Training -- certain new initiatives might appropriately fall into the "and Training" category.

Furthermore, in expanding apprenticeship, it may be wise to place new-expanded programs on "probation" for a time to make them prove their value. This will help to prevent programs from establishing credibility without substance (by trading on the apprenticeship name or tradition) and will help to protect established programs from having their reputation sullied by failed or poor-quality experiments.

It also will be important to expand the apprenticeship into new areas in incremental stages commensurate with careful planning and foundation building. A key hallmark of the existing apprenticeship system is its solid foundation of planning and structure. This positive characteristic should not be lost in new initiatives.

Addressing Changes in Job/Occupational Categories and Skill Needs

Numerous trends and changes in the workplace present key challenges for adapting apprenticeship to meet a wider range of occupational needs. Some of the key issues raised by study respondents are listed below.

It is not likely that all of these issues will or even should be addressed within the context of registered apprenticeship -- in some cases, the ultimate choice may be to leave certain types of training needs to others. But the following items are illustrative of the issues that the apprenticeship system will confront when considering expanding into non-traditional areas.

- *a need for constant updating of skills to keep ahead of technology and other changes in the workplace.*
- *broadening and consolidating of many occupations across wide range of industries.*
- *a need for (and value of) experiential training at levels below the journeyman level.*
- *a need for various gradations of skills levels -- not just one type of credential at one skill level.*
- *a need (or opportunity) to fit into non-traditional, experimental employer training approaches such as pay-for-knowledge, etc.*
- *a need for more complex career ladders or career "trellises", starting with a common base but branching to related but different occupations. (The allied health and computer-related fields represent such complexes of occupations.)*
- *a need for more earn-to-learn options for individuals who cannot take years off from the job to obtain further education and training.*
- *a need for training in certain emerging occupations having greater job and site-specificity than most apprenticeable occupations in the past.*
- *a need to address institutional barriers in certain occupations such as the prohibitions against pay for clinical training in many allied health occupations, and related state licensing and credentialling issues.*
- *an opportunity to relate to the Associate Degree as a popular credential in technical occupations at about the journeyman skill level and which crosses blue/white collar lines.*

While definitive responses to all of these diverse issues cannot be provided here, some general suggestions for next steps in clarifying the issues and identifying new apprenticeable occupations include:

1. Perform job/skill assessments across a range of occupations with special attention to two issues:

a) identifying the appropriate mix of "base" (generic) skills and employer specific, probably single-site training models; and

b) identifying the level of need for ongoing updating of skills to adapt to changing technology and methods in the workplace.

2. Perform job/skill assessments in clusters of related occupations to begin experimenting with more flexible options regarding the skills/career ladders -- one set of base skills possibly can feed into a variety of different but related "occupations" or certifications at a higher level.

3. Experiment with means of formalizing the continuous skill updating and broadening that takes place after achieving journeyman status (or any other credentialled status).

4. Experiment with shorter-term or more graduated certifications of skill competency to create intermediate (pre-journeyman) credentials and perhaps even post-journeyman credentialling options as well. More emphasis might be placed on marketing existing "training certificate" programs operated by BAT (below the journeyman level) and developing additional programs of this type. Formal credentials might also be applied to the the post-journeyman level to formalize and acknowledge highly advanced skill training.

5. Study cases of non-traditional in-plant training models in more depth to ascertain with more clarity what features of those models make them appealing and effective. There may be some additional lessons learned and, as a futuristic possibility, some potential for ultimately marrying the apprenticeship paradigm with these types of training.

6. Study existing registered apprenticeship programs in non-traditional areas to examine how these issues have been dealt with in the context of the registered apprenticeship system.

A General Framework for Identifying and Categorizing Expansion Options

Given a commitment to implement safeguards when expanding apprenticeship, the following sketches out a general roadmap for exploring the range of opportunities for expanding utilization of the apprenticeship system and concept. In discussing apprenticeship options with a range of people, there has been some vagueness and confusion over what expansion into "non- traditional areas" means. In fact, we have found some quite traditional apprenticeship training approaches being applied to non-traditional occupations (such as law enforcement officers) and, conversely, have identified some quite non-traditional training paradigms (especially in manufacturing) that build on relatively "traditional" occupational categories such as machining and electrician/electronics skills in manufacturing.

Thus, we have found it useful to slice the issue of traditional vs. non-traditional approaches two ways--to distinguish between non-traditional occupations and non-traditional training paradigms. The following chart outlines the resulting combinations of training approaches and occupations.

TRAD. TRAINING PARADIGM
NON-TRAD. PARADIGM

TRADITIONAL OCCUPATIONAL
construction trades
manf. "team" jobs

BASE
gen. maint. mechanic

NON-TRADITIONAL OCCUPATION
law enforcement
fast food store mgr.
allied health occup.

Each of the four categories outlined in the chart is explained and discussed below:

A) TRADITIONAL APPRENTICESHIP TRAINING APPROACH IN TRADITIONAL OCCUPATIONS: (or new occupations which are combinations of traditional occupations).

This "traditional/ traditional" category includes most of the existing apprenticeship system, (e.g. the construction trades) but also could address some newer occupational classifications that represent innovative combinations of traditional occupations, such as "general maintenance mechanic" -- which might combine some skills from machinist, millwright, plumber, carpenter and other trades.

Because of the tendency for skill consolidation in industry, there are opportunities for the apprenticeship system to expand its scope even in this fairly traditional category. The resulting training paradigms in these newer consolidated skill areas tend to involve cross-training to broaden journeymen skills in several skill areas.

Training for new consolidated skill categories may not require wholesale restructuring of apprenticeship trades. Some employers have dealt with this issue informally, by combining elements of existing apprenticeship programs in a journeyman upgrading program, without drastically restructuring the journeyman training programs themselves. Other employers have slightly modified the basic journeyman training regimen to broaden or update skills training without restructuring the basic curriculum associated with a given trade.

In fact, to preserve employer flexibility in defining what a "general maintenance mechanic" or "process control systems technician" is, it may be preferable to preserve the traditional apprenticeable occupations and allow for various flexible combinations of cross-training and journeyman upgrading from those occupations to arrive at the consolidated skill category. It has been pointed out, for instance, that a general maintenance mechanic in the oil exploration industry may require a quite different mix of skills from a mechanic in the photo film manufacturing industry or some other industry.

Maintaining the integrity of existing apprenticeship trades also avoids the kinds of risks associated with major reforms of existing curricula that are generally regarded as being of high quality. In addition, while unions have ultimately agreed to the creation of various new consolidated job categories, it cannot be assumed that there will be automatic approval of restructuring apprenticeship programs along these lines.

A related issue is within the traditional apprenticeable trades is formalizing the journeyman updating and upgrading process. Journeyman upgrading and updating activities are commonplace in industry but usually are carried out on an informal basis. Structured apprenticeship-style might be expanded by formalizing the updating process, especially in areas such as electronics where updating is frequently required.

B) NON-TRADITIONAL APPRENTICESHIP (OR EXPERIENTIAL-BASED) TRAINING PARADIGMS IN FAIRLY TRADITIONAL SKILL AREAS:

In addition to the above opportunities for expanding apprenticeship in traditional skill areas (e.g. by cross-training into consolidated skill categories and expanding journeyman upgrading training), opportunities also might exist for expanding apprenticeship into fairly traditional occupations, but utilizing more non-traditional apprenticeship training approaches. For instance, apprenticeship or experiential-based training programs might be developed for production workers at less than the journeyman level. As noted earlier, there a growing demand for workers at a skill level between the traditional manual worker and the highly-skilled journeyman. In effect, the traditional manual jobs have been upgraded in many industries and occupations. Structured, experiential-based training regimens might apply especially well to this category of workers.

A related innovation would be to develop a continuum of apprenticeship-style training which offers graduated credentials ranging from less than journeyman level to the journeyman level and beyond, if appropriate. This could begin to address the need for experiential training and related instruction at less than the journeyman skill level, would provide more structure to employee training at below the journeyman level which frequently suffers from a lack of structure, would open up the apprenticeship system to a wider range of employees, and would extend career ladders in traditional occupations.

Non-traditional apprenticeship training models also might emulate some of the innovations being experimented with outside the apprenticeship system, such as team approaches to job responsibilities and work, pay-for-knowledge systems (which have been successfully implemented by union committees at some locations), and non-traditional training schedules, such as the six- months classroom/six months on-the-job format utilized by an apprenticeship- style auto mechanics program that now operates nationwide. Many such programs almost certainly would have to be structured on a single-employer and probably single-site basis.

C) TRADITIONAL APPRENTICESHIP TRAINING IN NON-TRADITIONAL OCCUPATIONS:

Two strategies stand out for identifying opportunities to expand relatively traditional apprenticeship training approaches into non-traditional occupations.

1) As mentioned in an earlier section, key off the progress that already has been made in expanding registered apprenticeship into a wide range of non-traditional occupations. In effect, traditional apprenticeship methods have already been "expanded" to hundreds of non-traditional occupations. Expansion continues to be an issue, however, because the number of employers and apprentices involved in many of these occupations is frequently quite small, at least in comparison with the number employed in those occupations. A "fast-track" method of studying expansion options and developing new programs would be to investigate the successes and obstacles encountered across many states with the many small, registered apprenticeship programs in such occupations.

2) Expand into technical occupations that are now typically credentialled by Associate Degree programs at community colleges. A comparison of registered apprenticeship programs in non-traditional occupations and community college degree programs indicates a considerable amount of overlap. In fact, community colleges now offer A.A. degrees in traditional apprenticeable skill areas such as "machine science".

In general, there would appear to be a range of technical occupations in which community colleges offer programs but that could benefit from an experiential component and the earn-while-learn characteristic of apprenticeship training. A sample listing of such occupations includes graphic arts and technical illustration, cad/cam and drafting, a range of computer and information systems-related occupations including computer programming and computer repair, para-legal professions, child care specialists and other counseling related occupations, hotel and restaurant management occupations, and more.

D) NON-TRADITIONAL APPRENTICESHIP OR EXPERIENTIAL-BASED TRAINING PARADIGM IN NON-TRADITIONAL SKILL AREAS:

This is the most "speculative" area for expansion of apprenticeship programs, necessitating more preparatory spade-work than the other categories because this would involve non-traditional occupations AND non-traditional training paradigms. There might be considerable risk involved in moving into this area and certainly there remain many unresolved issues. Thus, at best we can only be suggestive of some potential options to explore. Our research indicates some potential needs for different types of experiential based training in non-traditional areas and some models to emulate and perhaps some long-term opportunities for expansion.

One example is an expressed need by a number of respondents for more hands- on, practical training for entry-level engineers (and other technical professionals).

Structured "cooperative education" programs do exist among a number of colleges and universities for engineers and numerous other occupations. Most of these are 4 or 5 year Bachelor's Degree programs, although they range all the way from the Associate Degree to Ph.D. levels. Northeastern University, Drexel University and the University of Illinois at Chicago, for instance, operate numerous cooperative education programs across a wide range of fields including engineering, agriculture, allied health, computer science, architecture, and more. Although not the norm in the academic world, the National Commission for Cooperative Education in Boston reports that approximately 200,000 students participate in such programs. The Federal Government is the largest employer of such students and some large firms like IBM also have utilized a large number of coop-ed college students.

Because the coop-ed programs are reportedly quite structured and combine traditional education with applied learning, they might provide a departure point for studying how apprenticeship-style training could apply to technical or professional occupations that are typically credentialled by Bachelor's or higher degrees.

Another possibility is pioneering apprenticeship programs for supervisory/lower-level management occupations in the service sector.

B. REVIEW ISSUES AND BARRIERS RELATING TO WOMEN IN APPRENTICESHIP

* **The Enhancement Group, Inc.**

ERIC

EXECUTIVE SUMMARY

The principal objectives of this study were to identify issues positively and negatively affecting the participation of women in apprenticeship; to identify and document factors, techniques, and programs that increase the number of women apprentices and the likelihood that women will enter apprenticeship; and to develop recommendations for the Bureau of Apprenticeship and Training (BAT) to consider that might promote greater entry of women in apprenticeship. Other objectives of the study were to review the history of women in the workforce and also to review the latest research and literature about women in the trades.

Women are concentrated in fewer jobs than are men. These occupations generally pay lower wages and offer less opportunities for advancement. Many jobs are segregated by sex with the results that some jobs are viewed by society as traditional women's occupations, and others are traditionally men's jobs. The skilled craft jobs, particularly those in the construction trades, are nontraditional jobs for women. Since apprenticeship is the doorway to many of these jobs, particularly those in the construction trades, the low representation of women in apprenticeship in these trades contributes to the maintenance of occupational segregation by sex. While BAT and other parts of the Department of Labor (DOL) have undertaken efforts to increase the participation of women in the trades, the progress is disappointing, even in the face of regulations issued by DOL more than ten years ago requiring affirmative action to increase women in the construction trades and in apprenticeship.

A number of issues were examined in this study. The research identified a number of barriers standing in the way of women's applying for and entering apprenticeship. The research dealt with the question raised by employers and apprenticeship programs about the availability of women for recruitment and training. Attitudes of women in apprenticeship were studied and documented. The research sought to find out what the apprenticeship program leadership saw as the reason for the shortfall. Finally, the study attempted to identify techniques that work to promote women's participation.

The history of women at work in America is a mixed one. From the beginning of time there has been as strong notion of women's work being in the home, with their families. Yet women went to work in factories in the early part of the 1800s as the economy became more and more a market and wage-based one. Still the dominant ideology was that women's proper role was in the home, even though more and more women went to work. During the Civil War women's participation in the labor force increased significantly. In addition to entering nursing, working as teachers, and becoming clerical workers, women entered other less skilled work to replace the lost income these men had provided.

As women entered the labor force in larger numbers, they began to protest, petition governments, and join or affiliate with labor unions in the latter part of the 19th century to seek help with wages, hours, and working conditions. At the same time, there was an emergence of reform groups concerned with the moral, cultural, and spiritual conditions of working women. The feminist movement also began in this post-Civil War era and tried to involve working women, but the concerns of these women were more for pay equity and work related issues, rather than suffrage.

By 1900 women constituted about 18% of the labor force. While women had entered a variety of new fields (medicine, law, social work, post secondary education, and others), the pattern of occupational segregation persisted, with most wage earning women being domestic servants, dressmakers, laundry workers, teachers, and farm laborers. Even the Newly emerging fields, such as clerical work and typewriting, quickly evolved into "women's work."

New technology and the rise of scientific management led to the rationalizing and deskilling of work. This created new opportunities for women with fewer skills than men and willing to work for less wages. This period also saw the enactment of protective legislation, limiting women's working hours and other conditions of employment. World War I, like most wars, increased the need and opportunities for women to work. Women who had never worked before replaced men who had been mobilized. However, when the War ended, gains in such sectors as chemicals, electrical goods, textiles and clothing were lost. But some

gains stimulated by the War remained. Women gained footholds in the new industries of communication, advertising, and sales.

The post war era, the Jazz Age, was marked by changes in values, beliefs, and opportunities. Women were enfranchised. Marriage was no longer a universal goal among women. The idea of women working became more acceptable. Between 1920 and the 1930 the number of women working, including married women, increased to about 10 million.

The era of the Great Depression was particularly mixed for women at work or seeking work. On the one hand they were exhorted, and even prohibited from competing with married men in the labor force. On the other hand, new jobs emerged in sectors where women were employed, thereby increasing their opportunities to enter the workforce. The lower wages women received also increased their employability.

World War II had a great impact on women. Five million entered the workforce for the first time. They held nontraditional jobs, including highly skilled blue-collar occupations, in large numbers. In response to women's entry into the labor force new services were established during the War for the first time, including day care. Women also joined labor unions in far greater numbers.

After the war, many women left the workforce, some voluntarily, others through lay off and other terminations. There was some continuing progress, however, in the semi-skilled or unskilled blue-collar areas and in clerical and administrative occupations. Many black women advanced from domestic work to factory jobs during the War and retained these opportunities.

The 1950s and 60s saw a continued growth of women's participation. The post war boom and the need for more family income to buy the newly available goods were two factors in this growth. More women stayed in the workforce after marriage, and many entered or reentered after their oldest child had entered school.

The 1960s and 70 were times when advances in civil right occurred and when feminism was reborn. Women became more activist about their right, including their economic rights, during this era. Executive Order 11246 was amended in the 1970s to cover women. Goals and timetables for women in apprenticeship and construction were set by DOL, as a result of women-initiated litigation.

The history of women as apprentices is relatively recent. While there always have been isolated instances of women apprentices, the principal growth has been in the 1970's and during the present decade. In 1968 there were only two women among the 77 thousand apprentices under BAT's jurisdiction. As a result of targeted outreach and recruitment and preapprenticeship training efforts of the 1970's the number of women grew to more than 18 thousand by 1979 and are now in excess of 14 thousand.

The approach used in this study consisted of a combination of methodologies. A literature review was conducted and the past studies were examined on women in apprenticeship, women in nontraditional trades, and women in blue-collar occupations. Telephone and in person interviews were conducted with a wide range of groups and individuals, including women's trade organizations, legal services and advocacy groups, congressional staff, apprenticeship program staff, BAT and SAC staff, and women apprentices and former apprentices in the trades. Finally, an on site one week study in the Bay Area of Northern California was conducted to enable the researchers to learn about the problems encountered and the solutions worked out in one of the more active and successful areas of the country for women in the trades.

There were a number of findings made in this study. Among the more significant:

- *While there already are a number of women interested in, available for, and prepared to enter apprenticeship, the supply must be increased through targeted outreach and recruitment efforts.*

- *Women's organizations that recruit and prepare women for nontraditional trades and apprenticeship are an excellent source for recruiting women for apprenticeships. Other groups, doing outreach and training of disadvantaged people are fruitful sources.*

- *There are a number of barriers affecting women's entry into apprenticeship. They include: upper age limits for some apprenticeship programs; testing in areas where women are ill prepared by education and experience; the rating give to education and background factors, such as taking of algebra, physics, blueprint reading, and other courses and the more favorable position of males by virtue of their having had relevant work experience; the lack of routine physical conditioning of many women, thereby inhibiting their ability to pass test or perform well initially on jobs where*

physical ability is important; the inability of some women to project their interest and motivation in oral interviews for apprenticeship and the occasional asking of inappropriate or illegal gender based questions by interviewers.

- *Once in apprenticeship other barriers and issues may emerge, including hazing and harassment beyond what is routinely expected; distasteful and often crude sexual harassment; the feeling of isolation and loneliness on the job, when women apprentices frequently find themselves the only woman at a work site and not being socially or professionally accepted by their male co-workers; problems with receiving inadequate training on the job as a result of being assigned menial tasks continuously that don't promote the growth and mastery of required trades skills; problems in locating and obtaining work clothes and tools that are designed for women's statures and problems of inadequate or non-existent toilet and changing facilities; difficulty arranging travel to distant worksites or to worksites not covered by public transportation during extended hours construction workers often face; problems in finding good, affordable child care, aggravated by the need to start for work in very early morning hours.*

- *Unions and employers need to be more active in promoting women in apprenticeship by conducting more aggressive outreach and recruitment efforts and by combating sexual harassment on the job.*

- *Vigorous equal employment and affirmative actions enforcement is a most important factor in promoting women in apprenticeship. There is a widespread feeling among women's group and women workers that he enforcement by OFCCP and BAT is lax.*

- *Outreach and recruitment and preapprenticeship training programs can find an prepare women. The Bay Area of Northern California presents examples of successful coordinated efforts to increase women in apprenticeship in response to federal and state requirements and the prod of a state court order.*

This report presents several recommendations to BAT on ways to deal with the problems and to increase the number of women in apprenticeship. The chief recommendations are:

- *BAT, JACs, employer associations, employers and other should launch a more sophisticated and targeted recruitment effort to find and interest women in apprenticeships.*

- *BAT should identify and develop linkages with all the women groups working to recruit and prepare women for apprenticeship. BAT should consider developing directories identifying these programs and describing their services. DOL should explore funding these programs directly or directing more JTPA funds to them.*

- *DOL should likewise fund preapprenticeship training programs. At a minimum, BAT should locate and circulate effective preapprenticeship training materials and develop some modules itself.*

- *There must be more training for supervisors and co-workers of women apprentices and journeyworkers. This training should be developed and promoted by BAT. Training dealing with overcoming sexual harassment is especially needed. Male co-workers should have a role in developing training aimed at integrating women into nontraditional apprenticeships. Such involvement will facilitate the acceptance of change in the workplace.*

- *There needs to be more vigorous enforcement of EEO and affirmative action rules and regulations. Because of the voluntary nature of the BAT sponsor relationship, it may be necessary to look elsewhere for hard nosed enforcement. BAT's role in this area may be in providing technical assistance and training to sponsors, unions, and employers to promote affirmative action.*

- *BAT must provide visible, vigorous leadership that shows it is committed to promoting women in apprenticeship. BAT's Apprenticeship and Training Representatives (ATRs) should receive orientation and training on the problems of women in apprenticeship and the available solutions. BAT should consider sponsoring a national planning conference that will bring together women's groups to layout an action plan to increase the entry of women into apprenticeship.*

C. FINANCIAL AND NON-FINANCIAL INCENTIVES FOR APPRENTICESHIP PROGRAMS

* Dr. Robert J. Gitter

ERIC

EXECUTIVE SUMMARY

This report reviews financial and non-financial incentives for apprenticeship programs. Its purpose is to identify feasible and practical incentives for the increased use of apprenticeship. The report emphasizes that there are several different types of benefits from apprenticeship training:

-general increases in worker earnings
-increased participation and earnings for minorities
-increased participation and earnings for the economically disadvantaged
-elimination of bottlenecks in critical industries
-helping the American economy become more competitive
-a reduction in inflationary pressures

There are several "market failures" or reasons why the training occurs at levels less than what would be best in consideration of these benefits. The rationale for government incentives to overcome these obstacles includes:

-inadequate information about apprenticeship
-the desire of potential apprentices not to work for the low wages associated with some apprenticeship programs
-possible uncertainty of a job placement for the apprentice after completing the program
-firms deciding to avoid the perceived expense of apprentice programs and pirating workers
-discrimination
-the benefits of apprenticeship training to others.

Included in the last point is; the training of welfare recipients to increase their earnings and reduce their level of transfer payments, providing trained workers for critical industries such as defense and aerospace, providing trained workers to improve the nation's balance of trade and reducing labor bottlenecks as a method of helping control inflation. In some cases, several of these market failures are operating to prevent a certain type of benefit.

The particular benefits that are to be sought from apprenticeship and the market failure or failures preventing us from enjoying these benefits will determine the specific incentive program that would be most effective in each case. The programs reviewed were:

1. Direct subsidies to apprentices.

2. Direct subsidies to firms employing apprentices.

3. Tax credits and reduced payroll taxes.

4. Levy-grant systems.

5. Support for training facilities and related instruction.

6. Contract preference

7. Improvements in dissemination of information about apprenticeship

Although apprenticeship increases the earnings of workers who undergo the training and can be used to improve the economic situation of minorities and the economically disadvantage, it would not impact a large share of these groups. Apprenticeship programs would best be used as one of several methods of improving their lot. In order to provide for enough trained workers in critical industries, improve the nation's international competitiveness and help guard against inflation, programs to increase the wages of apprentices, either through direct subsidies to the apprentices, subsidies to the firm employing the apprentices or tax credits to the firm, as well as levy-grant systems show a great deal of promise.

D. VOCATIONAL EDUCATION, COUNSELLING AND INFORMATION PROCCESS

* **Fedrau and Associates**
* **Meridian Corporation**
* **National Child Labor Committee**
* **National Center for Research in Vocational Education**

ERIC

EXECUTIVE SUMMARY

I. PROJECT STATEMENT

This report responds to the Apprenticeship 2000 study requested by the Bureau of Apprenticeship and Training on linking apprenticeship with the vocational education system (Project 3A). It outlines relevant background trends in apprenticeship and vocational education, identifies and analyzes key barriers and opportunities for linking the two systems, and makes recommendations about how to increase the use of vocational education and attendant counseling systems to supply a reliable source for qualified apprentice applicants.

Methodology

Findings in this research project are based on interviews and discussions conducted with a variety of representatives of the employer community, public school systems and apprenticeship programs as well as a review of written materials on training and education-related topics. Discussions in the school community took place with representatives at all levels of the system, including staff located at the boards of education having responsibility for specific program areas (such as trade and technical education, counseling, employer linked programs, apprenticeship related instruction), directors of counseling at the district and school level, directors of vocational programs at the school level, counselors and instructors. Written materials used for the study include books on counseling, studies dealing with educational reform and training the nations' workforce, descriptions of model programs, and new studies in draft form on issues related to vocational training and training for basic education.

II. SUMMARY OF BARRIERS AND OPPORTUNITIES FOR LINKING SECONDARY VOCATIONAL EDUCATION WITH APPRENTICESHIP

The following section:

a) briefly summarizes key barriers and opportunities relating to the linkage of secondary school vocational education with apprenticeship and;

b) outlines recommendations for strengthening apprenticeship-school linkages.

Key Barriers and Challenges

Key barriers to linking secondary voc. ed. programs with apprenticeship include:

1. The aging vat continues to be a reality in most areas of the country. Employers and apprenticeship programs report that they do not hire youth because many school-age job applicants are poorly prepared for apprenticeship in several respects:

-- lack of basic skills, especially math

-- lack of maturity and attitudinal preparation for the world of work

-- lack of career direction and commitment.

These negative perceptions of school-age youth occur at a time when skilled occupations (and apprenticeship programs) are becoming more sophisticated and technical, requiring superior background preparation. Also, equipment and training costs are escalating, so each new apprentice represents more of an up-front investment in training expenses. In general, employers and apprenticeship programs invest heavily in skilled trades persons and are reluctant to hire what they perceive to be ill-prepared youth when they can just as easily hire a more mature and experienced person. Exceptions to this pattern seem to occur where the labor market is very tight -- in some areas, more experienced persons are difficult to find.

2. In most communities, there appears to be a substantial mismatch of supply and demand -- too many applicants for apprenticeship and too few apprenticeship slots. A major part of the challenge here is to expand the apprenticeship in both traditional and non-traditional areas. Because of the limited supply of apprenticeship slots, the apprenticeship system has not needed schools as a feeder mechanism, (except, perhaps as a source of hard to reach groups, such as women and minorities) nor have schools needed apprenticeship as a source of placements. Thus, the environment has not been ripe for developing mutually beneficial relationships. Moreover, to date apprenticeship has not expanded rapidly into non-traditional occupations, thus limiting not only the number, but also the range of apprenticeship opportunities open to students.

3. Most career guidance personnel and systems are not well prepared to provide students with adequate information about apprenticeship for several reasons:

a) many counselors know very little about apprenticeship and others have negative impressions of apprenticeship;

b) many counselors generally emphasize going to college and discourage the blue-collar route altogether;

c) at many schools the counseling function has been cut back due to budget constraints. Counselors frequently are expected to take responsibility for many items beyond individual counseling.

For scheduling purposes, students are frequently assisted largely by clerks and computers.

4. One result of the blue/white collar schism and the upgrading of skill needs in our society is that there is an increasing expectation that students will pursue post-secondary academic education before entering the job market. And community colleges, by aggressively pursuing various articulation arrangements with high schools and universities, are encouraging this orientation. This tends to discourage direct referrals to jobs and apprenticeship programs.

5. Many special initiatives in the education/training field have been targeted to disadvantaged youth or the gifted. The middle group, who are the most likely and appropriate candidates for apprenticeship programs, frequently receive little special attention in terms of education or career guidance.

6. Secondary vocational education programs in many areas suffer from a poor reputation among employers and apprenticeship programs. Too frequently, they are perceived as out-of-date and as "dumping grounds" for those with the least ability or motivation.

7. Secondary vocational education resources in many schools have been cut back in response to fiscal pressures and the high priority now given to the core academic curriculum. On a related note, articulation arrangements and marketing services to support school- apprenticeship programs cost money and staff time -- resources that are in increasingly short supply in an environment characterized by fiscal austerity and de-emphasis on voc. ed.

8. Apprenticeship tends to operate somewhat in isolation from the growing array of public/private partnerships in training and is often not included in the various articulated arrangements among education institutions. Moreover, in at least some cases, apprenticeship programs appear to be moving away from cooperation with the education system by establishing more self-contained instructional facilities and systems.

9. Some state regulations on apprenticeship restrict options for linking high school cooperative education or work/study approaches with the apprenticeship system. If state apprenticeship programs largely define apprenticeship as a program which requires close to a 40 hour work-week for instance, this limits opportunities for the development of 4/4 hour work/school schedules.

10. In general, representatives of secondary schools and apprenticeship programs report negative perceptions of each others' programs. Apprenticeship officials complain about the poor quality preparation given to students by schools; school personnel often are not very knowledgeable of apprenticeship or feel that the apprenticeship system is rigid and unyielding in its demands.

11. The requirement to use formally ranked lists (e.g. by test scores, race, sex, etc.) in the recruitment of apprentices can complicate school-to-apprenticeship programs by making it more difficult, logistically, for students (and counselors) to link with apprenticeship slots. Where lists are used widely, school counselors should be well-informed about how to get students in the pipeline sufficiently early to maximize consideration.

Key Opportunities for Improving School - Apprenticeship Links

Key opportunities and circumstances supporting the improvement of school-apprenticeship links include:

1. Evaluations of past school-to-apprenticeship programs suggest positive outcomes from the standpoint of employers, schools and apprentices. To reiterate:

- Schools get good quality placements
- Employers get access to recruiting and screening services.
- Employers get help with planning and developing quality training programs.
- Employers get good employees.
- Apprentices/employees get good jobs.

2. *Experience in very low-unemployment pockets of the country indicates that as the demographic shifts predicted in the Workforce 2000 emerge, employers and apprenticeship programs will probably become much more receptive to the idea of hiring and training high school students. Thus, as the supply of entry-level job applicants decreases, and skill shortages emerge, there will be a natural tendency for employers, schools and apprenticeship programs to work more closely together. One risk, however, is that if apprenticeship programs fail to lay the groundwork for a closer relationship with schools, employers and other training programs may eventually proceed to address these labor supply and training issues without considering the apprenticeship system as one of the main actors.*

3. *Experience with EEO-related programs to recruit women and minorities indicates that when apprenticeship programs are under pressure to recruit scarce applicants, they, indeed, turn to the high schools as a primary source. In fact, special school-to- apprenticeship initiatives to recruit women and minorities represent a useful starting place -- a foot in the door -- for crafting broader linkage and articulation arrangements.*

4. *Employers appear to be becoming more open to working with schools and other entities with regard to skill training. In addition, community colleges and other post-secondary institutions are reaching out to develop articulation arrangements with high schools in the quest for more student enrollments. This creates a more open environment for experimenting with links between apprenticeship, secondary schools, community colleges, JTPA programs and other employment and training entities. Apprenticeship could easily fit into a wide range of "compact" and articulation arrangements that are emerging nationwide.*

5. *The higher academic standards being introduced in public schools generally may help to provide apprenticeship programs and employers in general with more well-prepared job applicants. Improving academic standards certainly would reduce one of the primary barriers to fostering school-apprenticeship links.*

6. *At least a few states and communities have gained considerable experience, in recent years, with developing successful school-to-apprenticeship programs, particularly among small employers. Thus, paradigms are emerging which, if documented and disseminated widely, could help other states and localities replicate success. Similarly, effective high school career counseling and career guidance systems have been developed that provide students with comprehensive information about apprenticeship and promote apprenticeship opportunities.*

7. *Many apprenticeship representatives express the view that they would prefer to recruit younger persons rather than utilize the "aging vat" because:*

a) youth have 40 or more productive years in the workforce, therefore,

b) younger persons cost less in terms of health insurance coverage and pension benefits (which accrue over a longer period). Thus, if youth are better prepared for the world of work, there are reasons for apprenticeship programs to be interested over and above any emerging labor shortages.

8. *As the cost of education continues to escalate, and federal support for financing a college education dwindles, the "earn-while-learn" feature of apprenticeship could prove to be a very strong selling point to individuals and families with limited resources.*

9. *The trend toward regionalization of voc. ed. facilities (and magnet schools) could facilitate the development of school- apprenticeship in a number of ways:*

a) a greater number of apprenticeship slots can be identified over a wider geographic area

b) all else being equal, regional schools will often be able to provide quality instruction over a wider range of occupations than local schools -- and apprenticeship programs over the wider geographic area are likely to represent a wider range of occupations as well;

c) regionalization of voc. ed. facilities could help to pool resources and upgrade the quality of voc. ed. instruction and equipment.

10. *JTPA Title IIA programs should play a greater strategic role in bridging the gap between school and apprenticeship. The purpose of JTPA Title IIA is to provide disadvantaged individuals, especially youth, with the requisite remedial and skill training to make them competitive in the job market. To the extent that some youth are not sufficiently prepared to enter apprenticeship, JTPA programs could help to backfill the skills lacking. In several cases studied, JTPA programs have, in fact, been used for this purpose; however, one impression gained from contacting a wide variety of education and training representatives is that this pattern is the exception rather than the rule.*

VI. RECOMMENDATIONS

Recommendations fall into two categories:

a) recommended general principles and approaches to improving the long-term development of linkages between apprenticeship and voc. ed. and;

b) recommended specific next steps aimed at improving linkages.

General Principles

ULTIMATELY, THE EXTENT OF LINKAGE WITH SECONDARY SCHOOLS DEPENDS ON THE EXPANSION OF THE APPRENTICESHIP SYSTEM:

Among the leading barriers to linkage between apprenticeship and secondary voc. ed. is a scarcity of apprenticeship slots in most communities. The number of opportunities presented by apprenticeship simply is not consequential in the eyes of many school counselors and instructors. Recommendations relating to the overall expansion of apprenticeship can be found in our reports for Projects 1A and 2A; some specific recommendations for opening up more apprenticeship slots in the short-term are outlined below.

TIGHT LABOR MARKETS PRESENT A UNIQUE OPPORTUNITY FOR PILOTING AMBITIOUS SCHOOL TO APPRENTICESHIP APPROACHES:

Our research indicates that when skilled labor becomes scarce, employer attitudes about linking high school training with jobs (and apprenticeship slots) often change dramatically. In a matter of a few years (or a few hundred miles distance), employers can shift from being largely uninterested in high school coop students to being on waiting lists to accept coop ed students into registered apprenticeship programs. New England, southern California and other tight labor markets, therefore, represent excellent opportunities for piloting new articulated approaches to apprenticeship and pre-apprenticeship training.

APPRENTICESHIP PROGRAMS SHOULD THINK IN TERMS OF GIVING TO SCHOOLS AS WELL AS RECEIVING APPLICANTS; IT IS IMPORTANT TO BUILD A BASE OF POLITICAL GOODWILL SO THAT WHEN YOUTH AND SKILL SHORTAGES DO EMERGE, THE APPRENTICESHIP SYSTEM IS "IN THE PIPELINE".

Several respondents working with successful school-to-apprenticeship programs have pointed out that current STA efforts represent an investment in the future -- for the time when employers will be searching out youth as job applicants. The apprenticeship system should be poised to respond quickly and effectively to heightened demand; high school cooperative education programs, community colleges and others also will be responding to the same market conditions.

WORK IN THE BROADER CONTEXT OF PUBLIC AND PRIVATE EDUCATION/TRAINING INITIATIVES:

As noted above, a more open environment appears to be emerging for packaging a diversity of public/private training approaches customized to the needs of employers. Unfortunately, both apprenticeship and the secondary voc. ed. system have frequently been isolated from many emerging partnership arrangements for skill training. Community colleges, state industrial training programs, equipment vendors and others have increasingly occupied center stage. More highly "articulated" approaches to training are being developed which could help bring apprenticeship and voc. ed. more into the mainstream of today's education system and help to break down the "schism" between blue collar/apprenticeship and white collar/academia on a broader scale.

TOP LEVEL DECISIONMAKERS AT THE STATE AND LOCAL LEVELS MUST SPEARHEAD ACTION.

School-to-apprenticeship links, by nature, require the cooperation of employers, schools and apprenticeship programs; others, such as community colleges, the Employment Service, cooperative education specialists, voc. ed. advisory committees, PICs, JTPA staff, state customized training programs and economic development programs, also can play a strong supportive role. Partnerships of this breadth rarely are orchestrated from the bottom up -- state and federal apprenticeship agencies should strive to involve leaders at the state and local levels in efforts aimed at strengthening school-apprenticeship ties.

Specific Recommendations

1. DEVELOP CENTRALIZED INFORMATION MANAGEMENT AND DISSEMINATION SYSTEMS AT THE STATE OR REGIONAL LEVELS TO IDENTIFY OCCUPATIONAL AREAS (BOTH TRADITIONAL AND NON-TRADITIONAL) WHERE APPRENTICESHIP SLOTS ARE OPEN OR EXPECTED TO BE OPEN IN THE NEAR FUTURE.

Because of the extremely limited supply of available apprenticeship slots in most communities, efforts aimed at linking with secondary schools should begin with centralized data (and projections) on the availability of apprenticeships slots in a given area. While fairly good data on apprenticeship programs generally exists at the state level, data generally have not been married to any systematic planning process aimed at identifying opportunities for fostering linkage and disseminating information to schools and other parties. Before school counselors can do a better job of referring individuals to apprenticeship, they must know not only about apprenticeship in general, but have access to information about tangible opportunities and information about the details of the apprenticeship recruiting system, e.g. recruiting lists, "hunting license" approaches, etc.

2. UPGRADE APPROACHES AND PARTNERSHIPS FOR MARKETING APPRENTICESHIP

Possible approaches include:

- *Utilize existing personnel in the school system, voc. ed. programs, cooperative ed. programs, JTPA programs, the Job Service, etc. as much as possible to staff and market school-to- apprenticeship linkage efforts to employers. This should become part of the routine "job development" function for a range of agencies. Vocational education business/industry advisory committees also could play an expanded role in promoting school- to-apprenticeship linkages.*

- *Explore the use of financial incentives and "sweeteners", such as OJT subsidies utilized in JTPA and other programs, to support job development connected with school-to-apprenticeship programs. Adding apprentices, particularly those in school-to-apprenticeship programs to the list of Targeted Jobs Tax Credit eligible persons (or similar tax incentives for employers) also could help encourage employers to utilize apprenticeship training.*

- *Where the number of apprenticeship slots justifies expansion, expand existing programs designed to recruit females and minorities to a broader student audience.*

- *Encourage more outreach efforts which utilize journeyman or apprentices to provide some voc. ed. instruction, to explain their jobs, their skills and their life. A number of respondents report that this has been the most effective way to break down erroneous stereotypes about today's hands-on worker.*

- *Document, disseminate and market the benefits and success of existing school-to-apprenticeship programs to counselors and other school personnel, emphasizing that everyone involved benefits: schools get good placements, employers get access to recruiting and job applicant screening services, employers also get help with planning and developing training programs, employers get outstanding employees, and students/apprentices are satisfied with their job and career. STA programs should be considered a part of the "package" of program options schools could market to employers.*

- *Build on successful approaches to guidance counseling and related information systems which provide comprehensive information about apprenticeship and promote apprenticeship career opportunities.*

- *Concentrate school-to-apprenticeship linkage efforts on regional voc. ed. facilities and magnet schools, especially schools with a good reputation among employers. The wider geographic area served by regional facilities increases the chances for identifying a satisfactory number of apprenticeship slots to justify a linkage initiative. Regional facilities also tend to offer a wider range of courses, thus lending themselves to linkage across a wider range of apprenticeable occupations.*

- *Encourage "joint credentialling" arrangements with community colleges and other post-secondary training institutions. The choice that counselors frequently face is to recommend a community college program OR apprenticeship (or some other option). If apprenticeship is more closely linked with community college degree programs, this does not have to be an either/or choice -- a student can do both at the same time or enter apprenticeship after starting classes at a community college.*

- *In general, coordinate and improve planning to identify slots that could open up with a minimal amount of added marketing and development assistance. State and local apprenticeship institutions and schools should work*

together to identify bottlenecks in the apprenticeship expansion process that could be addressed by targeting funds (from the state, schools, private sector, JTPA) toward marketing, job development, and curriculum development.

3. IDENTIFY AND POOL RESOURCES TO SUPPORT SCHOOL-TO-APPRENTICESHIP PROGRAMS.

Program planning, marketing for job slots, curriculum development, working out articulation arrangements and general administrative support all entail substantial commitments of staff time and monetary resources. Successful school-to-apprenticeship programs appear to have minimized additional staff and administrative costs, however, by integrating the school-to-apprenticeship agenda into existing functions as much as possible.

Other program funds sometimes can be utilized directly to support school-to-apprenticeship programs.

A number of programs have supported curriculum development and needed equipment purchases by splitting costs 50/50 with employers. This approach has worked effectively in a wide variety of employer-based training situations outside the apprenticeship arena as well.

4. ELIMINATE OR MODIFY STATE APPRENTICESHIP REQUIREMENTS WHICH HINDER THE DEVELOPMENT OF SLOTS AND PROGRAMS FOR HIGH SCHOOL STUDENTS.

Many states (especially SAC states) appear reluctant to approve programs which deviate from certain strict norms established for apprenticeship programs. For example, in some states, apprenticeship programs are discouraged which do not require the "normal" 40-hour work week. It is recommended that this and similar restrictions be identified and modified, at least as applied to high school students, to remove serious barriers to school-to-apprenticeship programs.

5. MANDATE SCHOOL-TO-WORK LINKAGES AS PART OF APPRENTICESHIP EXPANSION INITIATIVES.

A school-to-work component should be planned as an integral part of any broader effort to expand apprenticeship to non-traditional occupations or industries, particularly smaller employers. Significantly, STA programs in some states target non-traditional occupations, or occupations and industries in which traditional programs have not made great strides. Apprenticeship expansion efforts should be aimed at laying the foundation for addressing skill and labor shortages in tomorrow's economy. Linking apprenticeship with high schools should not be treated as an afterthought, or as a separate and unrelated initiative.

On an even broader scale, school-to-apprenticeship components also could be explicitly included, or mandated, in the various education "compact" agreements between schools and employers that are emerging across the country. The underlying purpose of these efforts is to strengthen the school-to-employment link, in which apprenticeship could play a strategic role in many occupations.

6. IDENTIFY AND BUILD ON KEY STARTING PLACES FOR LINKING SCHOOLS WITH APPRENTICESHIP.

Quite a number of the apparently successful school-to-apprenticeship programs identified in the course of this study began with, or builds on, some other program that involves similar partnerships. A couple of programs, for instance, keyed off existing cooperative education programs -- articulating with apprenticeship was a logical extension of a school/employer training relationship that had already been well established. Other programs started with JTPA programs designed to provide at-risk youth with the necessary skills to be productive at the entry-level in skilled occupations. In such cases, schools were a natural recruitment source for JTPA trainees, and apprenticeship was a logical job placement option for the JTPA program -- and eventually these relationships were articulated in a formal way.

As mentioned above, where sufficient apprenticeship slots exist, another starting place for expanding school-to-apprenticeship links are existing initiatives to recruit female and minority high school students into apprenticeship programs. In fact, some of the more general school-to-apprenticeship programs identified herein were established partly to help the apprenticeship system meet various EEO recruitment and placement requirements.

2-Plus-2 programs between high schools and community colleges represent another starting place for building school-to-apprenticeship linkages. Though these programs do not directly involve employers, an employer/apprenticeship option can be added to the 2-Plus-2 concept to broaden the training and job placement horizon of the 2-Plus-2 program. Specifically, a high school student could be (and in some communities, is) given the choice to

enter an Associate Degree program or apprenticeship (or both simultaneously) with the knowledge that all classroom instruction received will be credited toward apprenticeship and the A.A. degree and that the student can easily transfer back and forth, or combine, the two options. Adding apprenticeship as an option contributes to the 2-Plus-2 concept in several important ways: a) it adds intensive hands-on skill training to the regimen; b) it represents a job placement at the commencement of post-secondary training, with wage steps along the way; c) it could help individuals with limited resources to finance their training and education.

7. GIVE HIGH SCHOOL STUDENTS CREDIT FOR COMPLETION OF COMPETENCY BASED PRE-APPRENTICESHIP-TYPE PROGRAMS.

While so-called pre-apprentice programs might have become more common in high schools, not all apprenticeship programs give specific credit to the student for having taken the related instruction or OJT. Some agreements, written or simply "understood", indicate that the student "may" receive credit; meaning either formal credit given in terms of months taken off the remaining years in the program, or simply additional points given on the interview. In situations where there is no formal agreement, there is no real incentive for the student to complete such a program if it is unclear as to what the outcome might be.

EXECUTIVE SUMMARY

PROJECT STATEMENT

The Apprenticeship 2000 Initiative establishes a set of issues to focus the attention of the training community on the growth potential of the apprenticeship system as an integral part of U.S. training policy for the next century. One of the principal issues posed in the initiative is, "How can apprenticeship be more effectively linked to the education system?"

This study helps answer that question by investigating and describing existing linkages between education and apprenticeship.

OBJECTIVES

Four primary and two secondary objectives were identified for the study. The primary objectives were:

- *To identify and categorize the range of linkages between the education and apprenticeship systems;*
- *To characterize linkages descriptively and through example so that activities, trends, effective programs, and future research questions are clarified;*
- *To illuminate trends and changes in linkages that have occurred during the last decade; and*
- *To examine the potential for growth for each linkage.*

The secondary objectives were:

- *To consider the effects of the Carl Perkins Act of 1984 on stimulating apprenticeship-education linkages; and*
- *To meet, in part, a requirement of the 1985 Interagency Agreement between the U.S. Department of Labor and the U.S. Department of Education that called for review of apprenticeship-vocational education cooperation and coordination.*

ISSUES AND HISTORY

Study parameters were established by defining linkage, identifying legal requirements, and reviewing previous studies. For the study the concept of linkage was defined both structurally and functionally. Therefore, the investigator could examine not only the formal agreements that exist between education and apprenticeship, but also the behaviors or actions of individuals and organizations as they discharge their roles. Thus, linkages included programs, agreements, activities, and services.

Legal requirements were established by the Carl D. Perkins Vocational Act of 1984 in that it provides 15 references about how and where educators might coordinate with apprenticeship. The Act encourages cooperation and indicates that vocational monies may be spend to support linkage projects such as related instruction, school-to-work projects, pre-apprentice programs, and instructor training. However, the Act stops short of mandating particular programs/services/activities, provides no specifically designated funds, and makes no required reporting provisions regarding apprenticeship. Nevertheless, it reaffirms the historical relationship between the two systems and encourages educational service providers to develop more cooperation between the two systems.

Language in the Perkins Act requires the federal Secretaries of Education and Labor to develop and implement a plan to generate greater coordination and cooperation between vocational education and apprenticeship. On October 17, 1985, the Secretaries signed an Interagency Agreement to fulfill provisions of the Act. The Interagency Agreement established implementation activities such as encouraging state-wide steering committees, identifying exemplary program, and reviewing the extent of existing linkages as strategies for ensuring coordination. In addition, it urges state agencies to review the Perkins Act of 1984 and develop other types of linkage programs at state and local levels.

Several previous studies have investigated aspects of linkages, setting forth the conditions favorable to develop coordination and suggesting some of the services that have defined linkages in the past. However, none of the previous studies presumed to identify the range of linkages, to characterize linkage relationships, or to analyze trends underway in existing linkages.

APPROACH

The approach or methodology for the study involved three tasks: (1) data collection; (2) a conceptual factor analysis; and (3) categorization and analysis of collected information. Data collection involved searching, collecting, and reviewing the last 10 years of published and unpublished articles about apprenticeship as well as contacting national, state, and local educational personnel to identify, investigate and discuss linkages. The conceptual factor analysis established the categories of services into which to place identified linkages. The categorization and analysis of collected information involved grouping the information about linkages into categories; examining the data to discover trends; selecting appropriate examples to define and explain the relationship; and investigating the potential for growth within the linkage.

FINDINGS

Twelve types of linkages define the relationship between education and apprenticeship programs. Each linkage seems to have growth potential and each has exemplary programs from which to learn. The linkages and their characteristics are as follows:

1. *Related instruction services -- This most frequently used linkage has changed during the past decade such that now program sponsors are requesting more hands-on training as well as more course content in basic skills, communication skills and economics in addition to traditional subjects. In addition, increasing numbers of related instruction classes are being taught at community college and technical institute sites rather than in high school facilities. Furthermore, increasing numbers of institutions provide not only space, but also provide at least partial reimbursement of the instructor's salary for related instruction.*

2. *Curriculum services -- Historically, this service is one of the two most frequently used linkages between education and apprenticeship. The linkage has two components: development of instructional materials and storage/retrieval of instructional materials. Dozens of sets of materials have been prepared to teach apprenticeable trades. The better materials have the capacity to alter the structure of apprenticeship by making learning more efficient so as to reduce time requirements. However, these materials generally were developed for vocational education classrooms and not for apprenticeship programs. Therefore, the degree of match between the materials and actual job needs (as defined by task analysis) and the match between the materials and adult learner characteristics is unclear. Still, the linkage should grow as availability of materials continues to improve. Additionally, the linkages should grow as educators are called upon to create training materials for new trades or to translate existing materials into other languages.*

3. *Advisory and planning activities -- Study findings suggest that the Perkins Act and Interagency Agreement are stimulating linkages in that all states have designated an apprenticeship liaison within the state education department and the overwhelming majority of states have developed cooperative agreements and/or established apprenticeship-vocational education coordination steering committees. The linkage should continue to grow as additional states complete, sign, and implement agreements.*

4. *Associate degree program -- The associate degree linkage has grown dramatically in the last decade. Ten years ago, it was an experimental program; today credit toward an associate degree is available for training experiences related to apprenticeship in virtually every state. Most of the programs seem to be individual agreements between a particular two-year college or technical institute and a particular apprenticeship sponsor. Degree linkages take one of three forms: dual enrollment, credit for life experience, or labor studies. Each form has potential to grow in our degree-oriented culture because significant benefits accrue to each party in the arrangement.*

5. *Instructor training and certification -- In the last decade, the value of journeyman-level work experience has increased as education agencies have come to accept journeymen as part-time instructors of apprentices in related instruction classrooms. Additionally, limited technical assistance in the form one or more models of instructor training such as self-instructional materials and instructor workshops have been offered to increase the training skills of the*

tradesmen. The linkage has potential for expansion as the apprenticeship system grows.

6. *Operation of registered programs -- A recent, comparatively small, but potentially important linkage is the registration and operation of apprenticeship programs within the physical plant and/or maintenance operations of colleges, public schools, and state government. Substantial benefits accrue to both the worker and the program sponsor and available data suggest growing interest in the linkage. A related linkage also may expand; that is, large apprenticeship programs in major industrial settings also may develop and operate their own accredited schools.*

7. *School-to-work programs -- The Perkins Act seems to have stimulated expansion of this linkage. Almost every state has at least one pilot project underway. However, may of the projects can be described as sputtering, with swings in enrollments and problems that must be resolved. Even so, many projects, including major programs in New York, New Jersey and Iowa and smaller programs in Michigan, Nevada, Alabama, and Ohio are experiencing a great deal of success. The linkage has great potential for expansion when the lessons from successful and unsuccessful implementations are identified and applied.*

8. *Readiness-for-training activities -- Readiness-for-training activities, also known as pre-apprenticeship activities, take two forms in education. In one form, they are high school vocational education classes in which career orientation, basic skills, and some entry-level trade skills are taught to students who may qualify and choose to become apprentices. In the second form -- special orientation and training programs for women and minorities -- the programs remain more experimental. However, several excellent models are demonstrating that the special program can have beneficial effects for expanding the apprenticeship labor force. The linkage has potential to grow during the coming decade as the labor force changes.*

9. *Assessment and evaluation services -- This linkage has grown considerably during the last 10 years and should continue to expand during the next decade. Educators have always tested individual learning in related instruction; however, assessment activities will be expanded as concerns for workplace literacy, new technology, and certifiable skills grow. Additionally, education should continue to be involved with performing task analysis and may become more involved with evaluating training effectiveness and determining the credit value of training (to avoid duplication) as training needs continue to expand and training resources become even more strained.*

10. *Information, promotion, and counseling services -- Relatively little attention has been given to this linkage. With notable exceptions in states like Hawaii, New Jersey, Maryland, California, Virginia, and Colorado, educators have completed relatively little work that provides information or promotes apprenticeship in schools, either with facility/staff or with students. The linkage has potential for growth and will need to expand if the scope of apprenticeship is to be enlarged.*

11. *Studies of apprenticeship -- Even though apprenticeship, when compared to other training systems, has received less attention from educators in the published literature and may have received less attention as a topic of policy relevant research, the linkage has potential for expansion and usefulness. Several U.S. studies, as well as many studies of apprenticeship from other industrialized nations, could serve as models for generating data useful both at program policy and program operation levels. Further, additional studies may help resolve apparent misunderstanding among educators about what apprenticeship is and is not.*

12. *Data collection and projection services -- This linkage has grown in the last decade with the promulgation of the Perkins Act provisions establishing national and state occupational information coordinating committees. However, study data suggest that the linkage remains in its infancy stage, with educators and apprenticeship officials continuing to learn about the system's data needs and potential usefulness.*

OUTCOMES

The number and types of linkages between education and apprenticeship have expanded dramatically during the last 10 years; moreover, the probability of continuing expansion remains strong, especially if cost-effective strategies are undertaken to expand and sustain linkages. Among the options that could be considered to expand linkages are the following activities:

1. *Include specific language to encourage cooperation between education and apprenticeship in the performance standards of BAT field representatives;*

2. *Collect, produce and publicize information about model projects so as to promote programs in new locations;*

3. *Collect and analyze data about successful and less successful linkage activities in categories such as school-to-work, associate degrees, and work readiness activities in order to produce revised implementation manuals for each linkage. Manuals should address specific, typical problems and suggest solutions developed from the experience of successful programs;*

4. *Continue and expand the apprenticeship information clearinghouse activity so that additional materials will be available to apprenticeship sponsors and service providers. Additionally, the usefulness of the activity would increase significantly if the clearinghouse could function as a lending library and if all materials could be screened for quality and characteristics;*

5. *Establish and support a small but continuing focused research program to produce data that will inform program policy and program operations;*

6. *Clarify and promote the idea of a continuum of school and work experiential learning options that include work-study, cooperative education, internships, externships, practicuums, and apprenticeship so that educational personnel understand the difference among and the potential importance of these techniques;*

7. *Develop and encourage production, distribution, and use of materials for school counselors, educational administrators and students. Materials should promote and explain apprenticeship and apprenticeable trades;*

8. *Publicize and explain training data needs and the potential usefulness of participating in available data collection and projection services; and*

9. *Address the need for continuing instructor training by investigating the feasibility of conducting a national instructor training project on a cost-recovery basis. This project might lead to provision of nationwide certification.*

EXECUTIVE SUMMARY

I. This is a report of a study of the status and potential of links between apprenticeship and cooperative education to determine the desirability of expending resources to increase and strengthen linkages and, if desirable, how to accomplish these objectives.

Our findings and recommendations are:

A. Increased and strengthened linkages would help the Bureau of Apprenticeship and Training (BAT) achieve its objectives of playing greater, more effective roles in preparing youth for employment, developing a richer, more flexible labor pool, expanding into new, important occupations (including health, computer related and child care fields) and involving more women, disadvantaged, and handicapped students in apprenticeships.

B. The occupations in health, child care, computer and other office machine operation and service, and marketing and distribution are only a few examples of new areas that could be tapped.

C. There are effective programs linking secondary cooperative education and apprenticeship. These are few in number, limited to a few states. They should be, but have not been presented as models for replication.

D. Educational and apprenticeship professionals are interested in establishing and strengthening linkage programs. But, there are significant barriers to translating "interest" into action and success. Among the barriers are a lack of experience and knowledge of how to develop an effective linkage, as well as a dearth of resources and administrative and political support.

E. A sustained, national effort is necessary to overcome initial barriers. This should include workshops on linkage national publicity on developing a skilled labor force, and involvement of the private sector,

F. Once a viable program is underway, state and local educational agencies and BAT offices should be able to maintain effective local and State programs.

G. The educational system must be motivated to accept operational responsibility.

H. BAT should provide technical assistance such as publicity, training trainers for workshops, recruiting employers, advising on curriculum, and providing occupational information.

I. A far higher percentage of cooperative education students than apprentices are women, disadvantaged and handicapped. Linkage programs, bringing coop-ed occupations into apprenticeship and apprenticeship into coop-ed, will provide opportunities to increase the participation of these populations in apprenticeship.

J. Occupations and states with effective cooperative education provide opportunities to expand and increase apprenticeships.

K. Relationships with BAT will motivate educators to be more responsive to needs of employers and the labor market.

L. Linkage will give BAT opportunities to become a partner with vocational education for employment and transition to work.

EXECUTIVE SUMMARY

New technologies have dramatically altered the Structure and nature of the American workplace. Not only have the types of available occupations changed, but the requirements of the work- place have changed as well. This, of course, ensures that skill levels, both academic and vocational, which were entirely adequate only a short time ago, are becoming increasingly obsolete. Such changes threaten workers with dislocation, stress, underemployment, and other barriers to success in the world of work. Yet, this is not the only problem resulting from new technologies in the workplace. The ability of employers to compete in world markets is impaired as concern grows about the quality and efficiency with which workers develop and deliver American goods and services. This concern has cataclysmic potential.

At the core of this problem is the manner and method of how workers are trained. Clearly, the key to bridging the gap between the skill levels that are required and those that workers possess is the development of better approaches to training workers to cope with change.

Based on this perspective, the U.S. Department of Labor has commissioned ideas for improving apprenticeship training, referred to as "Apprenticeship 2000. " The Department is interested in exploring the viability and improvement of the apprenticeship system as it exists today. It is also interested in the expansion of access opportunities for apprenticeships and preapprenticeship programs in new and emerging occupational areas. This is clearly a worthy goal for the future, as apprenticeship-style training programs are often credited with combining instruction in appropriate basic, employability, and occupational skill areas. All of these areas are crucial elements workers will need for the workplace of the 21st Century. Accordingly, one purpose of this report is to identify those strategies relevant to such a national effort in the areas of vocational education, vocational counseling, assessment and information processes.

But there is another purpose as well. Insofar as this effort to bridge vocational education and related training resources is not a new consideration, a number of barriers have been identified over the years. Issues surrounding these barriers must be resolved if apprenticeship-style training is to provide a genuine training alternative in meeting the challenges of the year 2000. These issues revolve around the structure of the relationships that are critical to this process. It is therefore of great importance to identify and clarify those barriers with the purpose of providing some approach to resolution of the difficulties. In this regard, the perspective of the vocational guidance state leadership is examined.

The guidance community is important in several respects. First, the literature on apprenticeship training has generally ignored their contribution and role in the marketing, selection and preparation of prospective apprentices. This oversight is symptomatic of a global problem of communities addressing this issue in isolation from one another. Secondly, the vocational guidance community will provide a critical part of the new agenda, that of translating new policy and practice to its fruition in the public school systems. State directors of vocational guidance, in particular, play an important role insofar as they have an involvement in policy creation at the state level and are also responsible for providing the structure and disseminating the supporting materials and funds to ensure the implementation of policy. Hence, any effort to bridge the apprenticeship and vocational education systems must consider the perspectives of these key individuals very carefully.

As such, this study takes several different but related approaches. First, it surveys the existing literature and identifies key issues involved in the relationship between vocational-technical education including guidance, and apprenticeships. It then validates these issues through personal interviews with a sample of state guidance leaders, as well as seeking input from these individuals concerning solutions. Finally, based on these data, recommendations are proposed to the Department of Labor in all of the relevant areas which are believed to have an impact toward the improvement of relevant linkages. Key findings of the report are now summarized and more elaborate development are in the body of this report.

The Apprenticeship Vocational Education Linkage:

Issues from the Literature

A linkage between vocational-technical education and the apprenticeship system has been a persistent theme in the literature and in legislation aimed at addressing this issue. Beginning with the Smith-Hughes Act of 1917 and continuing through the Carl Perkins Act of 1984, the attempt has been made to identify a harmony of purposes between these two training modalities. However, this "marriage" has been less than successful. While there have been isolated examples of effective relationships, these have tended to be exceptions to the rule. In many ways, these two entities have often been competing approaches rather than being integrated in a systematic way. Of particular note as constituting barriers are:

1. The apprenticeship selection process--including a lack of equity considerations for women and minorities, "inheritance" of apprenticeship opportunities, and gatekeeping by apprenticeship leaders.

2. The perceived inadequacy of vocational-technical training--on the part of apprenticeship leaders. Included in this assertion are such issues as the type of student believed to be attracted to vocational-technical education and the differential scopes of the two training approaches.

3. The lack of awareness of and communication with other training entities--in terms of mutual understanding and communication. apprenticeship leaders know little of vocational-technical education. Educators lack an understanding of apprenticeships.

4. "Turf" issues--such as concerns about the locus of control of the apprenticeship system, creating barriers to "outsiders" in terms of both opportunities and effective relationships.

The existence of these barriers create hardships to any positive movement toward the goals of Apprenticeship 2000 insofar as communities which represent portions of the solution are kept apart from one another. Ironically, in recently released data by the U. S. Department of Labor, no community was more supportive of the expansion goals of Apprenticeship 2000 than educators, yet a Substantial lack of information and access exists to this community.

Survey Results:

In a study of 21 state leaders of vocational guidance representing 18 states in every region of the nation, several important findings were identified:

0 The vast majority of the sample (80%) felt that the skill level of the American workforce impacts the ability of the nation to remain competitive in world markets. An even larger percentage (82%) believe it to be a serious problem.

0 "Improper preparation" of workers was the cause of the problem in response to an open-ended question, local schools and colleges defined as the source of the solution, but with a clear business-industry involvement.

0 Vocational-technical education was most often cited as the most effective type of training option, apprenticeships identified as the second most effective.

0 Both with regard to youth and adults, the respondents identified a significant lack of visibility and access to apprenticeship programs.

0 An overwhelming majority (65%) stated that guidance counselors in their state had little or no knowledge about apprenticeship opportunities.

0 The primary source of information about apprenticeships is provided to the schools through computerized career information systems, which a substantial portion (40%) recognize as generally deficient in terms of quantity, a position validated through an analysis of information provided by the maj or firms involved in career information delivery.

0 Only 2 of 21 state guidance leaders had any relationship with state or local apprenticeship boards or entities.

0 Support for expansion of apprenticeships into new and emerging occupations and for the creation of preapprenticeship programs in vocational-technical schools and colleges was unanimous.

Based on these data, the Department of Labor needs to take into consideration and address gaps in the following areas:

1. Information quantity. and quality

2. Visibility barriers

3. Inadequate relationships across modalities

4. The lack of a clearly identified locus of responsibility for managing change.

These data also support a call for improvements in the way potential apprentices are assessed and taken into the system, the role of career information, in terms of the credibility and quality, and the expansion. of the apprenticeship system. Specific recommendations in these areas are made later in the report, but summarized here.

The Career and Labor Market Information System

The Bureau of Apprenticeship Training (BAT) should consider a national effort to collect, organize, and provide all public and private managers/developers of career information systems and products a complete data file on apprenticeships. This would guarantee that all future users of career information systems would be directed to apprenticeship information without having to specifically seek it and would receive complete and comprehensive information with which to make an informed decision relative to apprenticeships as a career option.

The Role of the School Counselor as Information Broker

If BAT Wants to improve aha increase the degree to which schools have and utilize apprenticeship training information, it must put the school and agency counselor at a high priority. It can do so in the following ways:

0 Provide adequate resources to counselor training institutions

0 Conduct training for school and agency counselors

0 Provide apprenticeship training information to all school and agency counselors nationwide

0 Influence state and local apprenticeship councils to appoint as members state and local vocational guidance personnel

0 Improve responsiveness and information quality from State Occupational Information Coordinating Committees (SOICCs)

Intake and Assessment

The key to effective Student use of educational and training opportunities is accurate self-knowledge. Determining those strengths end weaknesses are important in determining the suit- ability of an individual for apprenticeship training. The counseling community needs to know more about and be better prepared than they are now in providing students or clients with this kind of assistance. Specifically, the following are recommended:

0 The designation of one educator at each secondary and postsecondary institution serving as a liaison to the apprenticeship system and to be responsible for knowledge of the relevant laws and regulations.

0 The designated liaison should seek candidates, provide assessment, and match appropriate candidates with apprenticeship opportunities.

0 Institutions need to ensure that six specific resources are in place to provide students with necessary support services.

1--Skill remediation opportunities

2--Orientation and counseling

3--Skills development

4--Academic credit for apprenticeship completion

5--Necessary special services for minority, handicapped, LEP students, etc.

6--Evaluation of program performance

0 The provision of renewal and update training for vocational-technical education staff on a regular basis

Activities for Improving the Credibility, Quality, and Expansion of Apprenticeship Training. The proposals for these activities can be classified into five different areas :

1. Information exchange
2. Research
3. Curriculum development
4. Personnel development
5. Guidance career information and assessment

I.Information Exchange

a. Establish an annual conference to promote cooperation and linkage between labor and vocational education leaders

b. Provide frequent state level apprenticeship training communication between state guidance leaders, career information delivery system operators, and SOICC staff

c. Establish a national resource center for apprenticeship training under the auspices of BAT.

II. Research

a. Explore the factors contributing to cooperation and linkage between vocational education and labor

b. Commission a study to explore a method by which to grant vocational students advanced standing when they enter apprenticeship programs and to grant apprenticeship trainees college credit for such training

III. Curriculum Development

a. Develop competency-based instructional materials (CBE) for training apprenticeship coordinators

b. Create staff development materials on the implementation of CBE apprenticeship training programs

IV. Personnel development and training

a. Develop procedures for and implementation of a model of personnel exchange programs for vocational-technical educators and labor leaders and staff

b. Establish a training conference of state guidance, career information delivery, and SOICC leaders in apprenticeship information

V. Guidance career information and assessment

a. Commission a comprehensive study of apprenticeship information within existing career information delivery systems and seek recommendations for improvement.

b. Study relationship between intake and assessment methods and instruments and apprenticeship training needs to identify the optimal system for school-apprenticeship system linkages.

Conclusion

It is hoped that many of the recommendations cited prove of value to the U.S. Department of Labor. There are several that can be undertaken with a minimum of cost but that would provide information about or actually improve existing linkages between the vocational-technical education and apprenticeship systems. By themselves, each would prove to have some small contribution. Indeed, there are others we have not mentioned which would provide value to the overall effort. But we also stress to the Department of Labor that it is the overall effort which is important. Whether Apprenticeship 2000 is a major step toward an apprenticeship system that provides access and opportunity to all Americans or is merely a programmatic comet across the horizon never to be seen again, does not depend on any given set of specific recommendations. Rather, it depends upon the commitment of its sponsors to the overall goal. We describe at some length the barriers with respect to a linkage between vocational-technical education and the apprenticeship system. We provide sound recommendation as to how these gaps might be remediated. Even if, however, all of our suggestions are utilized, they will be of little value unless accompanied by equivalent action with respect to all of the many linkages involved in the relationships between apprenticeships and other entities. Indeed, perhaps the central recommendation we can make is that the Bureau of Apprenticeship Training be empowered, funded, and expanded to implement these recommendations and provide the unity, visibility, and leadership this issue so desperately needs. If it is not BAT, some other agency will have to undertake it or Apprenticeship 2000 will escape from our grasp. The challenges we face in the future are formidable. An open, accessible, and fair apprenticeship system clearly articulated with respect to other employment training entities would be a positive step. We offer this analysis and the following recommendations toward that end.

E. ISSUES RELATING TO EEO APPRENTICESHIP REGULATIONS

* The Enhancement Group, Inc.

ERIC

EXECUTIVE SUMMARY

Should the Bureau of Apprenticeship and Training monitor and enforce EEO compliance of sponsors? Is the present system defective? If so, how should equal opportunity be maintained and enforcement be performed? What agencies should do it?

These questions are the focus of this study. To answer them The Enhancement Group first compared present practices with the model which is delineated in 29 CFR 30. As a result of this comparison differences between expected outcomes and results were analyzed. Problems and weaknesses in current practices were identified, including overlap and conflicts between EEOC, OFCCP and BAT EEO administration.

Equal employment in apprenticeship blossomed from 1960 to 1979. Regulations (20 CFR 30) covering equal employment in apprenticeship resulted from Congressional hearing in 1960. Innovative approaches were soon adopted including outreach programs and information centers. In 1978 29 CFR 30 was amended to include participation goals for women in apprenticeship. Significant achievements were made in minority participation. In 1967 less than 6% of apprentices were minorities. By 1979 17.4% were minorities.

Affirmative action, as envisioned under 29 CFR 30, is an instrument to achieve participation goals through procedures and programs for recruitment, training, monitoring and enforcement.

"It is action which will equalize opportunity in apprenticeship" (20 CFR 30).

The basic issue of this study however is not what results have been achieved for minorities and women in apprenticeship programs. Rather, the basic issue is how EEO monitoring and enforcement for apprenticeship can be most effectively accomplished. This is an issue which requires examining processes not results.

The basic issue was divided into five sub-issues for the purpose of data collection and analysis. These five issues are:

o Is monitoring and enforcement more effectively performed by BAT or by other agencies?

o Does BAT's EEO responsibilities interfere with its other missions?

o If another agency were responsible for apprenticeship EEO how would BAT be affected?

o What are the non-quantifiable implications, particularly public reaction, to changing EEO responsibilities?

o What are the EEO responsibilities of BAT, OFCCP and EEOC and what duplication exists?

In conducting this study the Enhancement Group researched documents and conducted interviews with BAT staff, sponsors, advocacy groups, national associations, unions, apprentices and state officials. Documents were reviewed which are related to EEO laws, regulations and practices as well as those related to agency roles, current practices and EEO case histories. A written survey was conducted with BAT, state and regional directors. BAT apprenticeship information from the AMS system and other statistical information were analyzed.

The key finding of the Enhancement Group's analysis is the conflict between BAT's role as a promoter of voluntary participation in apprenticeship programs and its role as an enforcer of EEO compliance. This finding provides only an overview of the situation since this is not a comprehensive, study. However, it is very clear that the current EEO monitoring and enforcement process as defined by 29 CFR 30 does not work. It is clear that BAT is not the appropriate agency to perform EEO enforcement. It is also clear that both sponsors and BAT staff encounter difficulties because of overlapping EEO monitoring and enforcement operations between BAT and OFCCP.

Four overall recommendations are offered. Each one includes various strategies and options. They are as follows:

o <u>Revamp and rejuvenate BAT's mission and role</u>. Emphasize leadership and promotion of apprenticeship programs including advocating equal opportunity, promoting outreach, and networking with other programs.

o <u>Expand BAT's monitoring and management information system</u>. Include developing a nationwide information and tracking system, networking with OFCCP, states and sponsors and developing a national skills trades

requirements projection.

o Transfer BAT's EEO enforcement responsibilities to OFCCP, including conducting compliance reviews, tracking sponsor performance and applying sanctions.

o Increase BAT collaboration with states, other organizations and outreach programs. Include programs to increase state support of apprenticeship and cooperation with other organizations and local groups.

F. STATE ROLE AND RESPONSIBILITIES IN APPRENTICESHIP

* Meridian Corporation

G. RATIOS

* James P. Mitchell

ERIC

EXECUTIVE SUMMARY

The present report provides the results of a management study of the federal-state partnership in apprenticeship administration. The report addresses apprenticeship administration in those states in which the Federal Bureau of Apprenticeship and Training (BAT) directly oversees apprenticeship, as well as in those states in which a State Apprenticeship Council (SAC) or other state agency directly discharges this function. Although the report addresses administrative activities in both BAT and SAC states, the principal focus of the effort has been upon the interactions between federal agency staff and state agency staff within SAC states. The report includes quantitative and qualitative findings and identifies some of the key policy options available to BAT with respect to the federal-state partnership.

APPROACH

The quantitative data presented were derived from several sources. First, data on overall activity levels, on BAT staffing levels, and on BAT expenditure levels were provided by the BAT National Office. Data on state agency staffing and expenditure levels, and on federal-state workload allocation within SAC states were obtained from three sources. First, records maintained by BAT on these topics were reviewed. Second, BAT state directors were surveyed by mail and were requested to correct, update, or confirm the information obtained from the record review. Finally, SAC directors were contacted by telephone in order to clarify the survey data in light of idiosyncratic state administrative structures.

Qualitative findings were derived principally from review and analysis of the results presented in previously published documents addressing apprenticeship administration. Based upon the availability of relevant prior research and in light of the compressed time frame for this effort, primary data collection activities were restricted to quantitative data and secondary sources were the principal source of qualitative data.

QUANTITATIVE RESULTS

The geographic distribution of BAT and SAC states, and the level of apprenticeship activity in BAT and SAC states were examined. The key findings are:

- *The proportion of SAC states is high in the Northeast, Middle Atlantic and West Coast states, moderate in the Midwest states, and low in the South, Southwest, Mountains, and Plains States;*

- *Apprenticeship activity levels in SAC states are nearly twice as high as in BAT states with an average of 500 programs and 3,300 apprentices per BAT state, and an average of 1,100 programs and 6,200 apprentices per SAC state.*

EXPENDITURE LEVELS

Financial data for the 1986-1987 fiscal period were analyzed in terms of overall expenditures, expenditures in BAT and SAC states, and federal and state funding sources. Complete financial data were available for 48 of the 50 states, including the 23 BAT states and 25 of the 27 SAC states. The key findings are:

- *A total of $28 million was expended on apprenticeship administration by state and federal agencies;*

- *Of the total expenditures for apprenticeship administration, $5 million was expended by the federal agency for national and regional operations and $23 million was expended by state and federal agencies at the state and substate levels;*

- *Of the total state and substate level expenditures for apprenticeship administration, $15.25 million was expended by state agencies and $7.75 million was expended by the federal agency; and*

- *Of the total state and substate level expenditures for apprenticeship administration, $19 million was expended by state and federal agencies in the 27 SAC states and $4 million was expended by the federal agency in the 23 BAT states.*

STAFFING LEVELS

The number of technical (nonclerical) staff involved in apprenticeship administration at the state and substate levels as of mid-1988 was analyzed in terms of overall level, level in BAT and SAC states, and federal and state agency affiliations.

The key findings are:

- *A total of 380 technical staff members affiliated with state and federal apprenticeship agencies were assigned to activities at the state and substate levels;*

- *Of this total complement of technical field staff, 230 were affiliated with state agencies and 150 were affiliated with the federal agency;*

- *Of the total complement of technical field staff, 300 were affiliated with state or federal agencies in the 27 SAC states and 80 were affiliated with the federal agency in the 23 BAT states.*

EXPENDITURE RATIOS

Expenditures at the state and substate level for the 1986-1987 fiscal period were analyzed in terms of expenditures per program and per apprentice. Expenditure ratios of this type were calculated for the apprenticeship system as a whole, for BAT and SAC states, and for state and federal agencies. As with the expenditure data, these calculations include all 23 BAT states and 25 of the 27 SAC states. The key findings are:

- *Expenditures by the federal agency for apprenticeship administration in BAT states averaged $350 per program and $55 per apprentice;*

- *Expenditures by state agencies for apprenticeship administration in SAC states averaged $525 per program and $100 per apprentice;*

- *Expenditures by the federal agency for apprenticeship administration in SAC states averaged $125 per program and $25 per apprentice; and*

- *Combined expenditures by state and federal agencies for apprenticeship administration in SAC states averaged $650 per program and $125 per apprentice.*

- *Expenditures by state and federal agencies for apprenticeship administration at the state and substate level in 48 states averaged $560 per program and $100 per apprentice;*

STAFFING RATIOS

Technical field staff levels as of mid-1988 were analyzed in terms of programs and apprentices per technical staff member. Staffing ratios of this type were calculated for the apprenticeship system as a whole and for BAT and SAC states. The principal findings are:

- *In all 50 states, there was an average of 110 programs and 640 apprentices per technical staff member;*

- *In the 23 BAT states, there was an average of 150 programs and 950 apprentices per technical staff member; and*

- *In the 27 SAC states, there was an average of 100 programs and 560 apprentices per technical staff member.*

WORKLOAD ALLOCATION LEVEL AND RATIOS

Within the 27 SAC states, estimates of the number of programs and apprentices directly allocated to federal staff and state staff were obtained. Overall, about one-third of the programs and apprentices in SAC states were found to be allocated to federal staff, with the remainder allocated to state staff. This information on workload allocation made it possible to calculate expenditures by state and federal agencies per directly allocated program and apprentice for the 25 SAC states with complete financial data. Similarly, the number of directly allocated programs and apprentices per technical staff member also were computed for these 25 SAC states. The principal findings are:

- *Expenditures by the federal agency in SAC states for programs and apprentices directly allocated to federal staff averaged $415 per program and $70 per apprentice;*

- *Expenditures by the state agencies in SAC states for programs and apprentices directly allocated to state staff averaged $745 per program and $150 per apprentice;*

- *The workload directly allocated to federal staff in SAC states averaged 125 programs and 790 apprentices per technical staff member; and*

- *The workload directly allocated to state staff in SAC states averaged 90 programs and 480 apprentices per technical staff member.*

TYPOLOGY AND FUNCTIONS

In addition to the clear difference between BAT states and SAC states with respect to type of administrative arrangement, quantitative data collected for this project also support a typology

of apprenticeship administration in SAC states which includes three types of administrative arrangements. The single type of administrative arrangement in BAT states and the three types of administrative arrangements in SAC states result in a total of four types of administrative arrangements:

- *Direct administration by the federal agency (BAT states);*
- *Direct administration by a state agency with minimal involvement of federal staff (Type A SAC State);*
- *Direct administration by a state agency with substantive sharing of responsibilities between state and federal staff (Type B SAC State); and*
- *Direct administration by a state agency with minimal involvement of state staff (Type C SAC State).*

Analysis of the administrative system resulted in the identification of seven direct functions which are performed by federal staff and by state staff. These seven direct functions are:

- *Promotion of apprenticeship to potential sponsors and apprentices;*
- *Development and installation of new apprenticeship programs;*
- *Registration of program standards and individual apprenticeship agreements, and issuance of related certificates;*
- *Provision of technical assistance to apprenticeship sponsors;*
- *Monitoring of sponsor compliance with program standards, with federal labor standards (29 CFR 29), and with any applicable state training requirements;*
- *Monitoring of sponsor compliance with federal equal employment opportunity regulations (29 CFR 30) and with any applicable state equal employment opportunity requirements; and*
- *Conduct of other administrative activities.*

In addition to identification of the seven direct functions, three indirect functions also were identified. Since these three functions involve oversight of /the performance of state staff by federal staff, these functions only are performed by federal staff, and only in SAC states. These three indirect functions are:

- *Oversight of the organizational structures and administrative processes required of a recognized state agency;*
- *Oversight of SAC staff monitoring of sponsor compliance with DOL labor standards; and*
- *Oversight of SAC staff monitoring of sponsor compliance with DOL equal employment opportunity regulations.*

An analysis of the interactions between the four types of administrative arrangements and the ten administrative functions makes it possible to clarify certain patterns of similarity and difference:

- *The substantive sharing of administrative responsibilities by federal staff and state staff in Type B SAC states stands midway between the polar opposite patterns exhibited by the Type A SAC states and Type C SAC states; and*
- *Among the SAC states, the administrative arrangement which is most common and which involves the greatest degree of complexity is the arrangement which prevails in Type B SAC states.*

KEY CHARACTERISTICS

The report presents an interpretative analysis of some key characteristics of the federal-state partnership in apprenticeship administration in SAC states. This analysis proceeds from the assumption that the partnership reflects a basic equilibrium between the two partners and that this equilibrium, in turn, arises from a balanced set of contributions made by each partner and benefits derived by each partner. Some of the key contributions and benefits identified are:

- *State agencies contribute by allocating substantive fiscal resources and by conforming with federal regulations;*
- *The federal agency contributes light oversight of state agency operations and assistance by federal staff in discharging direct administrative functions;*
- *State agencies benefit by playing a substantive role in a nationally administered program and by receiving the opportunity to adapt implementation of this program to the key economic and political factors operative within their states;*

- *The federal agency benefits by achieving a measure of uniformity in the implementation of the national apprenticeship program and by maintaining an in-person presence in SAC states;*

- *The in-person presence of federal staff in SAC states appears to be appropriate in light of the lack of any federal "carrot" such as financial aid and the availability only of the ultimate federal "stick" of derecognition of state agencies;*

- *In light of the limitations upon its negotiating position with state agencies, it appears that the in-person presence of federal staff in SAC states tends to maintain the adversarial aspects of the federal-state partnership within the realm of negotiation and out of the realm of confrontation; and*

- *In light of the limitations upon the negotiating position of the federal agency, it also appears that the in-person presence of federal staff in SAC states keeps the federal agency strategically positioned to assume direct responsibility for apprenticeship administration in these states in the event that a state agency voluntarily withdraws from the federal-state partnership, or in the event that the federal agency threatens involuntary derecognition.*

In summary, the following key characteristics of the federal-state partnership may be identified:

- *The federal-state partnership in apprenticeship involves a delicate balance of power between the state and federal agencies;*

- *This balance of power explains, to a considerable extent, why the federal-state partnership in apprenticeship may be described as collegial rather than hierarchical in character; and*

- *The complexity and delicacy of the federal-state partnership make it highly desirable that any proposed changes be based upon a maximum understanding of the factors at work within the system and the likely impact upon the system of the changes proposed.*

POLICY OPTIONS

Several general policy issues were examined in light of the data collected. Basic policy options were identified and conclusions were reached:

- *Several lines of evidence indicate that attempts to expand the number of state agencies within the present administrative framework are not likely to meet with success;*

- *The cost of federal financial aid to states would be determined by the level of reimbursement selected and by the maintenance or withdrawal of the federal agency's in-person presence in SAC states;*

- *A high cost financial aid option would require a 67 percent increase in the federal agency's total budget if the in-person federal presence were maintained and a 37 percent increase if the in-person presence were withdrawn;*

- *A low-cost financial aid option would require a 35 percent increase in the federal agency's total budget if the in-person federal presence were maintained and a 6 percent increase if the in-person presence were withdrawn;*

- *The federal agency could maintain its in-person presence in SAC states while reducing the number of federal staff in those states by shifting the emphasis of federal staff responsibilities from direct administrative functions to indirect administrative functions;*

- *The federal agency could withdraw all federal staff from those states in which the state agencies have adequate resources to administer apprenticeship but this would involve sacrificing the advantages of the in-person federal presence in SAC states;*

- *If the Apprenticeship 2000 Initiative results in an expansionary agenda, it will be appropriate to consider ways in which the federal-state partnership can be simplified in order to minimize the possibility of confusing new sponsors.*

In addition to examining general policy issues, specific policy issues also were examined. Basic policy options were identified and conclusions were reached:

- *Current differences of interpretation between the federal agency and state agencies with respect to the apprenticeability of certain occupations could be resolved either through a voluntary agreement by all interested groups upon an "appeal" or "arbitration" procedure or through mandatory*

imposition of consistency by the federal agency;

- *In light of some inconsistency with respect to the criteria applied to organizations eligible to serve as state apprenticeship agencies, it may be desirable to revise the applicable regulations and broaden the criteria so that organizations such as state education departments could serve as state apprenticeship agencies; and*

- *State apprenticeship councils as specific organizational entities reflect varied relationships with other state apprenticeship agencies, appear to exert a restrictive influence upon apprenticeship in some instances, and may warrant further examination.*

ERIC

EXECUTIVE SUMMARY

Summary of Findings

1. Numeric ratios are not a barrier, nor do they serve to deny, the employment of apprentices.

2. Union or non-union program sponsorship has little bearing upon full utilization of apprentice slots allowable under the program's ratio provision.

3. Numeric ratios are an issue almost entirely within the construction industry. .

4. Training methodology and facilities for training have a positive effect upon the extent of utilization of apprentices.

5. There is a lack of consistency and common understanding among registration office in dealing with ratio issues.

6. Numeric ratios are inappropriate in some programs and may be inappropriate in all programs.

These finding are elaborated upon In the full text and identified by finding number. Suggested actions are in the concluding section.

Early U.S. Experience.1

Artisan emigrants from Europe brought with them their customs of apprenticeship including that of indenture, a system best suited to domestic, small scale manufacturing typical of Colonial America. Indentures were largely matters of contract between the master craftsman (later employer-owner) and the apprentice or parent, or with a magistrate in the case of orphans and neglected children. The system was abandoned with expansion of markets to become regional and then national in scope along with improved Transportation and communications, the increased concentration of Numeric Ratios Are Inappropriate In Some Instances And May Be Inappropriate In All Cases.

Finding 6

The fact that numeric ratios have little relevance to actual employment has been pointed out. The capacity to train, the method and facilities for training, together with the sponsors perception of local economic conditions and prospects are the dominant factors in decisions as to the number of apprentices to engage.

The obvious instances where expressed anti-controlling ratios are inappropriate have been mentioned, i.e. uniform military personal, correctional institutions, and where federal OPM rules substitute. Less noticeable are those situations where the flow of work and complexity, or lack of complexity, in the tasks to be performed make desirable an unfixed, adjustable proportion of apprentices to journeyman complement from time-to-time in nearly every industry and occupation. The case of the small employer clearly fits a no numeric rule. Moreover controls through institutionalized forms of credentialling, particularly in health fields, serve as a ratio mechanism. In these instances and in virtually all cases, the absence of ratios would not appear to have any impact upon apprentice employment, nor do numeric ratios in the majority of cases, serve as a standard protecting the welfaree of apprentices.

In the U.S. system of apprenticeship a great deal of reliance must be placed upon the integrity of the sponsor. The system provides for little direct registration agency supervision. Union oversight and apprentice appeal procedures do exist, Absents CBRA compliance, this type of oversight would continue with about the same effectiveness as now pertains. The motivation of the employer, conditioned by the special interests of a bargaining agent where present, to use his available worker resources to a profitable advantage is uppermost in his (the sponsor) decision to use or not use apprentices. It is unlikely that absent numeric ratios, apprenticeship would return to the overcrowded days of the "berkshires" and "two-thirders".

Conclusion Suggested Needs and Actions

Any public policy issuance on ratios having significant departure from present policy is likely to generate, as one SAC member put it ". .. a great deal more emotion than logic". The option of doing nothing should not be dismissed out-of-hand; none-the-less the conclusion from this study is that a more definitive, rational policy with a high degree of uniformity in interpretation and application among $11 registration agencies, is needed for any major redirection of the apprenticeship concept.

The planned Apprenticeship 2000, Focus Paper published for public comment approach should reach all interest groups. Clearly with respect to ratios, key actors among the interest groups are the state program registration agencies.

This study suggests:

* *planned, regular meetings with the National Association of State and Territorial Apprenticeship Directors (NASTAD).*

* *establishment of a working liaison with the National Association of Government Labor Officials (NAGLO).*

Assuming that any changed public policy in apprenticeship will mean a revision of 29CFR29, the following suggestions specific to the matter of ratios are made for Consideration in such revision:

* *deletion of numeric ratio requirements and use of substitute language which will, among other things, establish a base line ratio.*

* *deletion of language excluding construction from reciprocity in program registration.*

* *inclusion of language for administrative exception.*

* *deletion of language relating to automatic acceptance of collective bargaining agreement provisions and deleting language relating to collective bargaining prohibitions.*

* *clear and precise language on conformity by State registration agencies acting for the U.S. Secretary of Labor particularly in matters of reporting, certification, ratio, reciprocity, and EEO.*

In addition, this study suggests there are needs for:

* *a uniform DBRA certification procedure;*

* *an interstate DBRA information exchange network;*

* *a requirement and uniform procedures for identification of each employer participant in group type programs;*

* *a recruitment, definition, and uniform procedure to enable a reasonably accurate determination of the average journeyworker employment by each participating employer in group type construction programs.*

1/ James M. Wotley, Apprenticeship in American Trade Unions,

Johns Hopkins University press, 1911. This summary is abstracted from Motley's enough work kindly loaned by Kenneth R. Edwards, Director Technical Services, International Brotherhood of Electrical Workers.

H. Teaching and Learning On the Job

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EXECUTIVE SUMMARY

Workplaces are learning environments. Employers make enormous investments in the education and training of their workers. Workers with college degrees receive most of the formal training; although it is difficult to estimate its magnitude, informal on-the-job training appears to be an even larger enterprise than formal training and to be the main form of instruction for non-college workers. Yet the conditions that are most conducive to teaching and learning on the job remain all but unstudied. This paper uses a review of selected literature and a series of case studies drawn from observations in U.S. and West German firms to generate a framework for analyzing the quality of workplace learning environments, with a special emphasis on young workers who have no more than high school education.

The typical introduction of such workers is brief and informal, relying primarily upon co-workers to teach required skills and procedures. In addition to technical knowledge and skills -- how to do the job -- new workers must earn the norms and social relations that operate in the workplace -- how to behave on the job. Research on adolescent work experience suggests that it can improve their performance on subsequent jobs, implying that they have learned, but also raises questions about the value of some kinds of work.

John Dewey's principle of continuity yields the criterion that a work experience is educational to the extent that it enables a person to continue learning. Thus, understanding is preferable to rote learning. His principle of interaction warns that no two people have the identical experience at the same time because each brings a different set of previous experience. Hence, learning cannot be assured by attending only to the external setting; it depends as well on what the learner brings to that setting. Finally, Dewey pointed out that what makes an experience educational is its integration into the learner's thinking, a process he labelled "reflection."

Albert Bandura's social cognitive theory gives the learner an active role, not only as observer but also as interpreter. The teacher "models" by behavior and in words. Learning may be accomplished by direct action, by observing a model, by attending to the teacher's judgments, and by assessing the results of action. Learning may fail because of inadequate attention to the model or lack of retention, and learning may not be demonstrated because the learner lacks incentives to use what has been learned.

New research on "everyday cognition" reveals that ordinary people are capable of solving complex problems in the real world that are beyond their reach when abstracted and taught formally in classrooms. Orientation to practical results, use of tools, collaboration, and the provision of "scaffolding," appear to foster practical intelligence. Lauren Resnick has argued that this research can inform efforts to teach higher-order thinking.

Four cases of young people at work are examined: an American vocational high school student in his cooperative education placement on a dairy farm; four West German apprentices, auto machanics in large and small firms, and middle-managers (Industriekaufleute) in large and small firms; and finally to an American high school boy working part-time in a computer engineering laboratory. The following outline summarizes the framework that both guided and emerged from these cases.

A. The Mentor's Role

1) Instructing

2) Demonstrating

3) Coaching

4) Explaining

5) Challenging

6) Initiating

7) Affirming

B. The Learner's Role

1) Learner responses to the seven functions of the mentor's role

2) Balance between work and learning

C. *Content*

1)Technical

2)Social

D. *Structure*

1)Progressive sequencing

2)Related instruction

3)Connections

The four elements (mentor's role, learner's role, content, structure) proved useful in assessing the educational quality of each of these settings. The mentor's functions helped to specify what is entailed in teaching on the job. It was clear that the ratio of mentors to apprentices (teachers to learners) is not the key issue. Some mentors work with groups of apprentices. More than one person may mention the same apprentice. What is crucial is that someone perform these functions.

The ideal learner role balances work responsibilities with opportunities for learning; neither can be allowed to overshadow the other. Explicitly attending to the social content of learning on the job, as contrasted to the more obvious technical content, appears especially important when new workers come from different backgrounds than current workers, notably women and people of different races, ethnic, and linguistic backgrounds. Explicit attention is also needed to introduce such high-level technical skills as problem solving rather than being satisfied with mastery of routine procedures.

Regarding the structure of teaching and learning, the greatest challenge is to devise a logical and pedagogically sound sequence of increasingly challenging tasks and then to integrate hands-on experience at those tasks with classroom instruction. Even the West German apprenticeship system, which promotes this sort of integration to a higher degree, has not fully succeeded.

Next steps for research on teaching and learning on the job should include: more extended observations to tract individuals' acquisition of new knowledge and skills; greater specificity and uniformity of observations across workplaces; formal assessment of workers' learning; and exploration of cognitive processes.

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