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ABSTRACT

A basic position of industry is that it picks up where schools leave off. Training policy within industry is diverse in theory and practice. Companies vary in their approach to training, ranging from highly informal to highly formal. The many new trends in industrial training may be analyzed in four dimensions: in-house education programs, educational and training facilities, degree-granting institutions, and satellite universities. Most employers responding to a National Center for Research in Vocational Education survey on trends in industrial training state that technology dictates the initial outline of training needs. Training was found to occur both in-house and at the customer's site. Popular training trends included teletraining, computer-based training, creative uses of videodiscs, touch-screen data entry techniques, increased use of adult education techniques, interpersonal and similar skills training, and small-group training. Vocational training programs for skilled workers must keep pace with the constantly changing needs of industry, help students develop preemployment qualifications, avoid adopting or clinging to provincial attitudes and practices that are inconsistent with the realities affecting firms hiring vocational graduates, and prepare workers to assume more responsibility for updating themselves as new technological developments and practices affect their occupations. (MN)

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NEW DIRECTIONS AND TRENDS IN INDUSTRIAL TRAINING AND THEIR IMPLICATIONS FOR VOCATIONAL EDUCATION PROGRAMS

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INTRODUCTION

Meeting increased competition in world markets and the corresponding need to improve productivity have become major challenges to American industry. The rapid emergence of new high-technology equipment and processes has significantly changed the functions and skill requirements of millions of jobs. The productivity of individuals who fill those jobs is increasingly becoming the key to the success or failure of their organization. The task of preparing, upgrading, and retraining millions of current and future workers is affecting significant changes in the policies, practices, and structure of industry-based training.

Currently, changes are taking place among the vanguard of American industries that produce and use new generations of technology. The role of the worker is being redefined and training practices are being adjusted to meet new responsibilities and expectations.

This issue of *Facts & Findings* presents a recent National Center study that identified industries at the forefront of technological change; reviewed the types of changes in policy, planning, and training program operation that accompany changes in technology; and related the implications of industry-based training practices to vocational education programs.

NEW DIRECTIONS AND TRENDS IN INDUSTRIAL TRAINING

The 2 most common themes in American professional training journals during the last 3 years are *change* and *growth*. This comes as no surprise when considering the current condition of our economy. Increased productivity and long-term competitiveness in world markets have become a central challenge to American industry. Likewise, there is a growing awareness in business and industry that the key resource to meet this challenge is the American worker.

But what is the state of the American work force? The National Association of Manufacturers (NAM) reports that the United States dropped from second to seventh place among industrial nations in "measured skills endowment" between 1963 and 1975. According to Zemke (1982):

> There is currently a shortage of some 60,000 skilled machinists and toolmakers, says NAM's Jane M. Work, and by 1985 the shortfall will be 250,000. By 1990, estimates the Washington, D.C.-based business group, industry will be in the red 11,000 draftspeople, 23,000 engineering technicians and 58,000 machine repair specialists. (pp. 60-61)

American industry is not just faced with a shortage of skilled workers in many occupations, but it is also faced with a literacy problem among its current employees. The literacy problem is of two forms: basic and techical. In a survey conducted of Fortune 500 corporations (Mikulecky and Cousin 1982), 67 percent of the sample reported offering "some literacy training for one or more levels of employees" (p. 29). Most of these programs focus on direct improvement of job-related literacy skills. As for basic literacy, the U.S. Department of Education estimated in the mid-1970s that 1 in 7 American adults (i.e., 25 million) is functionally illiterate. The limited success rate of the 2.3 million students who enroll in literacy programs each year does not offset the estimated 2.3 million people added each year to this group (1 million teenagers and 1.3 million non-English-speaking arrivals) ("How Business is Joining" 1984).

Paradoxically, Baird and Meshoulam (1984) report "higher educational levels and, consequently, higher expectations of young workers, in combination with decreasing opportunities for college graduates" (p. 76). These researchers state that there will be fewer entry-level jobs available for the growing numbers of young college graduates. "In fact," they add, "it is expected that one-fourth of the entire U.S. work force will soon be overqualified for their jobs" (ibid).

Who can rectify the problems that American workers pose? Increasingly, business and industry are turning to their professional trainers. Donald N. Frey (1984), chairman of the Bell & Howell Company, believes that "assembling and nurturing people with talent and skills is the prerequisite to growth for any business and the most challenging task facing any management" (p. 637-638). James Gutowski ("The State of Training" 1983), assistant director of the Governor's Office of Employee Relations for the State of New York, thinks that "top management, regardless of the business you're talking about, is coming to recognize the increased value and importance and cost-effectiveness of putting dollars into human resources" (p. 78).

As significant as management attitudes are, Carnevale and Goldstein (1983) project a growing emphasis on employee training for other reasons. The external forces driving growth in private training include demography, economic policy, structural changes in the American economic base, work force social trends, and political expediency. The labor force and employment trends focus on the increase in the 22- to 44-year-old cohort (the very age group that receives the most training) economic growth in training-oriented industries rather than low-training industries.

A relatively young profession, training has frequently suffered from a lack of credibility and recognition for its contribution to business and industry. This situation partially results from training's frequently having an overhead function in companies. Leslie Agnello, training manager for Hewlett-Packard, observes that trainers in such companies "aren't encouraged to show what their contribution is, and the company isn't sure what it's getting for its money" (Lee 1983, p. 27).

There are other reasons for training's traditionally low profile and low prestige. Typically, the considerable turnover and practice of rotation through the training department in a company has further limited its potential. Furthermore, promotion-minded trainers have avoided getting close to production. "If trainers have to wear safety shoes or get grease on their hands to make a living, then they can't be too bright, or at least not very ambitious" (Zemke 1982, p. 60).

Such has been the mentality of American management in the past toward the training profession. Eugene C. Fetteroll, Jr., director of human resources for Associated Industries of Massachusetts, links training's limitations to its traditional position under personnel in organizations ("State of Training" 1983, p. 89). But along came "a near-crisis dearth of technically oriented people in the American labor pool" (Zemke 1982, p. 60). The demands of new high technologies and the productivity slide dilemma have been accompanied by a growing awareness that "to build a competitive edge, you must do more than factor receivables in new ways. You must rekindle the quest for quality, innovation, effectiveness and efficiency in all phases of business from production to delivery" (ibid).

Now human resource management is emerging as a crucial function in the business organization. As Baird and Meshoulam (1984) put it:

> It is becoming clear that the human resource manager must be a member of the top management team. No longer responsible solely for hiring and firing, he or she must now be prepared to make substantial contributions to the organization's business success. (p. 76)

What are these substantial contributions that training is making to companies? Its retraining function, for one thing, is "a matter of survival," says Del Lippert, vice-president for educational services at Digital Equipment Corporation. According to *Time*, "some high-tech companies may soon budget 15% to 20% of a worker's paid time for training and education" ("Schooling for

Survival" 1985, pp. 74-75). That doesn't seem unreasonable either, when one recognizes that technological change can make an engineer's training obsolete within 5 years (ibid., p. 74).

In some companies, the human resources and development department is also beginning to lose its reputation as an overhead expense. At Sentry Insurance, for example, the training and development component at corporate headquarters has formed a profit center called Catalyst Professionals, Inc., to market in-house training products and programs to other companies. This kind of venture has become increasingly popular among companies that recognize they are producing quality training program[illegible]84).

These facts may help to explain the budget that many companies are beginning to give to training. In its 1984 survey, *Training* (Zenke 1984) found that budgets are up 37 percent over 1983 and that 1985 will be "another year of overall growth" (p. 16). Author John Naisbitt (1982) observes that "the coming changes will force us to seek retraining again and again. Business will have to play the key role, similar to the way IBM now spends approximately $500 million annually on employee training and education" (p. 37). *Time* recently reported that the figure is now $700 million.

The Carnegie Foundation published a report called *Corporate Classrooms: The Learning Business* (Eurich 1985), which describes the growing commitment to education for the workplace. The study notes that "America's business has become its own educational provider." Nell Eurich, the author and a Carnegie trustee, reports that U.S. companies "are training and educating nearly 8 million people, close to the total enrollment in America's four year colleges and universities" (p. 8). Ernest Boyer, Carnegie Foundation president, noted in his foreword to Eurich's book that the corporate classroom has become the third leg of the education system—and one of the strongest forces for continuing adult education. Corporations now spend upwards of "40 billion a year—excluding wages—(colleges and universities spend $60 billion) to educate employees" (ibid., p. 6).

New Training Policies within Industry

A basic position of industry is that it picks up where schools leave off. For the primary job sector, which offers good pay and stable employment, almost all hires are entry-level and advanced jobs are filled from within. Workers therefore seek training to upgrade skills so they can move up the career ladder. Instruction is usually on the job, varying from informal to highly structured. Adjustments to change are made in two ways: machinery and processes are designed to fit worker needs and workers are trained to deal with new machinery. Although the primary role of training is to provide employers with skilled workers, the second role of training is to provide workers with access to better jobs, which increases employer motivation to offer training.

A third feature of training policy within industry is diversity in theory and practice. Examples of this diversity are the length, form, and difficulty of the training; how much schools are looked to as a source of trained e[illegible] and attitudes of employers and u[illegible]ard training. High-tech firms are associated with longer, more complex training. At certain levels, the training is so comparable to that offered by higher education that accreditation for academic credit by the American Council of Education has been arranged. Some high-tech companies such as Bell Telephone Company expect to provide initial, formal job training rather than hire workers trained elsewhere. In metalworking industries, however, many companies prefer recruiting workers already trained.

These varying attitudes of employers and unions toward training are evidenced even within a single industry. Consider these findings in a study entitled *Occupational Training in Selected Metal Working Industries* (Barton 1982):

- In the smallest firms (under 20 employees), under 10 percent provided training, compared to over half in th[illegible] largest firms (over 1,000 employees).
- Among the large firms, 41.5 percent in electrical machinery provided training, compared to 73 percent in transportation equipment.
- Among the 14 occupations studied, only 1.3 percent of workers in electroplater occupations were enrolled in training, compared to a high of 23.5 percent in welding and frame cutting. (p. 100)

Companies vary in their approach to training, ranging from highly informal to highly formal. On-the-job training is used to convey most job skills. Increasingly, however, workers may be getting job skills outside the company through tuition-aid programs.

There is some indication that more formal methods of training are on the increase, with large employers offering the most training. In the Lusterman study of firms with 500 or more employees, training through company courses during working hours (the most prevalent mode) emphasizes managerial and other white-collar skills disproportionately. A good deal less than half of all firms provide formal training, but more than 8 out of 10 larger firms do so. The number of workers involved in training in any 1 year is 1 in 5 in large firms and less in all industry. Structured, on-the-job training seems to predominate over classroom training.

According to Barton (1982), more data about training are needed. For lack of it, one is hard put to determine whether current levels of training are sufficient to meet industry's needs. The lack of data exists at various levels: national, corporate, and union. The policy seems to be that industry trains about as much as it thinks it needs to and can afford. Barton further says:

> Very likely "the current lack of data reflects more a lack of sufficient attention to this area of business operation than any belief that knowing these facts would have no value in making training investment decisions. Nevertheless, it is hard to conclude that training is considered a critical element in the corporate enterprise as long as it is not subjected to any regular accounting and measurement. (ibid.)

The question of how much training is needed is irrefutably linked with the declining productivity concerns of employers, unions, workers, government, and consumers alike. Although some research shows education to be a significant factor in economic growth from 1919 to 1969, as yet we don't know how responsive productivity would be to an increase in industrial training. For that reason, Barton advocates a knowledge-building approach rather than exhorting industry to train. He says:

> No one can say exactly what the state of training is within industry in 1980, how that compares with 1970 or 1930, and what, if anything, should be done differently for generalizations, and each firm's approach to training is a private concern.
>
> But what is left after this distillation of bits and pieces of knowledge is the uncomfortable feeling that, in general, employers operate more with "folk knowledge" about the role of training in industrial production and productivity than with the hard evidence we assume the business manager demands. (ibid.)

Barton's points are well taken, but more recent perspectives suggest that employers may desire more systematic, data-based plans and decisions regarding training.

New Trends in Industry Training

In *Corporate Classrooms: The Learning Business*, Eurich (1985) outlines industry training trends via a description of four dimensions of the corporate learning enterprise. The four dimensions with definitions are as follows:

- **In-house Educational Programs.** Industry today offers training programs, seminars, and institutes that cover a variety of topics. Increasingly, employers must provide basic skills courses to help employees communicate and compute. Training is becoming more frequent and systematic, featuring more courses typical of general education. In industry classes, use of videocassettes, microcomputers, and other technological aids is growing.

- **Educational and Training Facilities.** Several American corporations are building their own training facilities that resemble a traditional college campus. These facilities have classrooms, dormitories, and recreational areas. Informality prevails, but behavior is more purposeful and activity more intense than on a college campus. The policy implicit here is that employee education means something far more than narrow training.

- **Degree-granting Institutons.** A growing number of corporate colleges grant their own degrees. At present there are 18 of these institutions. Although varied in type, these schools all give academic degrees and some are listed in the official Higher Education Directory. The same state and regional agencies that accredit traditional higher education recognize these industry-supported schools.

- **Satellite University.** National Technological University (NTU) is the newest of corporate colleges. NTU has no traditional campus but operates instead from a central office in Fort Collins, Colorado. Course work is registered centrally; there are no residency requirements. NTU operates by sending instruction by satellite to corporate classrooms around

the country. Courses can be recorded and teleconferencing can be scheduled. Adult workers can earn a master's degree. NTU represents a merger of corporate and university concerns. Corporations have contributed time and resources; distinguished universities have prepared the courses. In this manner, new technologies have the power to bypass the classroom and the campus. Delivery of training is no longer factory bound, but global. A single corporation may be educating in New York, Tokyo, and Rome.

CURRENT PRACTICES IN INDUSTRY TRAINING

Informal and open-ended interviews with directors of training at leading companies that produce or use state-of-the-art technology were used to obtain information about current training practices. Respondents were selected from the 1985 American Society for Training and Development national conference agenda and represent leaders in the field of industry-based training programs. Questions were asked based on respondents' professional experience and knowledge, not on their official positions in corporations.

Training Needs for a New Technology

Most respondents said that the technology dictates the initial outline of training needs. Several said that if they purchased a new type of technology for which training is required, they would use the vendor's information and training materials for the initial development of curricular material. However, since most vendors do not produce detailed, reliable training material that fits the purchaser's needs, the corporation's training staff does one or more of the following:

- Conduct a task analysis, using vendor information and other procedures.
- Establish an advisory committee of workers, supervisors, trainers, and others who will be using the technology to help with curriculum development.
- Call in an instructional and/or technological expert from a vocational institution to work with in-house experts on developing a curriculum.

Often, an informal task analysis and a training needs assessment are conducted at the same time. The results are then translated into training guidelines and a detailed curriculum. Contacts with trainers in other corporations or at professional association meetings are used also to gather information for course development. At one firm, consideration is given to the human and interpersonal impact of a new technology. Once this impact is assessed, training is offered to help employees cope personally with the new technology along with preparation for the technical requirements.

In the case of a large telecommunication company's teletraining technology, a specially trained company representative looks at the purchasing business's needs, the training environment, the available resources, and number of students to be trained and their geographical locations. Based on this information, the representative advises the purchasing business on teletraining. If the decision is made to purchase teletraining equipment, the company works with the training staff to develop appropriate approaches and techniques.

Decisions about Training Location

For the large employers, both manufacturers and vendors, training occurs in-house (for their own employees) and at the customer's site. When training occurs at the customer's site, the location, approach, and attendance at the training classes are determined by that employer. For the in-house training, there is often a central training location; typically, trainees are flown from branch sites around the country to the training location. As training budgets shrink, however, the largest companies resort to teletraining or sending the trainers out to the individual training sites.

Of the small- to medium-sized firms contacted, four utilized the vocational community in various ways. Typically, the corporation contacts a vocational instructor/specialist to assist with the curriculum development and to conduct the training. Frequently, the training is offered at the work site, which keeps the corporation from having to hire a large in-house training staff. Two employers said that going to an outside training location was often more expensive than conducting training in-house. A third said that the choice of whether to train at the work site or to utilize a local vocational institution is made by a committee that is responsible for planning and developing a training program for a specific technology.

Decisions about Training Approach

For corporations that are product vendors as well as manufacturers, decisions about the

training approach at purchaser sites to accompany their products were made in-house. For example, one company's staff develops training manuals, reference materials, workbooks, and so forth, and conducts the training at the customer's site.

Company representatives on the other hand, work with the purchasing company's own training staff to develop an appropriate approach. This might include modularizing or integrating existing training curriculum, audiovisual aids, and other instructional materials. Then, the trainers are "trained" in the use of the new technology. Working with trainee groups at dispersed sites, learning how to get the groups to interact with each other [illegible] teletraining equipment, and so on, are part of the trainer's training.

A large computer manufacturer's training department tends to use a systems approach to training. They look at the number of students to be trained, the length of the course, the lead time allowed for development, the expected life of the training course, and the cost of using various delivery methods (e.g., traditional lecture/instructor approach vs. computer-based). These factors, plus the allotted budget, determine the approach.

Other firms use a mixture of approaches. Trainers generally use the "principles" of sound adult education. Although most companies do not use the computer intensively, they do intersperse it with more traditional classroom techniques. For training that focuses on basic skills, the approach is usually individualized. Broader, transferable skills that may apply to several jobs are often taught in classroom-based situations, with a mixed-media approach. Specific job skills are often imparted with on-the-job training (OJT).

Trends and Expected Changes

[illegible] companies, training paths are tightly defined and described. Changes would occur only when technology necessitates a reorganization in occupational classifications.

For firms offering OJT, two trends were evident. One is a closer integration between classroom theory and OJT. Studies conducted at one corporation show a better follow-up performance from employees who receive both class work and OJT than just one of the two. The second trend is that those providing OJT instruction are being trained how to train. This is to ensure greater consistency, quality control, and training [illegible]veness.

Most firms are providing more of a "systems" approach for their employee training, and most felt that the jobs for which training is provided are becoming more complex. Similarly, skills are becoming more specialized and knowledge based, and greater accuracy is required in most jobs. Training will have to change to address these changes.

In the special case of teletraining, this method will probably be used more extensively for management, sales, and marketing training. Other changes revolving around delivery and approaches include the following:

- Computer-based training
- Creative uses of the videodisc
- "Touch screen" data entry techniques
- More use of adult education techniques and principles
- Communication, interpersonal, and similar skills training
- Small-group training (three or four employees to one instructor)

Design and Modification of the Training Curriculum

Most firms agreed that technology dictated when and how changes were made in the training curriculum. When a new technology is updated, corresponding changes are made in existing courses. Several companies suggested that informal surveys are conducted of employees' perceived training needs, and some new courses and course modifications are made on the basis of survey results. Other companies said course modifications are made on the basis of evaluations/assessments conducted with those employees who terminate the training. New courses are often developed when a line supervisor spots an area where employee performance is inadequate.

Two companies said they are currently initiating training in Statistical Process Control for all of their employees.

Recent Changes in the Corporate Training Function

Employers typically reported that training was gaining more emphasis and importance as a

corporate function. This was particularly stressed by one respondent who said that the company has a "no layoff" policy, whereby employees are retrained for different jobs at the same location or are prepared for relocation. Much of this training occurs in-house. A major automotive parts company representative said the company recognizes the need for retraining, especially when a plant is closing, but this type of training is not typically provided in-house.

Several companies indicated that their training has become more skill based rather than focusing on "pop psychology" topics such as time and stress management.

A particular trend among computer companies is toward smaller, more specialized training functions. Also, along with several other larger companies, trainers more often travel to the trainees at different sites.

A major petroleum company representative stated that training's importance was apparent because during recent cutbacks, the training department was not touched. At the same firm, training is seen as one way of bolstering the company's overall thrust toward quality and excellence (e.g., training can help employees become more productive and produce higher quality goods and services).

At one company, training has recently become the responsibility of the line manager. His or her survival depends on how well employees in the department perform. Training, therefore, is often prescribed by the supervisor. The end result is that training's role is more recognized and, as a corporate function, grows in importance.

Another firm responded that the training department now (as opposed to earlier) has little trouble selling top management its value; also training and e[illegible]loyee "career pathing" [illegible] a [illegible]ntegrated [illegible]es available to all employees.

The employers interviewed identified the following skills and knowledge needed by workers in the next 3-5 years:

- Advanced technological awareness
  - computer skills
  - knowledge of statistical process control
- Higher level math and intellectual skills
  - knowledge of systems thinking
  - ability to access and manipulate information
  - ability to apply company equipment to wider variety of user/consumer sites
  - understanding of and ability to manipulate electronic systems
- Instructional design
  - training systems engineers, technicians, and assemblers
  - computer literacy and keyboarding skills
  - electronics and computer science skills
- Robotics
  - computer literacy skills, ability to utilize basic software programs
  - ability to access information
  - communication skills
  - self-awareness knowledge (e.g., employees who are able to diagnose/ prescribe their own training needs)
  - ability to update self in latest technological changes
- Higher level reasoning skills; troubleshooting skills
  - communication skills
  - interpersonal skills
  - training in group dynamics/teamwork especially for *technical* employees
  - product quality and control skills
- Higher level electronics skills
  - programming skills
  - advanced equipment troubleshooting skills
  - computer operating skills
- Computer literacy
  - keyboarding skills
  - computer application skills

RECOMMENDATIONS TO VOCATIONAL EDUCATORS AND POSTSECONDARY INSTITUTIONS

The employers who offered recommendations to the vocational community indicated that vocational institutions need to communicate and work more closely with local industries. Specifically, greater use of advisory councils, industry liaison groups, and regular industry-education meetings was suggested.

Similarly, these same employers stressed that vocational education must not be parochial in its outlook. Vocational educators need to have more knowledge of industry practices and employer expectations in their particular field. Internships from 6-12 months were suggested for vocational faculty.

Vocational educators also need gr r awareness of their lo arkets and the overall direction of state, regional, and national employment trends. Closer attention to technological vendors in the local area was recommended.

Several employers suggested that vocational and technical educators need to work with students' attitudes along with offering technical skill training. These individuals recommended more internships, particularly at the community college level, to increase students' awareness of employer expectations, job-related personal adjustments, and workplace discipline.

Other specific suggestions are as follows:

- Community colleges can be extremely helpful for small- to medium-sized firms. However, the college staff members need more training in these areas:
  - Conducting an industry needs/task analysis
  - Delivering training in the corporate setting
  - Demonstrating and implementing courses at the workplace
- Community colleges can take the lead in helping industries and firms identify fruitful retra ing areas f Ne employees (espe- the event of a plant closure) and policies and services for dealing with older workers during a plant closure.
- Vocational education needs to train in the following areas:
  - Group dynamics
  - Teamwork problem solving
  - Communications and interpersonal skills
  - Participative management concepts
  - Decision-making skills

IMPLICATIONS FOR VOCATIONAL EDUCATION

One objective of this study was to relate potential implications of industry-based training practices to vocational education programs. Several changes and trends presently occurring on the industrial training scene are summarized first. Next, implications are presented for both postsecondary and secondary vocational education programs.

Industry Changes and T

- The training function in many industries is increasing in importance as a tool for improving company productivity, profit, and market success.
- The number, size, funding, and purposes of industry-based training are rapidly increasing.
- Industries are becoming more sophisticated developers and consumers of training programs.
- Increasingly, industries are demanding evidence of a positive return on their training dollar investments.
- The focus and content of industry training programs are shifting toward more technical knowledge and skills to prepare workers for increasingly complex and knowledge-based occupations.

Implications for Vocational Education

- Vocational training progra workers must keep pace constantly changing needs of indust aining curric lum and equipmen must reflect state-of-the-art technology u d by industry.
- Employers have specific expectations of their employees. Some expectations are made clear after hiring, but others are seen as preemployment qualifications. Vocational education programs should help students develop the latter ones while they are in school. This will improve employment and advancement opportunities for vocational graduates.
- State, regional, national, ar nternational conditions impact on U.S. industries and firms. Vocational programs must avoid adopting or clinging to provincial attitudes and practices that are inconsistent with the realities affecting firms that hire vocational graduates. Graduates must have the skills and competencies required to succeed in the corporate culture of tomorrow.

- Vocational teachers need to know about the organizational development, economic and industrial psychology principles and practices by which business and industry operate. They must be prepared to teach their students more than job-specific skills, since industry is increasingly becoming the more appropriate provider of specific skill training.

- Community colleges can help pinpoint retraining options and training directions across various industries and occupations. Such assistance is especially useful to companies needing to reduce their work force or retrain workers for new technology.

- Vocational instructors at both secondary and postsecondary levels need to devote attention to teaching teamwork, cooperative problem solving, group dynamics, and participatory decision-making skills and practices. Many companies indicate that workers' problems often stem from a lack of interpersonal and self-management skills.

- Both secondary- and postsecondary-level vocational programs need to prepare workers to assume more responsibility for updating themselves as new technological developments and practices affect their occupations. Skills in lifelong and self-learning are essential for career progression.

- At the secondary level, instructors need to be more fully acquainted with the workplace practices and procedures of the occupations for which they are training students. Internships of 6-12 months in relevant industry settings were suggested by several employers.

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