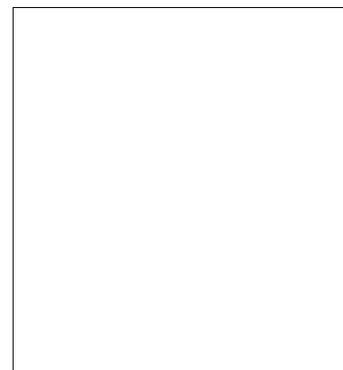


Background and Introduction 2

Work-based learning is any learning that occurs when a person is working, but in this report the term is used more narrowly to mean learning that results from students' experiences in a workplace or surrogate workplace that are planned at least partly for students' career orientation and occupational development. Work-based learning includes opportunities to "shadow" employees for a few hours or days, to learn what they actually do. It may involve opportunities to assist various employees for a week or so, to gain some experience in several different jobs. It can provide work experience outside places of employment, as in community service settings or in school-based enterprises that produce goods or services. It sometimes includes opportunities to participate in formal workplace instruction designed to develop specific knowledge and skills. It often includes opportunities to assume a job or a volunteer work assignment for a semester or longer, with orientation and continuing guidance from a supervisor, to learn general work skills and specific occupational skills while also producing goods or services. It may entail holding a planned sequence of increasingly demanding jobs, in one or more workplaces, that are designed to contribute to career development. Work-based learning can also encompass participation in various forms of work simulations.

HISTORY OF WORK-BASED LEARNING IN THE UNITED STATES

Apprenticeships have been traced back as far as the Code of Hammurabi in the 18th century B.C. (9). The code required artisans to teach their crafts to the young. Until the middle of the 19th century, most young people learned about work by working alongside



their parents or in an apprenticeship with another adult. Apprenticeships flourished during the early history of the United States. Young people were apprenticed from about the age of 14 until the age of 21. The master practitioner was responsible not only for their occupational training, but also for their housing, food, clothing, general development, and sometimes a small stipend. In turn, the apprentice worked for the master practitioner about 60 hours per week (16).

Apprenticeships declined during the Industrial Revolution, when mass production and its division of labor reduced the need for skilled craftspersons (10). In the early 20th century, unions and businesses established formal apprenticeship programs in an effort to maintain high-quality workmanship in the skilled trades (7,10). The programs usually involved several years of full-time work, on-the-job training, and additional classroom instruction in theory for a few hours per week. The pay generally increased as the participants progressed, and successful completion of the apprenticeship resulted in “journeyman” status. These apprenticeship programs expanded dramatically in the years following World War II (20). In 1994, there were 315,054 people receiving training in federal and state registered apprenticeship programs (20). The programs cover about 800 occupations, but three-fourths of all apprentices are in just 30 occupations, and about half of all apprentices are preparing for work in the construction trades (11). The mix of full-time work, on-the-job training, and additional instruction in theory remains similar to that established in the early part of the century.

Although formal schools are known to have operated as early as 4,000 years ago in China, widespread schooling is a relatively new development (25). Several forces contributed to the rapid expansion of schools in the United States during the 19th century. The decline of family homesteads and self-employed craftsmen, and the rise of factories, meant that boys could no longer work alongside their fathers to master skills. The urbanization of the population and improvements in transportation made it much easier to assemble many students in one building. Advances in print-

ing technologies dramatically lowered the cost of books. The advent of mechanization, industrialization, and regional commerce increased the demand for accurately transmitted information, and thus the need for a workforce that could read and write. Rising incomes made families less dependent on the labor of children, and thus permitted extended periods of schooling. High rates of immigration to the United States during the 19th century resulted in a widespread need for instruction in the English language and a public desire to “civilize” and “Protestantize” immigrant children. In addition, advocates for child welfare supported schooling as a means of countering the exploitation of child labor (4,5,8).

As soon as formal schooling had become universal, reformers and critics attacked it as ill-suited to the needs of many students. As early as the mid-1800s, there were complaints about the emphasis on humanities and the didactic pedagogy. One of the most common criticisms was that traditional academic education was not preparing students for adult life, especially for their work lives (14). A few educators responded by establishing the programs that are the precursors of modern work-based learning programs.

In the 1820s several schools were established to teach industrial arts. Some were operated by charitable organizations for orphans; others were established by organizations of craftspeople for their members (1). Manual labor academies appeared at about the same time. These academies hired out their students to local businessmen to give the students practical experience and to reduce the tuition costs. During the late 1800s, high schools of “mechanical arts” and “trade education” were established to keep young people in school and to prepare them for their work lives (1). These schools devoted about half the day to teaching academic skills and half the day to teaching specific trades in the schools’ laboratories. That arrangement, which has endured to this day, has long been known as high school “vocational education.” In 1913, at the behest of employers in Dayton, Ohio, The Cooperative High School was established. It allowed advanced students to spend part of their day working and being trained by em-

ployers. This was, and is still, known as “cooperative education” (2,6).

In the 1870s the president of the Massachusetts Institute of Technology observed that his institution had been producing engineers who were well educated but unskilled. To remedy this shortcoming, he introduced shop courses that taught the use of tools and manual skills that engineers commonly applied in the field (1). In 1906, the University of Cincinnati adopted cooperative education for its engineering college, with students rotating between a week of classes and a week of workplace experience (13). These two approaches, incorporating practical skill training within schools and coordinating schooling with outside practical experience, have endured in American education.

Cooperative education spread to several other engineering colleges and then, in 1921, Antioch College became the first liberal arts college to adopt it (13). By 1940, some 30 institutions of higher education offered cooperative education. By 1970, the number had expanded to more than 200, and by 1980 there were 1,028 programs with approximately 200,000 students—about 3 percent of the number of full-time enrolled students in the United States (13).

In 1977 and 1978, the U.S. Department of Labor funded eight demonstrations of what were then called youth apprenticeships but now are often called school-to-apprenticeship programs. High school seniors in vocational education programs were given the opportunity to start union and employer apprenticeship programs on a part-time basis. Most went to school half time and participated in the apprenticeship program for 20 to 30 hours per week. This model did not gain popularity. In 1989, the Department of Labor estimated that only about 1,500 high school students were involved in school-to-apprenticeship programs (24).

For the past decade, the German Marshall Fund of the United States has supported study trips by American educators, business leaders, elected officials, and journalists to examine the apprenticeship systems of Germany and other European countries. The foundation has also supported trips by European counterparts to the United States for

the exchange of ideas about school-to-work transitions and workforce development.

During the late 1980s and early 1990s, the W.T. Grant Foundation’s Commission on Work, Family, and Citizenship, and its successor, the American Youth Policy Forum, published about 20 reports that identified problems in the preparation of youth for adulthood and employment, described various proposals for addressing those problems, organized public discussions of policy alternatives, and took federal and state policymakers on field visits to innovative programs. Several reports dealt with school-to-work transitions, youth apprenticeships, and other forms of work-based learning for young people (12,18,26,27).

In 1991, Jobs for the Future, a nonprofit organization with foundation funding, began providing support for several innovative school-to-work transition programs with work-based learning. The programs generally coordinated career orientation, academic and occupational education, and work-based learning, with the aim of preparing young people to assume entry-level semiskilled jobs upon graduation or to proceed on to postsecondary education and training. In 1992, the U.S. Department of Labor provided support to six states and several local jurisdictions for the development of school-based “youth apprenticeships” with characteristics similar to those of the immediate foregoing programs, although a few included at least one year of postsecondary education as an integral part of the program. In 1992, the Council of Chief State School Officers provided support to five states for similar purposes (17).

The School-to-Work Opportunities Act was largely inspired by these efforts of the 1980s and early 1990s, but the legislation extends these precedents in at least three ways:

1. It strives to link improved preparation for work with current academic reform efforts.
2. It calls for more comprehensive services over a longer period of time than was generally proposed in the past.
3. It seeks to establish school-to-work transition systems operated by partnerships of schools, employers, and other community organiza-

tions, rather than innovative programs operated and controlled primarily by the schools, employers, or unions (19).

PROBLEMS WITH SCHOOL-TO-WORK TRANSITIONS

Congress enacted STWOA and included a work-based learning component mainly to address three problems confronting school-to-work transitions in the United States: rapid changes in technology and organization of business and industry, obscured career pathways for youth, and the generally poor quality of career preparation offered to youth in this country.

■ Rapidly Changing Workplaces

Experts suggest that vast changes in how work and technology are organized within companies are leading to new kinds of work environments where there is a need for a flexible workforce, teamwork, and continual learning on the job. Rapid advancements in technology have changed the nature of the workplace, which now often requires the generation, manipulation, and interpretation of text, graphs, and other symbolic information. Furthermore, increased international competition, coupled with technological advancement, has shortened production cycles and spurred customization in many workplaces. Thus in order to compete effectively in the market, workers must learn new technologies and techniques continually introduced into the workplace, and be flexible and able to work as a team (3).

To encourage young people to acquire the intellectual and social skills they need to perform productively in the workplace, STWOA calls for:

- high academic standards of performance for all students,
- the integration of academic and occupational learning to motivate academic achievement by demonstrating its relevance in the workplace, and
- work-based learning to develop skills that are advantageously learned in the workplace and to reinforce knowledge that is acquired in school.

■ Obscured Career Pathways

Many scholars and educators have concluded that employers have few ways of signaling career opportunities to young people. In addition, students have few ways of discerning the available options in various occupations and industries and the preparation required for them. Clear career pathways can encourage early and continuing career exploration, structure career choices for students at various points in their lives, and generate motivation to work hard in pursuit of one's objectives. Career "signposts" can inform young people of their progress, and counseling can assist them in making their decisions (15).

STWOA is designed to foster clear career pathways by:

- providing career exploration and counseling beginning no later than the 7th grade;
- allowing selection of a career major no later than the 11th grade;
- arranging work-based learning opportunities to give students experience in different career areas;
- providing mentoring for personal guidance and support; and
- establishing skill standards and certification systems to signal occupational skill requirements and to recognize the attainments of students.

■ Generally Poor Preparation of Youth for Careers

American youth have generally been poorly prepared for careers because of the gap between academic and career preparation. Historically, students in the "general" track are characterized as not prepared for anything; vocational education students are typically not expected to achieve academically or to pursue promising careers, and college-bound students are seen as having little knowledge of the workplace and work experience.

STWOA aims to bridge the gap between academic and work-related education by:

- making school-to-work transition systems part of statewide comprehensive education reform,
- stressing the importance of rigorous academic standards for students,
- using work environments to build students' knowledge and skills and to demonstrate how both are related to work and careers,
- using career counseling and mentors to encourage all students to obtain at least some postsecondary education or training, and
- connecting high school programs to postsecondary schools that have strong programs of academic and occupational education.

OVERVIEW OF STWOA

In the spring of 1994, Congress passed the School-to-Work Opportunities Act (STWOA) with bipartisan support. The legislation aims at improving the productivity and competitiveness of the nation's workforce and preparing young people for rewarding and satisfying work lives (19).

STWOA does not seek to establish programs but rather to develop comprehensive statewide and local systems for facilitating school-to-work transitions (Public Law 103-239, Sec. 3[1]). STWOA directs seed money to interested statewide collaborations of the governor, state agencies, and representatives of the private sector (Title II, Subtitle A, Sec. 203). At the local level, the activities are to be undertaken by partnerships of educators, employers, employees, and students (Sec. 4[11] and Title III, Sec. 301). STWOA also calls for coordination of the systems with other education and training activities undertaken with federal support (Title II, Subtitle B, Secs. 213[c] and [d][6]). The main provisions of STWOA were summarized in chapter 1, box 1-1.

STWOA received widespread support from numerous business, labor, education, and other organizations (21). Business associations supporting it included the Business Roundtable, National Alliance of Business, National Association of Manufacturers, and U.S. Chamber of Commerce. Labor organizations included the AFL-CIO, Service Employees International Union, and the

United Association of Journeyman and Apprentices of the Plumbing and Pipefitting Industry. Educational organizations included the American Federation of Teachers, American Association of Community Colleges, Council of Chief State School Officers, National Education Association, and National Parent-Teacher Association. Other organizations supporting the bill included the National Governors' Association, National Association of Counties, National Conference of State Legislatures, and U.S. Conference of Mayors.

There was some congressional opposition to STWOA. Several members considered the anticipated costs (the first-year authorization was for \$300 million) to be imprudent at a time of large federal deficits. Others thought that the federal government ought to reduce the number of its more than 150 job training programs and better coordinate the remaining ones, rather than adding another one. The House wanted to require that the work experience be paid, while the Senate opposed that provision; the conference compromise specified that preference be given to proposals that include paid work experience. A few members and experts thought that the objective of the legislation could not be achieved unless all the services for youth began no later than the 9th grade, but the act specifies that many of the services do not have to begin until the 11th grade. Some educational associations opposed giving the governors wide latitude in administration of STWOA, preferring it to be handled by state and local education agencies, but they did not prevail. Several people were concerned that the local systems might tend to avoid enrolling students at risk for academic failure, while others warned that the systems would suffer if they were stigmatized as being primarily for those students. Several experts were concerned about the provision calling for states to develop skill certificates, suggesting that this task was better left to national organizations so as to minimize duplication of effort and to allow the recipients of the certificates nationwide mobility, but the provision was unchanged (21,22,23).

Despite these concerns, STWOA passed. The legislation authorizes \$300 million for fiscal year 1995 and such sums as may be necessary in the fiscal years 1996 through 1999. A sum of \$245 million was appropriated for fiscal year 1995, and the Administration requested \$400 million for fiscal year 1996.

The National School-to-Work Opportunities Office, which is jointly staffed by the Department of Education and the Department of Labor, is administering STWOA. STWOA calls for four types of grants:

1. **State Development Grants** support efforts to plan statewide systems of school-to-work transitions (Title II, Subtitle A). All states, the District of Columbia, and Puerto Rico have already received these grants.
2. **State Implementation Grants** support implementation of the plans (Title II, Subtitle B). Eight states were awarded five-year grants in 1994. For the first year, the grants ranged from \$2 million to \$10 million. The amounts were to double in the second year and then drop substantially over each of the three following years. Another 17 to 20 states are scheduled to receive grants in the fall of 1995.
3. **Federal Implementation Grants to Local Partnerships** support the development and implementation of school-to-work transition systems by local jurisdictions (Title III). Thirty-six of these grants were awarded in 1994, in amounts from \$184,280 to \$1.2 million. Recipients were to receive up to four additional years of support, depending on performance and availability of funds. Grants are to be made to additional applicants in late 1995.
4. **National Programs Grants** support research, evaluation, technical assistance, dissemination, and other cross-cutting efforts (Title IV). A contract of \$3 million per year for a "Learning Center" to provide technical assistance and facilitate exchanges among the grantees was awarded in the summer of 1995, and a contract of \$1.3 million per year for a five-year evalua-

tion is scheduled to be made in August or September 1995.

As of August 1995, the House appropriation bill would limit the 1996 funding for STWOA to \$240 million and the Senate had not yet acted on the appropriation. In addition, there are bills pending that would consolidate STWOA with other federal job training and workforce development programs, scale back federal support for the programs, and give the states broad discretion in designing and administering the consolidated programs (H.R. 1617 and S. 143). S. 143 has been incorporated with changes as Title VII of S.1120.

Some observers believe that if the consolidation bills are enacted, the states will continue with reforms similar to those supported by STWOA because these reforms are a promising response to serious problems and because several states had begun the reforms before passage of STWOA. Other observers fear that fierce fights for declining funding will break out at the state level, and the STWOA-like reforms will loose to older programs which have larger and better organized constituencies.

OVERVIEW OF THIS REPORT

The remainder of this report is organized into four chapters. Chapter 3 describes and analyzes the apparent advantages and disadvantages of five learning processes that can be used in work settings: experiential learning, work-group learning, mentoring, workplace instruction, and technology-assisted learning. Chapter 4 discusses various ways that work-based learning can be structured with respect to the types of students who are served; the program objectives; the coordination with schooling; the timing, intensity, duration, and progression of work-based experiences; the settings of work-based learning; and the issue of payment for students. Chapter 5 describes various models of school-to-work transition programs with work-based learning, and summarizes the evidence on their effectiveness. These models are youth apprenticeships, clinical training, cooperative education, school-to-apprenticeship programs,

school-based enterprises, and career academies. The models vary in the ways that they are structured, but each can use any of the five work-based learning processes. Finally, chapter 6 considers the factors that influence whether or not employers will participate in work-based learning programs.

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