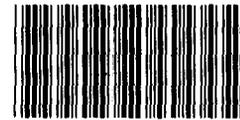


May 1990

TRAINING STRATEGIES

Preparing Noncollege Youth for Employment in the U.S. and Foreign Countries



141351

141



United States
General Accounting Office
Washington, D.C. 20548

**Comptroller General
of the United States**

B-238820

May 11, 1990

The Honorable James H. Scheuer
Chairman, Subcommittee on Education and Health
Joint Economic Committee
Congress of the United States

The Honorable Augustus F. Hawkins
Chairman, Committee on Education and Labor
House of Representatives

This report, prepared at your request, contains information on (1) the weaknesses in the U.S. education and training system for preparing noncollege youth for employment and (2) foreign strategies that appear relevant to the U.S. shortcomings. It also includes policy actions that might be considered by the federal government and by state and local governments.

As requested, we did not obtain written comments from the Departments of Education or Labor. We did, however, discuss matters described in this report with officials in these agencies, and their comments have been incorporated where appropriate. We are sending copies of this report to other congressional committees and subcommittees, the Secretaries of Labor and Education, and other interested parties.

This report was prepared under the direction of Franklin Frazier, Director, Education and Employment Issues, who may be reached on (202) 275-1793 if you or your staffs have any questions. Other major contributors to this report are listed in appendix III.

Charles A. Bowsher
Comptroller General
of the United States

Executive Summary

Purpose

The United States is renowned worldwide for its college and university system, which provides extensive opportunity for higher education. Yet only about half of U.S. youth go to college. For the other half, U.S. education and training often provide inadequate preparation for employment.

The perception that foreign competitors excel in world trade partly because their workers are better educated and trained prompted the Joint Economic Committee and the House Education and Labor Committee to ask GAO to compare how the United States and competitor countries prepare noncollege youth for employment. Specifically, GAO was asked to

- review U.S. education and training strategies and identify likely weaknesses and
- examine selected countries' strategies for preparing noncollege youth for employment.

Background

Experts are concerned that U.S. international competitiveness is being eroded because (1) many jobs are requiring greater skills and (2) youth are unprepared to meet the new labor market demands. Required skill levels are increasing in both the occupations with the fastest rate of growth and those projected to add most new jobs in the next decade. Poor literacy skills and employer reports that many youth applicants are unqualified for entry-level positions point up inadequacies in the preparation of youth for employment.

For this study GAO examined four countries—England, the Federal Republic of Germany, Japan, and Sweden—that try to develop a well-qualified noncollege youth work force. GAO reviewed literature on how the United States and these countries prepare noncollege youth for employment, consulted with experts who assessed the U.S. and foreign strategies, and visited the foreign countries to meet with knowledgeable persons and view the education and training systems firsthand. GAO cautions that necessarily succinct contrasts between U.S. weaknesses and foreign strengths in education and training often conceal U.S. strengths and foreign weaknesses in this area.

Results in Brief

Insufficient attention is devoted to preparing U.S. noncollege youth for employment. About 9 million of the nation's 33 million youth aged 16 to 24 will not have needed skills to meet employer requirements for entry-

level positions—5.5 million dropouts and 3.8 million high school graduates who lack high school competency (see pp. 23 and 24-25).

The four competitor nations have national policies that emphasize preparing noncollege youth for employment. Specific approaches vary by country, are rooted in different traditions, and may be accompanied by problems of their own. Still, the following approaches used by some or all of the countries may be relevant for the United States:

- Foreign countries expect all students to do well in school, particularly in the early school years. Some U.S. schools, confronted with difficult social ills, often accept that many will lag behind (see pp. 25-27 and 33-34).
- Foreign schools and the employment community guide students' transition from school to work to a greater degree than in the United States. Noncollege students leaving school receive more directed assistance in finding jobs than their U.S. counterparts (see pp. 27-29 and 34-38).
- Competitor nations establish competency-based national training standards that they use to certify skill competency. The common U.S. practice is to certify only program completion (see pp. 31, 32 and 38-39).
- Competitors invest extensively in jobless out-of-school youth to assure them a job or further education and training. U.S. employment and training programs reach only a modest proportion of youth in need (see pp. 29-30 and 39-41).

GAO's Analysis

U.S. Shortchanges Noncollege Youth

The foreign countries tend to invest proportionately more than does the United States in noncollege education and training. The United States invests heavily in college education but does not do equally well by its young people who seek immediate employment. From the customary end of compulsory education at age 16 through age 24, less than half as much is invested in education and training for each noncollege youth as for each college youth (see pp. 12 and 23-24).

Expectations That All Students Will Do Well in School

Young adults in the foreign countries have higher literacy levels than those in the United States. In the United States, academic difficulties frequently are evident in the early years, with many children unprepared for school entry and many in school not keeping pace with

expected levels of progress. Certain practices of the other countries, such as providing comparable educational resources to all schools, emphasize providing equal educational opportunity to all youth regardless of differences in socioeconomic status and academic talent. For example:

- Japan provides uniform teacher salaries and per capita school funding, so that poorer areas have educational resources that are comparable to more affluent ones (see p. 34).
- Sweden gives extra resources to needy schools, such as those in remote rural areas or with large immigrant populations (see p. 34).

Assistance in Transition From School to Work

The foreign countries help students learn about job requirements and assist them in finding employment to a greater extent than does the United States.

One major element is the involvement of employers. For example:

- Joint school-employer programs provide work experience for secondary school students (see pp. 34-35).
- Japanese employers recruit high school seniors through the schools, basing hiring decisions on schools' recommendations (see pp. 37-38).
- Employers train over two-thirds of youth in the Federal Republic of Germany through apprenticeships that usually last 3 years. Employers provide on-the-job skill training for 3 or 4 days a week, and apprentices attend school the remaining 1 or 2 days for instruction in mathematics, language, other academic subjects, and vocational skills (see p. 36).

Establishment of Skill Training Standards

Germany in particular, and more recently England, seek to maintain quality occupational training by testing and certification to meet national standards. Trainees who attain tested levels of competency receive nationally recognized certification, which employers look to as evidence of particular levels of skill. In the United States, certificates for trainees often certify course completion and not necessarily attainment of specific skill levels (see pp. 38-39).

Extensive Investment in Jobless Youth

The foreign countries seek to assist most youth who encounter employment problems. For example, Sweden guarantees education, training, or work to every jobless teenager upon leaving school. England guarantees

every jobless 16- and 17-year-old out-of-school youth up to 2 years' work experience and training (see pp. 39-41).

Policy Considerations

Shortcomings in the U.S. system for preparing noncollege youth for employment, and some apparently effective approaches identified in foreign systems, point to types of action that might be considered to improve education and training in the United States. However, the foreign approaches may not be entirely appropriate or readily transferable because of cultural and other differences. Also, alternate mechanisms for applying the approaches may be needed. In addition, directing more attention to youth who seek employment rather than go on to college should not detract from widely available college opportunity in the United States, a practice in which the United States generally surpasses its foreign competitors. Notwithstanding these cautions, the following appear to warrant consideration by the federal, state, and local governments:

- Strive to ensure that all children attain the academic skills necessary to perform effectively in postsecondary education or the workplace. Notably, greater emphasis should be given to providing needed early intervention programs and adequate educational resources for all children.
- Develop more school-employer linkages, particularly to expand combined education and work (apprenticeship-type) programs and to assist youth to obtain suitable entry-level employment.

Adopting effective education and training strategies nationwide to improve national productive capability and international competitiveness will require strong leadership and an active federal role. The executive branch is the logical focal point for national responsibility. The Department of Education, in combination with the Department of Labor, can play a leadership role in helping state and local officials and business and labor representatives work more effectively to equip U.S. noncollege youth to meet the nation's need for well-qualified future workers. (GAO did not analyze potential costs or funding sources.)

Agency Comments

GAO did not obtain written agency comments on this report, but discussed the matters described in the report with officials from the Departments of Education and Labor. Their comments have been incorporated where appropriate.

Contents

Executive Summary		2
Chapter 1		8
Introduction	Background	8
	Foreign Education and Training	12
	Objectives, Scope, and Methodology	18
Chapter 2		21
U.S. Strategies for Preparing Youth for Employment	Overview of U.S. System	21
	Levels of Educational Attainment	23
	Public Investment for College and Noncollege Youth	23
	Weaknesses in U.S. System	24
Chapter 3		33
Foreign Strategies for Job Preparation	Emphasis on All Youth Doing Well	33
	Structured School-to-Work Transition	34
	Recognized Skill Standards	38
	Extensive Investment in Jobless Youth	39
Chapter 4		42
Conclusions and Policy Considerations		
Appendixes	Appendix I: Methodology for Estimating Investment in Youth and Training	44
	Appendix II: Training for Non-College-Bound Youth	53
	Appendix III: Major Contributors to This Report	55
Bibliography		56
	United States	56
	Foreign	62
Related GAO Products		68
Tables	Table 1.1: Fastest Growing Occupations (1988-2000)	9
	Table 1.2: Occupations With Largest Job Growth (1988-2000)	10
	Table 1.3: Selected Characteristics of the Five Countries	12

Table 2.1: Estimated Level of Education Completed Through Age 24 (Youth Age 16-24 in 1988)	23
Table 2.2: Average Public Investment Per Youth for Education and Training (Ages 16-24)	24
Table 3.1: West Germany's 10 Leading Training Occupations by Sex (1987)	37
Table I.1: Second-Chance Programs' Annual Expenditures for Youth	48
Table I.2: Postsecondary Noncollege Training: Public Annual Expenditure for Youth Age 16-24	51
Table I.3: Estimated U.S. Public Investment in Youth Education and Training During 9 Years From Age 16 Through 24 by Level of Education	52

Figures

Figure 1.1: International Expenditures on Education: Preprimary Through Secondary Education (1985)	13
Figure 1.2: International Expenditures for Special Youth Measures (1987)	14
Figure 1.3: International Expenditures on Education: Preprimary Through Higher Education (1985)	14
Figure 1.4: Federal Republic of Germany, Type of School Attended (1986)	16
Figure 1.5: High School Attendance in Japan (1985)	17
Figure 2.1: Long-Term Effects of Head Start	26

Abbreviations

GAO	General Accounting Office
JTPA	Job Training Partnership Act
NCES	National Center for Education Statistics
OECD	Organization for Economic Cooperation and Development

Introduction

Background

Increasing international competition and advancing technology require a more highly skilled U.S. work force. But recent studies and widespread reports from employers indicate that many youth are ill-prepared for employment.¹ A skill-deficient young work force hampers the nation's economic growth, productivity, and ability to compete with foreign countries. Some foreign competitors may excel in part because they more effectively prepare their work force, paying close attention to the education and training of their noncollege youth.

The United States provides extensive opportunity for a college education for a large proportion of its youth. Our colleges and universities are the envy of the world. Yet with work-force quality becoming a key element in U.S. competitiveness, the education and training of noncollege youth become increasingly critical. This report addresses how nations prepare for work those youth who do not go to college, exploring the relevant educational practices of the United States and of four countries selected for their experiences in training a skilled work force.

Mismatch Between Worker Skills and Job Demands

The basic skills gap between what business needs and the qualifications of entry-level workers is widening in the United States. Jobs are demanding increasingly skilled workers at the same time that many workers are inadequately prepared for the work force.

Many jobs of the future will demand more skilled labor. Most of the occupations projected to grow fastest require moderate to high skills (see table 1.1). For example, health service and computer technology-related occupations are projected to increase by half over the next decade. Opportunities in many of these occupations are limited for those without higher levels of education.

¹Michael Dertouzos, Richard Lester, Robert Solow, and the MIT Commission on Industrial Productivity. *Made in America: Regaining the Productive Edge*. The MIT Press, 1989; Irwin Kirsch and Ann Jungeblut. *Literacy: Profiles of America's Young Adults*. National Assessment of Educational Progress, Educational Testing Service, 1986; U.S. Department of Labor, U.S. Department of Education, and U.S. Department of Commerce, A Joint Initiative. *Building a Quality Workforce*, July 1988.

Table 1.1: Fastest Growing Occupations
(1988-2000)

Occupation	Projected increase in jobs	
	Number	Percentage
	Number of jobs in thousands	
Paralegals	62	75
Medical assistants	104	70
Home health aides	160	68
Radiologic technologists and technicians	87	66
Data-processing equipment repairers	44	61
Medical records technicians	28	60
Medical secretaries	120	58
Physical therapists	39	57
Surgical technologists	20	56
Operations research analysts	30	55
Securities and financial services sales workers	109	55
Travel agents	77	54
Computer systems analysts	214	53
Physical and corrective therapy assistants	21	52
Social welfare service aides	47	52
Occupational therapists	16	49
Computer programmers	250	48
Human services workers	53	45
Respiratory therapists	23	41
Correction officers and jailers	76	41

Source: George Silvestri and John Lukasiewicz, "Projections of Occupational Employment, 1988-2000," Monthly Labor Review (Vol. 112, No. 11, Nov. 1989), p. 60.

In addition, while many low-skill occupations will continue to employ many people (see table 1.2), their skill requirements are expected to increase to some extent even, for example, in janitorial and messenger jobs. Skills increasingly needed to perform many jobs include the ability to connect practice and theory; identify problems; and then analyze, test and troubleshoot, and adapt to new technology.²

²Dale Parnell, The Neglected Majority (Washington, D.C.: Community College Press, 1985), p. 14.

Table 1.2: Occupations With Largest Job Growth (1988-2000)

Occupation	Projected increase in jobs	
	Number	Percentage
Salespersons, retail	730	19
Registered nurses	613	39
Janitors and cleaners	556	19
Waiters and waitresses	551	31
General managers and top executives	479	16
General office clerks	455	18
Secretaries, except legal and medical	385	13
Nursing aides, orderlies, and attendants	378	32
Truck drivers	369	15
Receptionists and information clerks	331	40

Source: George Silvestri and John Lukaszewicz, "Projections of Occupational Employment, 1988-2000," *Monthly Labor Review* (Vol. 112, No. 11, Nov. 1989), p. 60.

As skill levels are increasing, employers are finding that many young workers are inadequately prepared for many entry-level as well as most higher-skilled jobs. Employers largely agree that entry-level workers should read at least at the 8th grade level. Many hold, moreover, that the increased technological content of instruction manuals, coupled with greater demands on workers to maintain the equipment they operate, requires an 11th or 12th grade reading level. Yet an estimated 20 percent of young American adults cannot read at the 8th grade level and 40 percent cannot read at the 11th or 12th grade levels.³ In a joint report of the Departments of Labor, Education, and Commerce, two-thirds of the employers consulted assessed the current pool of entry-level applicants as insufficiently prepared in academic skills.⁴

This is a particular concern for minorities and the economically disadvantaged, who traditionally have had lower levels of educational achievement than others. About 85 percent of young white adults are literate at the 8th grade level, as compared with 70 percent of Hispanics and 50 percent of blacks.⁵

³Literacy rates for young adults, age 25 to 29. Kirsch and Jungeblut, *Literacy: Profiles of America's Young Adults*.

⁴*Building a Quality Workforce*.

⁵*Literacy: Profiles of America's Young Adults*.

Costs of Inadequate Preparation

The inadequate preparation of young noncollege workers has both individual and social costs. The unprepared individual forgoes considerable earnings over a lifetime while contributing to lagging national productivity growth and social welfare cost increases. One year's cohort of high school dropouts and deficient high school graduates may forgo an estimated \$150 billion to \$300 billion in earnings over their lifetimes, or about \$135,000 to \$300,000 per individual.⁶ In addition, the government is likely to incur increased expenditures to address social problems, such as crime, drug abuse, prison, and welfare, estimated conservatively at \$10 billion.⁷ To what extent these losses could be recouped through increased investment in education and training is unclear; however, that significant costs will be incurred because of an ill-prepared work force is indisputable.

How Do Our Trade Competitors Do?

Our economic competitors face similar economic pressures, but experts perceive Japan, for example, as being ahead of the United States in preparing noncollege youth for the labor force and providing them with adequate academic skills.

A comparison of literacy levels finds that over 85 percent of young people in England and over 90 percent in Japan, Sweden, and West Germany have the equivalent of at least eighth grade literacy. In contrast, only 80 percent of their U.S. counterparts function at an eighth grade level or higher. Also, national and international tests show that many U.S. students, while able to grasp basic mathematics skills, cannot handle problem solving or other higher-order thinking tasks. Comparing the educational abilities of American youth with those of foreign youth suggests problems for future U.S. competitiveness.

⁶The ranges cited are based on differing assumptions of the portion of the income differential attributable to differences in educational attainment.

⁷The costs of inadequate preparation were estimated by GAO using methodologies developed by James S. Catterall, Professor of Education, University of California at Los Angeles. Catterall estimates that the 973,000 dropouts from the nation's high school "Class of 1981" will lose \$228 billion in personal earnings over their lifetimes, while society will lose \$68.4 billion in taxes (James S. Catterall, "On the Costs of Dropping Out." California: Institute for Research on Educational Finance and Governance, December 1985). Similarly, the Committee for Economic Development estimated that each year's class of dropouts costs the nation more than \$240 billion in lost earnings and forgone taxes over their lifetimes. Additionally, billions more will be spent on crime control and on welfare, health care, and other social services disproportionately required for ill-prepared youth (Children in Need: Investment Strategies for the Educationally Disadvantaged. Committee for Economic Development. New York, 1987).

Foreign Education and Training

The four countries we reviewed—England, the Federal Republic of Germany, Japan, and Sweden—are more homogeneous in population than the United States, although each has some immigrant subgroups. Their populations are also considerably smaller than the United States' 246 million. (See table 1.3.)

Table 1.3: Selected Characteristics of the Five Countries

	United States	England	Japan	Sweden	West Germany
Population 1988 (millions)	264	48	122	8.4	61
Youth (15-24) as percentage of population	15	14	15	14	17
Unemployment rate, 1988 (percent):					
Adult (25 +)	4.2	7.6 ^{a,b}	2.2	1.3	6.7 ^c
Youth (Under 25)	11.0	12.8 ^{a,b}	4.9	3.3	7.6 ^c
Percentage of youth in vocational curriculum	30	18	28	50	70 ^d
Postsecondary enrollment rates	57%	21% ^a	30%	37%	30%
University enrollment rates ^e	36%	8% ^a	24%	26%	26%

^aUnited Kingdom (England, Scotland, Wales, and Northern Ireland).

^bPreliminary data.

^c1987 for West Germany.

^dThe approximate percentage participating in apprenticeship.

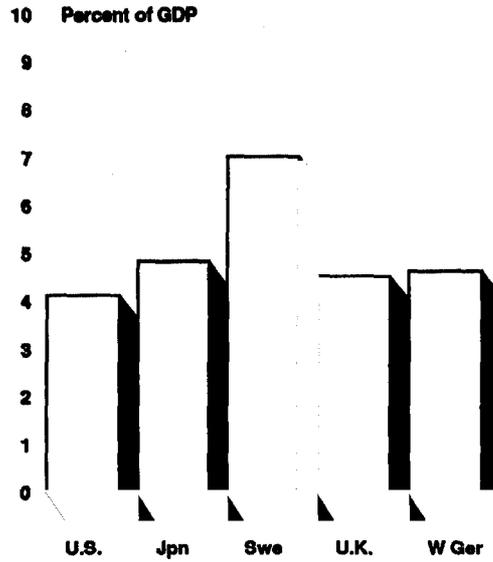
^eConferring baccalaureate level degrees or higher.

According to a recent study,⁸ the countries spend proportionately more of their Gross Domestic Product⁹ than does the United States for preprimary, primary, and secondary schooling. (See fig. 1.1.) Similarly, they spend more for special measures to help youth enter the work force, such as subsidized work experience, remedial education and training, and direct job creation for youth. (See fig. 1.2.) However, when expenditures for college education are combined with precollege education expenditures, the United States spends proportionately more than any other industrial country except Sweden. (See fig. 1.3.)

⁸The Economic Policy Institute, Briefing Paper, Shortchanging Education: How U.S. Spending on Grades K-12 Lags Behind Other Industrial Nations, 1990.

⁹Gross Domestic Product is similar to Gross National Product, which is the value of all final goods and services produced in an economy in a given year.

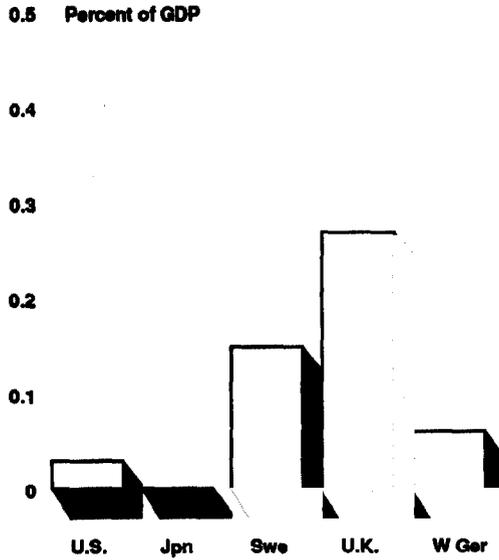
Figure 1.1: International Expenditures on Education: Preprimary Through Secondary Education (1985)



Adjusted for the 1985 U.S. enrollment rate

Source: Economic Policy Institute.

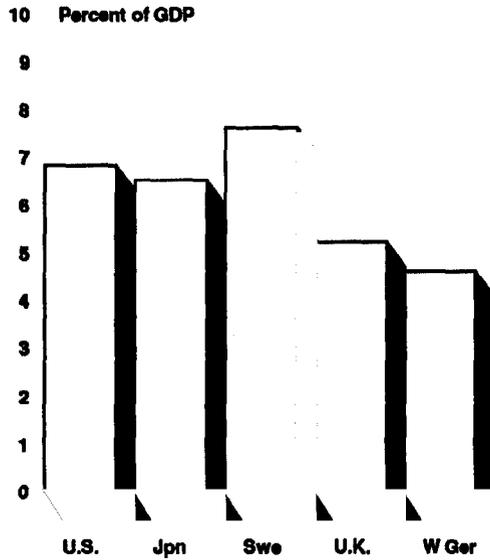
Figure 1.2: International Expenditures for Special Youth Measures (1987)



Note: Japan has no special youth measures. Over 90 percent of youth finish high school.

Source: Organization for Economic Cooperation and Development.

Figure 1.3: International Expenditures on Education: Preprimary Through Higher Education (1985)



Source: Economic Policy Institute.

Following is a brief description of the countries' education and training systems.

England: Investment in Jobless Youth

Schooling in England is compulsory until age 16. At 16, English youth may

- continue their education for 2 more years in high school for an "advanced level" certificate, sometimes with the aim of going on to a university or a polytechnic institute;
- enter a technical or other "further education" college (similar to a community college in the United States), sometimes continuing on to a university or a polytechnic institute; or
- enter the work force.

About half of British youth leave full-time schooling at age 16. A 1989 report by a Confederation of British Industry task force states that:

"Britain has one of the lowest rates of participation in post compulsory education and training of all the OECD countries¹⁰ and produces a much smaller number of school leavers educated to the standards required by a modern economy. . . ."¹¹

Concern about inadequacies in the preparation of young workers led England in the 1980s to adopt a series of major revisions in its education and training system. Notably, it has undertaken to establish

- requirements for world of work orientation, including work experience for all secondary students;
- national skills standards developed by industry and government, together with tests for certifying competence levels; and
- a Youth Training Scheme guaranteeing up to 2 years of work experience and job training for all 16- and 17-year-old jobless out-of school youth.

Federal Republic of Germany: Training Through Apprenticeships

Primary school in the Federal Republic of Germany serves children from age 6 to 10 (or 11 in some states), after which the young people are separated into three discrete curricular paths:

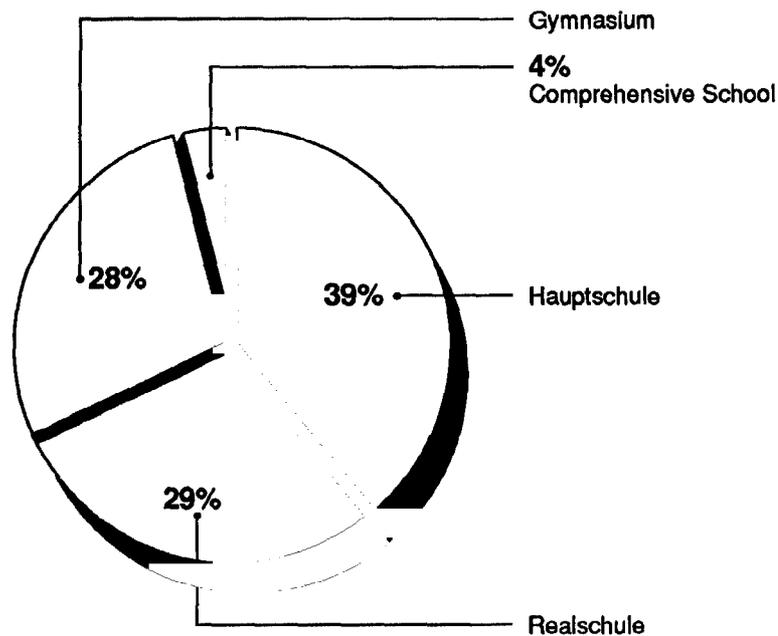
¹⁰Britain consists of England, Scotland, and Wales. The Organization for Economic Cooperation and Development (OECD) is composed of 24 countries, largely of western Europe, plus Australia, Canada, Japan, New Zealand, and the United States. It seeks to promote world and member country economic growth policies.

¹¹Towards a Skills Revolution - A Youth Charter, Interim Report of the Vocational Education and Training Task Force, Confederation of British Industry, July 1989.

- Hauptschule, leading primarily to blue collar apprenticeships.
- Realschule, offering training for higher level but nonacademic occupations, with many of the graduates entering white collar apprenticeships. The graduates also can gain admission to a senior technical school.
- Gymnasium, leading to university admission.

A few "lander" (states) have established comprehensive schools in response to pressures to alleviate the rigidity of the triple-track system. Also, in recent years a larger proportion of youth have been attending realschule and gymnasium. Thirty-nine percent of eighth graders attended hauptschule in 1986 (see fig. 1.4), in contrast to over 50 percent in 1975.

Figure 1.4: Federal Republic of Germany,
Type of School Attended (1986)



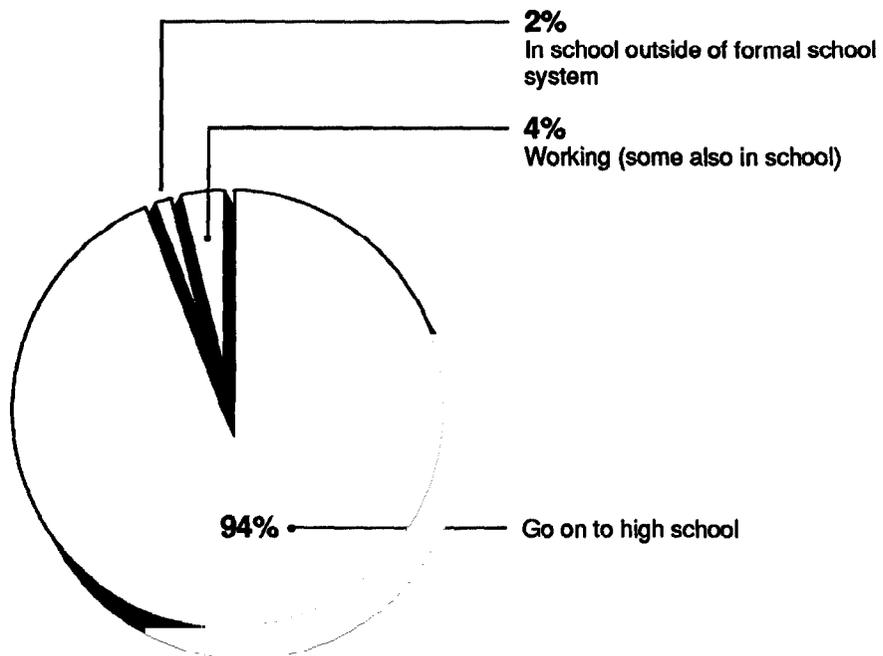
At age 15 or 16, upon completion of compulsory full-time schooling, most youth enter apprenticeships that usually last 3 years. The apprenticeship system is known as the "dual system," because it provides training both on the job and in compulsory part-time school. Youth who initially are unable to obtain an apprenticeship typically attend 1 year of vocational school before trying again to enter the dual system.

Dual system training actively involves industry, unions, and government. Employers pay training and wage costs.¹² About 400,000 firms, nearly one-fourth of all the firms in the country, sponsor apprentices. Training curricula, examinations, and certification procedures are developed nationally through tripartite collaboration.

Japan: Recruitment Through the Schools

School in Japan is compulsory for 9 years beginning at age 6, with 6 years of elementary school and 3 years of junior high school. Ninety-four percent of young people continue on to high school for another 3 years.¹³ (See fig. 1.5.)

Figure 1.5: High School Attendance in Japan (1985)



¹²Smaller firms that join together to form interfirm training workshops receive some funding from the federal and state governments.

¹³The relatively few persons who attend high school at night attend for 4 years. Night school students are persons who were not accepted to day school, persons having to go to work, or homemakers.

About 35 percent of high school graduates go directly on to work. Employers hire virtually all of these youth based on the schools' recommendations.

About 30 percent of the high school graduates continue on to university, junior college, or technical college, and about 28 percent attend schools outside the regular school system, primarily proprietary schools. Many attending the latter schools are youth who are not accepted to college and are studying to take the college entry test again. Others are interested in obtaining a specific qualification, such as for computer programmer.

Japanese employers take on much of the responsibility for developing the occupational skills of the work force. About three-fourths of Japanese firms provide some training to their workers. The main training components provided by the firms are: on-the-job training, including rotating workers among assignments; training off the job, such as in centers organized by the firms; correspondence courses; and worker participation in group activities aimed at improving the firm's performance.

Sweden: Emphasis on Education and Training

In Sweden, school is compulsory for 9 years starting at age 7, but children also are entitled to 1 year of preschool. Over 90 percent of youth go on to "upper secondary" school at age 16, which they attend for 2, 3, or 4 years depending on their vocational or "theoretic" lines of study. About 50 percent of the youth are in vocational lines. Out-of-school teenagers who are jobless are guaranteed further education, training, or a job.

Worker training and retraining is extensive. A recent survey of Swedish workers asked whether they had participated in any form of education during the preceding year. Over one-half of professional and white collar workers, and over two-fifths of unskilled workers, said they had. Sweden's investment in education and other human resource activities is proportionately larger than practically any other country, including Japan and the United States.

Objectives, Scope, and Methodology

The Joint Economic Committee and the House Education and Labor Committee expressed concern about international competitiveness and the adequacy of U.S. employment preparation. They asked us to examine the United States' and selected competitor nations' education and training strategies for preparing noncollege youth for employment.

Specifically, they asked us to identify weaknesses in the U.S. strategy for educating and training noncollege youth and assess whether other countries used approaches with this population that might be relevant to the United States.

In a simplified description of U.S. weaknesses and foreign strengths, however, there is a danger that the U.S. education and training outlook may be seen as unduly bleak because the emphasis is on shortcomings. Similarly, the foreign approaches that appear attractive often are accompanied by disadvantages. Also, the U.S. system is diverse, so that any generalization has limitations. Finally, focusing on U.S. shortcomings and apparently effective foreign practices does not necessarily get at their complexities, interrelationships, or the context of which they are a part.

Our objectives were to:

1. Describe how the United States prepares its noncollege youth for employment, including
 - educational attainment levels by the youth population,
 - the investment of public funds in education and training for noncollege as compared with college youth, and
 - the shortfalls in the U.S. education and training system.
2. Examine how England, the Federal Republic of Germany (West Germany), Japan, and Sweden prepare their noncollege youth for employment, to determine whether they share significant approaches that the United States may want to consider.

Our methodology involved examining literature on the U.S. and foreign education and training strategies; consulting with experts who described and assessed the U.S. and foreign systems;¹⁴ and visiting the selected countries, where we observed school activities and interviewed government, industry, and union officials, educators, and researchers.

As to the scope of the report, we did not seek to probe factors other than education and training that influence development for employment,

¹⁴Our consultants were (1) Seymour Brandwein, former Director of the Office of Evaluation in the Department of Labor's Employment and Training Administration; (2) Norman Evans, Director, Learning From Experience Trust, London, England; (3) Robert W. Glover, Research Associate, University of Texas, Austin; (4) Ray Marshall, Professor, University of Texas, Austin, and former Secretary of Labor; and (5) James E. Rosenbaum, Professor of Sociology, Northwestern University.

although we recognize that successful school performance and the transition into the labor force are influenced by a variety of economic and social factors. Also, in describing apparently effective approaches of the selected countries, we do not imply that all aspects are necessarily desirable, and we provide broad characterization rather than extensive detail. Because of cultural and other differences, such as in demography and political systems, the foreign approaches may not be entirely appropriate or readily reproducible in the United States. Precisely how or to what extent the foreign practices might be transferable was beyond the scope of the report.

We selected the four countries for the following reasons: Japan and the Federal Republic of Germany have enjoyed substantial economic growth and international competitiveness gains, in part, because of the quality of their work force. Sweden, a much smaller country, also has achieved international economic success and has extensive experience in developing a skilled labor force. England, after economic recession and dissatisfaction with its employment development system, has undertaken in the 1980s to upgrade its youth education and training activities.

Our work was performed between August 15, 1988, and December 18, 1989, in accordance with generally accepted government auditing standards.

U.S. Strategies for Preparing Youth for Employment

The U.S. system for preparing youth, particularly noncollege youth, for employment has evolved without a coherent overall strategy. The U.S. stresses the importance of a college education without providing similar emphasis to preparing noncollege youth for employment. Weaknesses, such as the inadequate development of academic skills, are apparent in the early school years, in high school, and after departure from school. About 9 million U.S. youth—both school dropouts and high school graduates—are ill equipped to meet employer requirements for entry-level positions.

Overview of U.S. System

Youth are generally required to attend school until age 16, but are encouraged to continue their secondary education until age 17 or 18 to complete high school. The federal government does not set U.S. education policy. The education system is primarily locally controlled, with each school district determining priorities, budgeting, and staffing. Schools receive about 50 percent of their funding from state governments, 44 percent from local governments, and 6 percent from federal sources. As a consequence, resources spent per pupil and for teachers' salaries vary significantly across school districts. Local annual per student funding ranges from about \$2,000 to about \$6,000.

Most school districts direct education through high school primarily toward developing academic skills, gearing their education to preparation for college entry. High schools link their curricula to college requirements, advise youth on the connection between school achievement and college entry, and offer assistance on finding and being accepted to college. Opportunities for college education generally are extensive.

For the noncollege oriented students, assistance is often lacking to enable them to recognize the relevance of schooling to work opportunities and to motivate them to do well.¹ Much less attention is devoted to preparation and assistance for noncollege youth's entry to work. Many youth who drop out, and some who graduate from high school are deficient in the basic academic skills needed by many employers.² In addition, too few youth are taught about the world of work. Educational

¹John H. Bishop, "The Motivation Problem in American High Schools," Center for Advanced Human Resource Studies Working Paper #88-13, Cornell University, October 28, 1988; and James E. Rosenbaum, "Empowering Schools and Teachers: A New Link to Jobs for Non-College Bound," in *Investing in People: A Strategy to Address America's Workforce Crisis*, Background Papers, Vol. 1. Commission on Workforce Quality and Labor Market Efficiency, 1989.

²The William T. Grant Foundation, *The Forgotten Half: Pathways to Success for America's Youth and Young Families*, Final Report, Commission on Work, Family and Citizenship, November 1988.

instruction on the work world has not appreciably changed from 2 decades ago.

“By and large, young people [in the United States] leave school without having learned about the nature of the jobs which exist in a community, the different opportunities in different industries, what employers expect from employees, and the agencies which can give them help.”³

The schools generally do not help noncollege youth obtain suitable post-school employment. Such assistance traditionally has not been their responsibility. Nor is there any other “institutional bridge” to help noncollege youth make the transition from school to work. Left to themselves, many dropouts and high school graduates flounder in the labor market, jobless or obtaining jobs with little opportunity for advancement.⁴

For young people who leave school with inadequate academic and work skills, programs supported principally by the federal government offer a “second chance.” Directed primarily to the economically disadvantaged, these programs, most notably under the Job Training Partnership Act (JTPA), offer generally brief skill training and job placement assistance.⁵

The United States looks to a variety of sources, in addition to employer training of its employees, to provide occupational training to develop a skilled young work force. These include proprietary vocational schools; apprenticeship training programs, usually conducted jointly by employers and unions; the military services; and public community colleges principally offering mid-level occupational training along with academic education. The 2-year community colleges also serve as a route for going on to 4-year colleges for preparation for the professions and other

³Statement of W. Willard Wirtz, Secretary of Labor, to General Subcommittee on Education, House Committee on Education and Labor, February 28, 1968.

⁴William T. Grant Foundation, Commission on Work, Family and Citizenship, The Forgotten Half: Non-College Youth in America, Interim Report on the School to Work Transition. Washington, D.C., William T. Grant Foundation, January 1988.

⁵Job Training Partnership Act: Services and Outcomes for Participants With Differing Needs (GAO/HRD-89-52, June 9, 1989) and Job Training Partnership Act: Youth Participant Characteristics, Services, and Outcomes (GAO/HRD-90-46BR, Jan. 24, 1990).

skilled employment. In addition, they offer remedial courses and occupational training for participants in programs such as JTPA.⁶

Levels of Educational Attainment

Under the educational system, about half of U.S. youth attend college by the time they reach age 25 (although only about one-fifth of all U.S. youth graduate). Of the noncollege youth, most complete high school, but over one-fourth of all the youth, or about 9 million, do not attain high school competency, because they either drop out of high school or stay on to graduate without mastering academic skills assumed for high school graduates. (See table 2.1.)

Table 2.1: Estimated Level of Education Completed Through Age 24 (Youth Age 16-24 in 1988)^a

	Number	Percent
College graduate	5,900,000	18
Some college (1-3 years)	9,900,000	30
High school graduate with competency	7,800,000	24
High school graduate lacking competency	3,800,000	12
High school dropout	5,500,000	17
Total	32,900,000	100^b

^aSee app. I.

^bNumbers do not add to 100 percent due to rounding.

Public Investment for College and Noncollege Youth

Examination of public investment for college and noncollege youth reflects the high priority the United States places on college education and the comparatively limited attention to youth taking the employment rather than college route. During the 9 years from age 16 through 24, the average public investment for education and training at current rates of expenditure totals about \$14,000 per youth. We recognize that the duration and skill level of college education and training require a greater investment than development for lower skill employment. Still, the disparity in public investment indicates a likely shortfall in U.S. commitment to noncollege youth. For each college youth, the U.S. invests about \$20,000, more than twice the roughly \$9,000 investment for noncollege youth (see table 2.2), which covers mostly high school education.

⁶We do not further discuss training by the military or by community colleges. Some regard community colleges essentially as providing a college education. Some others, however, would contend that community colleges undertake some major occupational training functions that under ideal circumstances would be performed by secondary schools.

Table 2.2: Average Public Investment Per Youth for Education and Training (Ages 16-24)

Level of education	Total	Post-high school
College youth	\$19,940	\$10,440
College graduate	24,700	15,200
Some college (1-3 yrs.)	17,100	7,600
Non-college youth	9,130	1,460
High school graduate	10,840	1,340
Dropout	5,520	1,720
All youth	14,230	5,770

If we exclude high school expenditures to examine investment in education and training only after departure from high school, the disparity is much larger. The average public expenditure for college youth is more than seven times larger than the average post-high school investment for the noncollege population. (App. I discusses the methodology used to develop these estimates.)

By citing the gap between investment in college and noncollege youth, we do not intend to question the desirability of the investment in college youth, but to point out the significantly smaller investment in youth who lack skills necessary for effective employment. The gap appears rooted not merely in the higher costs of a college education, but in part in different underlying attitudes. Funding for higher education is largely regarded as vital long-term national and economic investment. Funding for employment training for noncollege youth, particularly those least equipped to perform effectively in the labor market, has tended to be viewed more as a social, rather than an economic, responsibility. Moreover, program costs for such youth tend to be seen essentially as a "current budget" issue and not as an investment that may be recouped both from economic returns from work-force improvement and from reductions in the costs of welfare, crime, and other social problems.⁷

Weaknesses in U.S. System

The U.S. system for preparing noncollege youth for employment has shortcomings. In the early school years, many children enter school already behind, or quickly fall behind, and are not adequately helped to catch up. These early lags in basic academic skills hamper progress

⁷Ray Marshall. "A New Labor Market Agenda." In *Workforce Policies for the 1990s*. Paper Presented to an Economic Policy Institute Seminar on Labor Market Policy, April 29, 1988.

throughout the school years and in subsequent work life.⁸ While in high school, youth receive little assistance in making the transition from school to work, including little orientation to employment opportunities and job requirements. After leaving school, second chance programs reach only modest proportions of youth needing them and generally provide youth with only limited academic remediation and skill training.⁹ Post-high school noncollege training is often haphazard and of poor quality.

Many Lag Behind in Early School Years

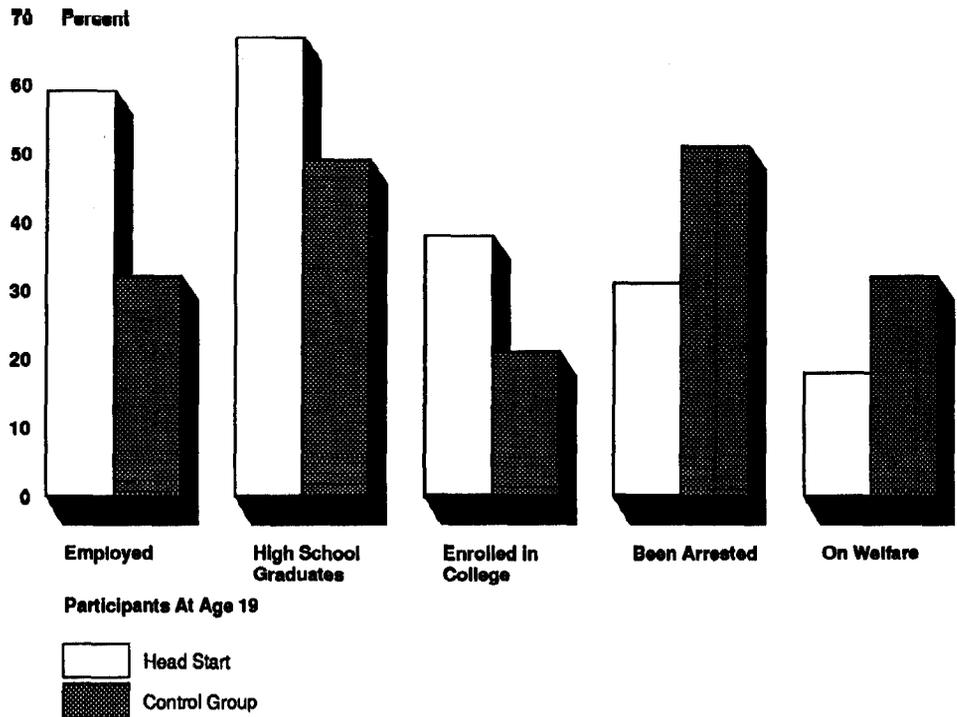
Children from low-income families often are not ready for school entry and, in the absence of special preschool preparation, tend to fall behind in school. This problem has been recognized and tackled by the federal government, primarily through financing of the Head Start program for economically disadvantaged 3- to 5-year-olds. Head Start provides educational, social, medical, nutritional, and other services, with parental involvement, to overcome start-up handicaps and prevent school failure.

Evidence of the relative effectiveness of Head Start (see fig. 2.1) has led to some expansion of such efforts. Head Start, administered by the Department of Health and Human Services, serves about 400,000 to 450,000 children each year with federal appropriations of about \$1 billion.

⁸Gordon Berlin and Andrew Sum. "Toward a More Perfect Union: Basic Skills, Poor Families and Our Economic Future," Occasional Paper 3, Ford Foundation Project on Social Welfare and the American Future, 1988, pp. 24-38.

⁹Sar A. Levitan and Frank Gallo, A Second Chance: Training for Jobs, W. E. Upjohn Institute for Employment Research, 1988, pp. 65-73.

Figure 2.1: Long-Term Effects of Head Start



Source: Harold Hodgkinson, *The Same Client*, p. 16.

Once in school, many children do not keep pace with expected levels of progress, and special attention or compensatory efforts are necessary if they are to catch up. Here, too, recognizing the need for additional assistance, the federal government finances programs for the educationally disadvantaged. Most notably, under Chapter 1 of the Elementary and Secondary Education Act, federal funds are channeled to schools serving low-income areas to provide supplemental instruction. The program reaches about 5 million students, most in the early grades. Federal financing amounts to roughly \$4.5 billion a year.

The magnitude of the problem of educationally disadvantaged children is such that even the significant investment in Head Start and Chapter 1 falls far short of reaching the bulk of the children in need. Only about 20 percent of eligible youngsters are served by Head Start and about 50 percent by Chapter 1. Moreover, assistance is not continued throughout

the school years, which often means an inability to maintain progress.¹⁰ Further, school systems do not regularly channel state and local funds to help youngsters headed for failure in high school as forewarned by lack of academic achievement, excessive school absenteeism, or behavioral problems. In addition, some school systems in poorer areas lack the financial resources to meet the particularly sizable educational handicaps of their student populations.¹¹

Schools Not Linked to Labor Market

The education system does not adequately prepare youth for entry to employment after leaving school. U.S. schools are generally isolated from the labor market and traditionally have not been responsible for assisting non-college-bound youth to make an effective transition from school to work.¹² They are not expected to provide orientation to job requirements and opportunities or to help such youth obtain employment.

Limited Orientation to World of Work

Students who plan to look for employment immediately after high school typically do not recognize the relevance of schooling to work opportunities; hence, many are not motivated to do well in school. Many youth do not gain a realistic awareness of the requirements of the work world and the opportunities available to them. While they are likely to recognize the importance of a diploma for future employment, they do not see school grades as relevant for labor market success. That employers generally do not check school grades when hiring for entry jobs reinforces students' lack of motivation.¹³

Many teenagers seek and hold part-time employment, but their jobs customarily are not linked to their schooling. Although the employment serves as an opportunity to earn income and obtain some exposure to work demands, the educational system makes few efforts to develop this experience as instruction or pathways to future adult employment.

¹⁰The William T. Grant Foundation, The Forgotten Half: Non-College Youth in America, Interim Report.

¹¹Children in Need: Investment Strategies for the Educationally Disadvantaged, Committee for Economic Development, 1987, pp. 5-10.

¹²The William T. Grant Foundation, The Forgotten Half: Pathways to Success for America's Youth and Young Families, Final Report.

¹³John H. Bishop, "The Motivation Problem in American High Schools"; and James E. Rosenbaum, "Empowering Schools and Teachers: A New Link to Jobs for Non-College Bound," in Investing in People: A Strategy to Address America's Workforce Crisis, Background Papers.

While the objective of vocational education programs is to prepare youth for employment careers not requiring a college degree, many employers do not view vocational education overall as an effective and viable training system.¹⁴ About 30 percent of high school students are in vocational education programs. Some programs are excellent and are turned to by employers as a key source of young workers. But often, vocational education has lower status. Many employers believe that the continuous technological innovations in the workplace have outpaced educators' efforts and limited resources to remain current in many fields.¹⁵ Other criticisms include: vocational education neglects academic skill development, trains for occupations not in demand, teaches with outmoded equipment, and offers limited placement assistance.¹⁶

Additionally, the quality of vocational education available to students in poor school districts is significantly lower than that available to students in wealthier communities, according to the National Assessment of Vocational Education.¹⁷ Students in poor neighborhoods are half as likely to have access to an area vocational center, and the schools they attend offer fewer vocational courses and fewer advanced vocational classes.

Relatively few formal school programs link work experience to the students' school activities and occupational interests. Only an estimated 3 percent of high school students are enrolled in formal combined school-work programs, such as cooperative education.¹⁸ Cooperative education and related programs combine school and work, through either part-time employment while in school or alternating periods of school and work. Employers are expected to observe specified standards and to provide supervision and instruction.

¹⁴Michael Dertouzos, Richard Lester, Robert Solow, and the MIT Commission on Industrial Productivity, Made in America: Regaining the Productive Edge, 1989, p. 85.

¹⁵"Shaping Tomorrow's Workforce: A Leadership Agenda for the 90's," National Alliance of Business, 1988, p. 15; and U.S. Department of Labor, U.S. Department of Education, and U.S. Department of Commerce, A Joint Initiative. "Building A Quality Workforce," July 1988.

¹⁶John H. Bishop, "Vocational Education for At-Risk Youth: How Can It Be Made More Effective?" Center for Advanced Human Resource Studies Working Paper #88-11, Cornell University, August 1, 1988; and The William T. Grant Foundation, The Forgotten Half: Non-College Youth in America, Interim Report, Commission on Work, Family and Citizenship, January 1988, p. 42-51.

¹⁷Pursuant to section 403 of the Carl D. Perkins Vocational Education Act of 1984, the Department of Education established the National Assessment of Vocational Education to conduct an independent national assessment of vocational education. The Assessment issued its final report in July 1989.

¹⁸The William T. Grant Foundation, The Forgotten Half: Non-College Youth in America, Interim Report.

**Haphazard School-to-Work
Transition**

The schools and employer community generally provide little systematic assistance to help noncollege youth obtain employment. Left to themselves, many young people flounder in the labor market, remaining jobless or obtaining jobs that do little to improve their skills for future employment.¹⁹

Our society regards the departing students' progress in the labor market as the responsibility of the students or their families. Schools rarely know what jobs youth obtain after graduation or even if they obtained employment.

Employers provide a major part of American work-force training both formally and informally, but generally have been reluctant to train youth to overcome academic deficiencies. However, they have increasingly established ties with schools to encourage improved student performance and to offer employment to higher performing youth.²⁰ One attempt is the Boston Compact, a collaborative agreement between Boston's public school system and business community to meet measurable goals for improving education and linking such improvements to increased employment opportunities. The Boston Compact has now been replicated in 12 other cities.

**Limited "Second Chance"
Programs**

Second chance programs for poorly prepared youth are generally inadequate. They train less than 10 percent of needy youth, tend not to devote much attention to literacy skills, and usually provide only brief job skill training. A variety of programs have been undertaken, principally the federally funded JTPA, to aid youth with difficulties in obtaining employment. These programs are conducted principally through state and local channels and are directed primarily to low-income youth. JTPA encompasses three principal programs for youth: training services for economically disadvantaged youth (Title IIA), the summer youth employment and training program (Title IIB), and Job Corps (Title IVB).

JTPA Title IIA programs train about 5 percent of the eligible low-income youth population. Title IIA programs are required to target at least 40 percent (about \$700 million annually) of their budget to youth. Between

¹⁹The Forgotten Half: Non-College Youth in America, Interim Report.

²⁰Business partnerships with local schools have grown to about 84,000 by 1988, according to The Conference Board. Andrew Ashwell and Frank Caropreso, eds. "Business Leadership: The Third Wave of Education Reform," The Conference Board, Inc., 1989, p. xiii.

July 1988 and June 1989, Title IIA enrolled about 324,000 youth (ages 14-21). About 87,000, or 27 percent, of these enrollees were school dropouts.

Title IIA programs devote relatively little attention to literacy skills and provide brief job skill training. About 10 percent of all JTPA youth participants receive remedial education.²¹ Average occupational training is brief (usually less than 4-1/2 months).²²

JTPA Title IIB provides for a subsidized summer employment and training program primarily for disadvantaged youth. Some 700,000 youth are provided jobs each summer under the program. The importance of basic academic skills as a prerequisite for most employment has led to coupling the youth's work experience with a basic education component to bolster literacy capability and combat student "summer learning loss."²³

Although expensive, Job Corps is effective in assisting individuals with severe educational deficits and other employment barriers. Job Corps is primarily a residential program for poor dropout youth; approximately 85 percent of its enrollees are dropouts. Its dropout participants include about 5 percent of the pool of eligible low-income dropouts. Administered directly by the Department of Labor through contracts to governmental, nonprofit, and private, for-profit organizations, Job Corps provides intensive, long-term job training and remedial education, as well as health care, counseling, and job placement assistance. At an annual cost of \$15,000 per participant, Job Corps enrolls about 70,000 youth a year. Evaluation of the program has found substantial positive outcomes, including improvements in educational attainment, gains in employment and earnings, and declines in welfare dependency, with long-term benefits exceeding costs.²⁴

²¹Job Training Partnership Act: Youth Participant Characteristics, Services, and Outcomes (GAO/HRD-90-46BR, Jan. 24, 1990).

²²Sar A. Levitan and Frank Gallo, A Second Chance: Training for Jobs, W. E. Upjohn Institute for Employment Research, 1988.

²³The administration has proposed a number of amendments to JTPA, including increased targeting of the hard-to-serve, the provision of more intensive services, and a separate "youth" title.

²⁴Mathematica Policy Research, Inc., Evaluation of the Economic Impact of the Job Corps Program: Third Follow-up Report, September 1982.

Limited Postsecondary Training

Noncollege youth may turn to private sector sources of training to build necessary job skills, yet each of the major sources of postsecondary noncollege training has weaknesses. Proprietary schools serve many youth, but many schools do not provide effective training. Apprenticeship programs can significantly upgrade skills, but are limited in the numbers of youth served. Regardless of the training source, however, training quality is often uncertain because of a general lack of recognized skill standards guiding curriculum and desired competency outcomes. In the absence of competency-based standards and tests for certifying competency, employers may lack measures of skill attainment in deciding whether to hire training program graduates.

Proprietary Schools

These schools serve many noncollege youth, with substantial federal student aid assistance. Proprietary schools offer skill training in particular occupational groups, such as in secretarial, health, computer, and repair fields. In 1986, about 763,000 students were enrolled in approximately 3,000 proprietary schools. Such schools rely heavily on federal college assistance programs, most notably the Pell program, which extends financial assistance to proprietary school students.

Much of the proprietary school training is not as effective as some other types of training for noncollege youth. A 1989 study found that proprietary school programs improve the stability of employment but do not significantly upgrade students' skill levels.²⁵ In contrast, company training appeared to pay off in terms of both wages and employment. (See app. II.)

Some operating practices of proprietary schools have caused concern about the quality of their programs. Our 1984 study found patterns of misrepresentation to prospective students, lack of attention to admission and academic progression standards, low completion rates, and faulty use of federal financial aid programs.²⁶ Three-quarters of the students admitted without a high school degree and half of the students with a high school degree dropped out of proprietary schools before completing the programs in which they had enrolled. Lack of attention to academic standards in admissions and progress is a factor in the high

²⁵This analysis was done for GAO by Duane E. Leigh, Professor of Economics at Washington State University.

²⁶Many Proprietary Schools Do Not Comply With Department of Education's Pell Grant Program Requirements (GAO/HRD-84-17, Aug. 20, 1984).

dropout rates from these programs. There is limited government monitoring of proprietary schools' operating practices, despite findings of weak performance.

Certificates from many proprietary school courses have little reliability. In the absence of generally accepted skill standards, and standardized testing and certified competency levels, employers often rely on applicants' program completion as a proxy for skill competence.

Apprenticeship Programs

Apprenticeships generally provide high-quality skills training, but serve few youth. Apprenticeships are formal industry-based training programs through which apprentices receive formalized training over several years. Theory taught in classrooms is combined with practical experience on the job. At the end of the training period, the apprentice receives certification as a journeyman, which is recognized throughout the industry.

Formal apprenticeships train only a small proportion of the work force, primarily in the building trades. Less than 2 percent of American high school graduates become apprentices. About 300,000 persons are currently enrolled in programs registered by the Department of Labor. Apprenticeship programs primarily train adults in their mid-twenties. In 1989, less than 20 percent of apprentices nationwide were under the age of 23. Competition for training programs is often quite fierce, allowing employers to select more skilled and mature workers as apprentices.

Employers and unions have primary responsibility for financing, developing, and conducting apprenticeship programs. Federal and state involvement is generally limited to program registration and apprenticeship promotion. The Department of Labor has recently reviewed the role that apprenticeship-type training might play in raising the skill levels of workers, and recommends expansion of such training. Among the Department's recommendations are expansion of local school-to-apprenticeship efforts that are designed to bring students into apprenticeship programs either in the last years of high school or after high school graduation.²⁷ Additionally, the Department proposes a series of demonstrations, including new projects on school-to-apprenticeships and Job Corps preapprenticeship training.

²⁷School-to-apprenticeship projects began in the late 1970s as Department of Labor-sponsored demonstration projects. Departmental support ended in the 1980s, but some local projects continued. Currently about 1,500 high school students are involved in such apprenticeship programs nationwide.

Foreign Strategies for Job Preparation

The four countries selected for review—England, the Federal Republic of Germany, Japan, and Sweden—have national policies aimed at effective employment preparation of noncollege youth. The judgment that a well-prepared young work force is vital for national economic growth and international competitiveness appears to underlie these policies.

Several significant approaches that are shared by some or all of the four countries appear relevant to shortcomings in the U.S. strategy for noncollege youth. The different institutions and cultural values among the selected countries and those of the United States caution against an assumption that the practices are entirely appropriate or easily transferable. The foreign practices also have problems of their own and are often the subject of policy debate in their own countries. Still, certain practices merit consideration, and indeed similar practices have been used in some U.S. localities and demonstration programs. In brief, the approaches are:

1. Schools emphasize student effort rather than ability and, therefore, expect all students to attain the academic skills necessary to perform effectively in postsecondary education or the workplace. The schools do not take it as a matter of course that many students will lag behind.
2. Schools and the employment community play a more active role in guiding the transition from school to work, including an orientation to the world of work built into the school curriculum.
3. Training is accompanied by certification of achievement of competency on nationally determined skill levels.
4. Governments make extensive investment in remedial education, training, or job placement for jobless out-of-school youth.

Emphasis on All Youth Doing Well

Some of the foreign countries emphasize giving all young people an even start. Notable approaches are to avoid grouping youth by ability in the early grades, devote special attention to students with learning difficulties, allocate similar basic resources to all schools, with an additional supplement for those in poorer areas, and attract and maintain a relatively well-paid teaching force.

Japanese schools demand high achievement, and all students are expected to achieve. The schools emphasize student effort rather than ability as a critical element to academic success, with students not

grouped by ability before high school. Student achievement tends to be viewed as changeable. Each student is expected to value the achievement of the entire class, thereby helping assure that classmates do not lag behind. Teachers pay much attention to slower learners to help them keep up with the rest of the class. Such attitudes and efforts likely contribute to a low variation in Japanese students' test scores. Japanese youth score high in international tests not only because of high scores by the better performers but also because students in the lower half of the test group also do relatively well.

The Japanese government tries to ensure uniform standards of quality in schools by providing them with similar resources (with somewhat more for vocational schools to meet additional costs of equipment), by providing uniform teacher salaries across all elementary schools, and by paying teachers well. Beginning teachers' salaries are higher than those of beginning engineers. Moreover, most teachers come from the top 30 percent of their college graduating class.

As with schools in Japan, Swedish schools emphasize all youth's performance. Swedish schools do not give grades in primary school, believing that they can damage children's motivation and self-esteem. Additional resources are provided to needy schools, such as those in remote rural areas and those having relatively high proportions of immigrant youth.

Structured School-to-Work Transition

Each country seeks in some structured fashion to smooth the transition from school to work by giving students occupational information and guidance while in school, by combining schooling with work experience and on-the-job training, and by offering job placement assistance. Employers play a significant role in youth's transition to work. This includes structured work experience for secondary students in the four countries, apprenticeship training for most youth in the Federal Republic of Germany, and formal school-employer linkages for job placement of most youth in Japan.

Work Orientation in School Years

The foreign schools provide orientation to the world of work and build monitored work experience and occupational guidance into the secondary school years. In 1983, England introduced the Technical and Vocational Education Initiative into the secondary school curriculum to prepare youth for "better working life by making what they learn at

school, and the way they learn it, more relevant to the world of work.”¹ Objectives of this initiative include relating the curriculum to the world of work, providing students with such workplace skills as teamwork and problem solving, and giving them direct knowledge of working life through work experience. The government set a goal that by the early 1990s, every person aged 14-18 in full-time education will have access to this initiative.

Schools in the Federal Republic of Germany provide orientation to the world of work, with courses offered in the seventh, eighth, and ninth grades. This includes 1 to 2 weeks of work experience arranged by the schools, with schools setting work standards and employers providing information on students’ performance. Also, classes visit the local employment service office to obtain occupational and training information. In the ninth grade, employment service staff provide information at the schools about local jobs and apprenticeships, and interested youth visit the local employment service office for individual career counseling.

Sweden provides work orientation early in the school years. From age 7 through 15, students complete 6 to 10 weeks of work orientation. In addition, in each of the first and second years of high school, young people majoring in vocational fields spend 10 percent of their time at a work site. A 1988 program adding a third year to school includes work experience for 60 percent of the year.²

Schools Are Linked to the Labor Market

The foreign schools systematically facilitate the students’ transition from school to work. In England, for example, special teachers work with “careers officers” from the employment service to give students job information and placement assistance. Also, England funds school-employer linkages whereby employers offer employment and training to students who, at age 16 (the completion of the compulsory school years), achieve certain academic and attendance and other behavioral goals. England adopted this “compact” approach from the United States, specifically the Boston Compact (see p. 29).³ Unlike in the United States, however, all jobs obtained through compacts in England have formal

¹“Employment for the 1990s” (Her Majesty’s Stationery Office Cn 540, Dec. 1988).

²The 3-year program also provides modular and credentialed occupational courses as well as more theoretical studies to allow students to enter a university.

³William J. Spring, “Youth Unemployment and the Transition from School to Work: Programs in Boston, Frankfurt, and London,” in New England Economic Review, March/April 1987.

provisions for training, leading to certificates of recognized competency. Forty compacts are now in operation, targeted on England's inner city areas.

In the Federal Republic of Germany, the school-employer link is provided through an extensive apprenticeship system that guides almost all 15- or 16-year-old non-college-bound youth from school to employment. Apprenticeships usually are 3 years long. The youth typically spend one to two days a week studying vocational and academic subjects, such as mathematics, German, and social studies, in state-run vocational schools and the remainder of the week receiving on-the-job training with employers.

The primary purpose of the West German apprenticeship system (also called the dual system) is to develop a high-quality skilled work force. Trainees are expected to be taught more than they may actually use on a specific job. For example, a sales clerk trainee learns about selling, product quality, and pricing and obtains some accounting and computer knowledge. The training is the basis for higher-skill middle management positions should the apprentice want to progress further. In addition to imparting specific skills, the apprenticeship system seeks to socialize youth into the world of work, providing a slow introduction into the labor market. Also, experts on the dual system note that training is needed to keep up with technological progress, for example, mechanics apprentices must now learn electronics.

West Germany's apprenticeships are available in 380 occupational categories representing over 20,000 occupations. Table 3.1 lists the leading apprenticeship occupations in 1987.

Table 3.1: West Germany's 10 Leading Training Occupations by Sex (1987)

Trainees	Percent of apprenticeships
Men:	
Vehicle mechanic	7.7
Electrical fitter	4.8
Machine fitter	4.0
Painter and varnisher	3.2
Joiner	3.1
Wholesale and export clerk	2.8
Gas-fitter and plumber	2.8
Bank clerk	2.7
Industrial clerk	2.5
Baker	2.5
Total	36.1
Women:	
Hairdresser	8.4
Office clerk	6.8
Sales assistant (stage 1) ^a	6.8
Sales assistant in foods	6.6
Industrial clerk	5.8
Doctor's receptionist	4.8
Retail sales clerk	4.6
Dentist's receptionist	4.1
Bank clerk	4.0
Wholesale and export clerk	3.0
Total	54.9

^aStage 1 refers to completion of a 2-year apprenticeship.

Source: West German Federal Ministry of Education and Science, Basic and Structural Data 1988/89.

Youth in Japan obtain employment almost exclusively through school-employer linkages. High schools are ranked academically within each school district, and students take a high school entrance examination to determine which school they can attend. Each school has ties with employers who assign a certain number of jobs to the school for its graduates. More prestigious employers with better job offers recruit from the higher ranked schools.

Almost all Japanese high school students seeking work are placed in jobs through their schools, and they start work immediately upon graduation. In the beginning of each school year, Japanese high schools, acting as agents of the public employment service, nominate and rank their

graduating students for each of the job offers, using grades and “behavior” (such as attendance records) as their main criteria. The use of grades as a selection criterion motivates students to do well and helps them realistically assess their career options. The schools know the employers’ expectations and nominate students whom they think will fulfill them. The employers then interview and hire all or most of the nominees.

In Sweden, the schools usually manage occupational training. Students choosing a vocational field are typically trained in school, not by an employer as in West Germany. Swedish students also have practical training with an employer. Apprenticeship skill training is limited to construction fields, where teachers monitor the youth’s activities at the work site.

Many youth find jobs through contacts they have made with employers during their work experience or through family contacts. Others are provided placement assistance by school teachers, school counselors, and special employment service staff who work with youth up to age 25.

Recognized Skill Standards

Some foreign countries seek to maintain quality occupational training by testing and certification to meet national standards. Participants who pass competency tests receive nationally recognized credentials, which employers look to as evidence of skill levels of potential hires.⁴ England’s National Council for Vocational Qualifications works with industry to develop national skills standards. The standards are expected to guide training content and to measure competencies attained from vocational training in schools, training programs such as the Youth Training Scheme, and company training. Levels of achievement are intended to establish career progression to serve as a guide and motivator for youth.

Under West Germany’s dual system, committees of government, employer, and union representatives develop apprenticeship curricula, examinations, and certification procedures at the national level. The contents of the training, and its length, remuneration, and examination requirements, are part of the contract between the employer and the apprentice. Several measures seek to assure and check the quality of the

⁴Notwithstanding the advantages of having training standards, there may be difficulties in their implementation. For example, they may be costly to apply and difficult to keep up to date.

apprenticeship training. Employers must be approved for training capability by the local Chamber of Handicrafts or Chamber of Industry and Commerce (self-governing national industrywide boards) before they are able to hire apprentices. In addition, in-company instructors are trained and certified through the chamber as qualified to teach apprentices. Also to assure quality, apprentices must pass national final examinations. The examinations typically include written, oral, and practical tests and are administered before a committee of employer and employee representatives and vocational instructors. Employers can lose their status as trainers if an apprentice is determined to have failed the final examination because of inadequate preparation by the employer.

Extensive Investment in Jobless Youth

The countries generally provide extensive assistance to jobless youth. The programs vary, but reflect a national policy that youth who are unable to gain employment should be given further preparation so that they may become better qualified workers. England and Sweden guarantee further education, skill training, and/or placement in a job to most unemployed out-of-school youth. The programs are generally comprehensive and long-term.

England has two major education and training programs, the Youth Training Scheme for out-of-school youth ages 16 and 17, and Employment Training for older youth and adults. These programs are regarded as advances, but they have encountered operational problems leading to national debate as to desirable revision. The Youth Training Scheme guarantees training for every 16- and 17-year-old who is not in full-time education or employment.⁵ The program provides 2 years of work experience and on-the-job training to 16-year-olds, and 1 year to 17-year-olds. It also provides classroom training, much of which takes place in "further education colleges."⁶ The youth are provided a weekly stipend while in the program. Since its initiation in 1983, the Youth Training Scheme has had about 2 million participants. About 70 percent of out-of-school youth aged 16 have enrolled. Three months after leaving the program (during 1988-89), four-fifths of the participants were in a job, training, or further education.

⁵The Youth Training Scheme is open to all out-of-school 16- and 17-year-olds, but the guarantee applies only to those who are jobless.

⁶Run by local education authorities, further education colleges offer a range of courses specifically geared to local labor market needs.

Government, employer, and union representatives assert that the program's skills training needs improvement. Although 38 percent of program participants and 66 percent of completers achieve vocational qualifications, the level of qualifications has been low. Most youth have been qualified at only "level 1," that is, training for jobs that require minimum responsibility, such as file clerk and stock clerk. A 1989 report by a Confederation of British Industry task force suggested a more flexible program in which "entitlement to a level of learning would replace entitlement to two years of training." The task force also recommended

"immediate moves to ensure that by 1995 all young people attain...level II or its academic equivalent [and] all young people should be given an entitlement to structured training, work experience or education leading to...level III or its academic equivalent."⁷

The Employment Training program, initiated in 1988, offers up to a year's training for persons aged 18 to 59 who have been unemployed for at least 6 months. The participants receive classroom training, on-the-job training, and work experience. They also receive assistance in finding a permanent job. As of July 1989, 38 percent of the participants were between the ages of 18 and 24. Among these younger participants are youth who missed out on the Youth Training Scheme.

Sweden guarantees employment and training services to all jobless teenagers. Programs vary with the age of the youth. Municipal authorities are responsible for following up all young persons aged 16 and 17 not in school or working and pursuing an individualized plan for their education, training, and employment. Once youth are 18, they become the responsibility of the public employment service, which provides such services as placement in training programs and jobs.

Programs for 16- and 17-year-old school leavers assist the young people in going back to school or in obtaining employment. Youth who are "fed up" with school and who cannot find regular jobs are offered public or private sector "youth opportunities" employment. These are temporary jobs, lasting about 6 months, paying less than the market wage, and subsidized by state grants for about 60 percent of the wage cost. The jobs typically run 4 days a week, with the 5th day used for education. Young people needing more assistance than offered by the youth opportunities

⁷Competency level II, which involves more individual responsibility than level I, includes skilled operative, word-processing, and sales clerk positions. Level III requires competence in a wide range of work activities, many of which are complex and nonroutine. In some cases, supervisory competence may be required.

jobs are provided education and training in vocational workshops in community youth centers and also are given guidance in solving personal problems.

For 18- and 19-year-olds, the local employment service provides an individual plan of action. This includes job search activities for 7 weeks, with stipends the last 4 weeks if the youth are unable to find employment. The youth also are counseled on education and training opportunities. Those who cannot find employment are guaranteed an "induction opportunity," usually a full-time job with private employers that lasts for 6 months.

Jobless youth aged 20 and older are included in a program for adults. Persons registered with the local employment service who are unable to find jobs may be referred to a community center with vocational workshops, education courses, and social services. Employment service or community center staff also may refer them to temporary public jobs. In addition, the employment service may refer jobless persons to an "AMU" training center.⁸ Persons receive a grant while in AMU training.

⁸In 1986, the Swedish government established a self-financing organization, the AMU Group, which sells training services to both the public and private sectors. AMU provides training to about 80,000 persons each year. It uses a modular training system, and its training is "results based" (that is, no set time is required for completion). AMU provides academic and vocational curricula primarily at the upper secondary level, but also offers university and remedial subjects.

Conclusions and Policy Considerations

The United States has a worldwide reputation for giving its youth extensive opportunities to attend college. Its preparation of non-college-bound youth for employment, however, is inadequate. Unlike some of its economic competitors, the United States has no national policy to prepare noncollege youth systematically for the labor market. The United States falls short in significant respects in employment preparation of many youth, most notably in equipping them with necessary literacy skills and providing for effective transition from school to work.

Based on our review, we conclude that several or all of four foreign countries share certain approaches that the United States might consider for improving U.S. education and training. In fact, similar approaches are being tried in some U.S. localities and demonstration programs. However, caution should be exercised in adopting the foreign approaches—their implementation must be tailored to the United States' social and political characteristics.

The approaches we see as significant in the foreign countries appear to be rooted in a national judgment that a well-prepared young work force is vital for national economic performance and international competitive ability.

The countries have developed literacy of a relatively high level for all students by such practices as

- assuring comparable resources to all schools, with more for those with needy populations;
- making teaching a relatively high-status, well-paying profession; and
- providing extra attention and help to lagging youth.

The foreign nations customarily provide structured transition from school to work. They offer students orientation to work, monitored work experience, apprenticeship training, career guidance, and direct job placement through the schools.

The roles and relationships of the schools, public employment agencies, and employers—while differing in each country—tend to be integrated and clear. Thus, most youth know where to turn, and relatively few fall between the cracks in the path from school to work.

For youth who do encounter employment difficulty after leaving school, the countries' systems seek to reach most of them. They provide education, training, or jobs. The assistance typically is intensive and long term.

These practices in the foreign countries suggest the following policy directions: U.S. federal, state, and local governments should strive to ensure that all children attain the academic skills necessary to perform effectively in postsecondary education or the workplace. This could include:

- Expanding preschool and early intervention programs such as Head Start to reach more needy youth.
- Expanding compensatory programs such as Chapter 1 through the school years so that availability of continuing special support maintains student progress.
- Providing adequate educational resources for all children as a means to improve the opportunity for them to achieve academic skills competency.

U.S. federal, state, and local governments should also consider developing and promoting more school-employer linkages, particularly to expand combined education and work (apprenticeship-type programs) and to assist youth to obtain suitable entry employment. In addition, they should explore ways to develop standards and competency certifications that can be applied to school and industry training programs.

Adopting effective education and training strategies nationwide to improve national productive capability and international competitiveness will require strong leadership and an active federal role. The executive branch is the logical focal point for national responsibility. The Department of Education, in combination with the Department of Labor, should take the lead in helping state and local officials and industry and labor representatives work more effectively to equip U.S. noncollege youth to meet the nation's need for well-qualified future workers. (We did not analyze potential costs or funding sources.)

Methodology for Estimating Investment in Youth and Training

This summary paper, prepared by Seymour Brandwein (consultant to GAO), describes how estimates have been developed of the current rate of public investment by the United States in education and training for college youth as compared to noncollege youth, in the 9 years from the end of compulsory education upon age 16 through age 24. It first outlines the methodology, then presents the basic data and calculations, and concludes with the resulting estimates.

Methodology

The basic elements involved are (1) the youth population, by levels of education; (2) the four broad types of education and training; and (3) the current annual public investments (expenditures) in each type. More specifically:

1. Focus is on the youth population aged 16-24, which totaled 32.9 million in 1988.¹ That population is divided into college and noncollege youth: Those out of school are classified by the level of education completed, and it is assumed that those still in school or college will complete various levels at the same rate as those who have already left school. The resulting estimate is that before age 25, nearly half, 15.8 million, have gone or will go to college, while 17.1 million will not. A further distinction is drawn for the college youth, between those (5.9 million) who graduate from college (4 years' attendance) and those (9.9 million) who go for 3 years or less, and for the noncollege youth, between high school graduates (11.6 million) and high school dropouts (5.5 million).
2. The four types of education and training (and related employment assistance) covered are: college education (at 4- and 2-year colleges), high school education, "second-chance" programs basically outside the school system, and postsecondary noncollege training.
3. Current (or recent) annual public investment (federal, state, and local government expenditures) are estimated for youth aged 16-24, by level of education, for each type of education and training.² It is assumed that these current rates of expenditure were in effect for each year of education or training that the youth have had since age 16 and will continue through their age 24.

¹October 1988 Current Population Survey. This is civilian noninstitutional youth, thus excluding youth in military service and in prisons.

²Investment by the military services in occupational training and college education is not included.

To come up with the total investment for a college youth as compared to a noncollege youth, the basic procedure is to apply the annual per youth expenditure for each type of education and training to the number of years in the 16- to-24-year age period that each group of youth (college or noncollege) gets that type of education and training.

Key assumptions for college youth are that “graduates” get 4 years of the annual public investment in college education (though some may get more than 4 years before age 25), and that college attendees who do not graduate get an average of 2 years of college investment. All the college graduates and attendees also have 2-1/2 years of high school education investment (from age 16 through 18-1/2).

For the high school graduates not going to college, we also assume receipt of 2-1/2 years of high school education investment. In addition, they receive the average annual investment in second-chance programs for high school graduates for the number of years they are out of high school through age 24, generally 6-1/2 years from average graduation age 18-1/2 through age 24. This period varies by specific programs: for programs with eligibility only through age 21, the number of years their per youth investment is made is 3-1/2 (from age 18-1/2 through 21). Finally, they receive the similarly calculated postsecondary noncollege training investment in high school graduates (average annual expenditure multiplied by 6-1/2 years from high school graduation through age 24).

For the high school dropouts, the assumption is 1 year of the annual high school education investment (on the basis of average dropout age of 17). To that is added the average annual investment of second-chance programs for dropouts multiplied by the number of years dropouts are out of school and eligible. Finally, they receive the average annual investment in postsecondary noncollege training for dropouts for an assumed 8 years from dropout at age 17 through age 24.

Investment in College Education

We use an estimate of \$3,800 as the public expenditure per year of college education. This is derived from an estimate of total public investment of \$45.3 billion a year for college education, divided by an estimated annual enrollment of 12 million students of all ages in public and private colleges.

The \$45.3 billion is developed from the following components: The revenues of higher education institutions from government (federal, state,

and local) sources were \$30.7 billion in 1986, according to the Department of Education's National Center for Education Statistics (NCES) report on Conditions of American Education, 1988 (Vol. II, p. 95).

In addition, revenue from student and tuition fees is supported in part by government financial aid for college students. In the year 1988-89, the cost of federal grant and loan assistance for college students was approximately \$7 billion, with state student aid assistance appearing to be about another \$1 billion. The two estimates (direct appropriations of \$30.7 billion and student aid of \$8 billion) combine to total \$38.7 billion.

Added to this is part of indirect governmental support provided to colleges through grants and contracts for research and other activities. The NCES estimates total such grant and contract funding in 1986 at \$13.3 billion. We consider half of this funding, or \$6.6 billion, to be an (indirect) investment in higher education. The \$6.6 billion, plus the \$38.7 billion for direct support and student aid, makes the annual expenditure total \$45.3 billion, the estimate we use.

As to the number of college students over whom this investment is spread, NCES estimates (Vol. II, p. 109) total enrollment in 1987 in public and private colleges at 12.5 million. We believe this total unduly high for our expenditure estimating and (conservatively) reduce it to 12 million for our estimates. We do this because the NCES total includes many enrollees with limited attendance (42 percent are part-time enrollees) and because it includes enrollees who were in military service and receive military postservice college education assistance not included in our estimates.

Our estimate of \$3,800 public expenditure per student year of college education is less than has been estimated by others. Thus, the Grant Foundation November 1988 report, The Forgotten Half, indicates (p. 130) about \$40 billion in public expenditures for 9 million students, or some \$4,400 a year per student, appreciably higher than our estimate.

Investment in High School Education

For each student year of high school education, we used an estimate of \$3,800 public expenditure (coincidentally the same as that for college education). NCES's Condition of Education does not present a specific overall estimate. It provides (Vol. I, p. 92) an estimate of \$4,300 in total expenditures (current expenditures, capital outlays, and interest on school debt) per pupil in average daily attendance in 1987 at public elementary and secondary schools. Extending this public expenditure to

cover the 11 percent of students in private schools, the average public investment per student year in public and private schools is about \$3,800.

Available data do not break down expenditures for elementary versus high school education. Although average expenditures are probably greater for a high school than an elementary school student, we assume equal average expenditures of \$3,800 for each.

Approximately the same estimate is indicated by Anthony Carnevale and Leila Gainer of the American Society for Training and Development in The Learning Enterprise report prepared for the Department of Labor. They state that "the nation's public and private elementary schools currently serve 40 million students at a cost of \$150 billion a year," or about \$3,750 per student year.

Investment in Second Chance Programs

Table I.1 presents the data on annual public expenditures for youth in education, training, and employment programs conducted essentially outside the school system, commonly called (and labeled here as) the "second-chance" programs. Unless otherwise indicated by a footnote, these are appropriations data from GAO's 1989 report, Training Programs: Information on Fiscal Years 1989 and 1990 Appropriations (GAO/HRD-89-71FS).

The table is in four parts, each showing programs for a different age period (years of age in which youth are eligible). The data are broken into estimates separately for high school graduates and high school dropouts. (It is assumed that no enrollees in these programs have attended college, although some in fact have been college attendees, so the final estimates overstate a bit the investment in high school graduates and dropouts while understating that in college youth.)

**Appendix I
Methodology for Estimating Investment in
Youth and Training**

Table I.1: Second-Chance Programs' Annual Expenditures for Youth

Dollars in millions

Program	Total appropriations	Estimated appropriations for eligible-age youth	Share estimated for high school	
			Graduates	Dropouts
Part 1. Programs for youth aged 16-21:				
JTPA Title II-A training for out-of-school youth	\$1,790 ^a	\$418	\$222 ^b	\$196 ^b
JTPA Job Corps	740	740	150	590
JTPA Summer Youth Employment Program	710 ^c	430 ^c	345 ^d	85 ^d
State and local youth conservation and service corps programs	150 ^e	150 ^e	100 ^e	50 ^e
Total		\$1,738	\$817	\$921
Part 2. Program for in-school youth aged 16-21:				
JTPA Title II-A training for in-school youth ^b	\$1,790 ^g	\$302 ^g	\$201	\$101 ^g
Part 3. Program for youth aged 22-24:				
JTPA Title II-A training	\$1,790	\$175 ^b	\$125 ⁱ	\$50 ⁱ
Part 4. Programs for youth aged 16-24:				
Vocational Rehabilitation	\$1,440	\$120 ^j	\$80 ^j	\$40 ^j
Adult Education (federal)	136	45 ^k	23 ^k	22 ^k
Adult Education (state and local)	175 ^l	58 ^k	29 ^k	29 ^k
Food Stamp Employment and Training	116	38 ^k	19 ^k	19 ^k
Welfare Recipient Employment and Training	130 ^m	65 ^m	33 ^m	33 ^m
Targeted Jobs Tax Credit	210 ⁿ	125 ⁿ	83 ⁿ	42 ⁿ
Miscellaneous other federal, state, and local programs	N/A ^o	100 ^p	75 ^p	25 ^p
Total		\$551	\$342	\$210

^aOf total appropriation for JTPA Title II-A, 40 percent (\$720 million) is allocated for youth age 16-21; 58 percent of enrollees are out of school, so 58 percent of allocation is estimated for such youth.

^bBased on estimates of the Department of Labor's Job Training Quarterly Survey (JTQS) for 1987, 48 percent of age 16-21 enrollees out of school are dropouts; the remainder are considered high school graduates (including 10 percent who had attended college). Assumes average expenditure is the same for both graduates and dropouts.

^cProgram is for age 14 through 21; 39 percent of enrollees are age 14-15, so expenditure for ages 16-21 is estimated at 61 percent of total appropriation.

^dMost enrollees age 16-21 are still students. The proportion of appropriations estimated for dropouts has been calculated by adding the number of enrollees who have already dropped out and the number (17 percent) who it is estimated will drop out, and applying the resulting percentage of total enrollment to appropriations, with the remaining percentage assigned here to high school graduates.

^eEstimate of appropriations is from Grant Foundation November 1988 report, *The Forgotten Half*, p. 132. Arbitrarily assumes two-thirds of enrollees are high school graduates and one-third are dropouts.

^fIncludes some youth age 14-15, but all expenditures assigned here to ages 16-21.

^gOf total appropriation for JTPA Title II-A, 40 percent (\$720 million) is allocated for youth age 16-21; 42 percent of allocation is estimated for such youth. Assumes arbitrarily that two-thirds of in-school enrollees become graduates and one-third become dropouts.

^hPortion of over-age-21 funding estimated as allocated to enrollees age 22 through 24. Based on data

**Appendix I
Methodology for Estimating Investment in
Youth and Training**

from JTQS indicating proportion of enrollees age 22 or older who are 22 to 24 and assuming average Title II-A expenditures for each enrollee in this age group.

^lBased on JTQS survey estimates that 27 percent of enrollees age 22 or older are high school dropouts, the remainder are considered high school graduates (including 23 percent who had attended college). Assumes average expenditure is the same for both graduates and dropouts.

^jGAO report on training programs (p. 21) estimates 15 percent of appropriation is for training. Allowing for job-finding assistance and other employment-related aid, estimate here is arbitrarily raised to 25 percent, so that \$360 million may be for education, training, and employment. Of that, assume one-third is for youth, resulting in \$120 million estimate. Assumes two-thirds is for high school graduates and one-third for dropouts.

^kAssumes one-third of appropriation is for youth, with half of that for high school graduates and half for dropouts.

^lEstimate from Sar Levitan and Frank Gallo, Uncle Sam's Helping Hand: Education, Training, and Employing the Disadvantaged, p. 10.

^mCombination of WIN Program and new JOBS Program. Assumes half of appropriation goes for youth, with half of that for high school graduates and half for dropouts.

ⁿEstimated foregone tax revenue (rather than appropriations). From Sar Levitan and Frank Gallo. "The Targeted Jobs Tax Credit: An Uncertain and Unfinished Experiment," Labor Law Journal, Oct. 1987.

^oNot applicable.

^pArbitrary estimate for various other relatively limited assistance programs (Employment Service for example) and small or pilot federal, state, and local government-financed programs. Assumes three-fourths for high school graduates and one-fourth for dropouts.

The Table I.1 data are the bases for calculation of the estimates of average expenditure of the second-chance programs per youth during ages 16 through 24.

For high school graduates, the average total expenditure is estimated as \$510 per graduate not going on to college. The calculations are:

1. Part 1 programs' total annual appropriations of \$817 million for graduates divided by the 11.6 million high school graduates equals \$70 average expenditures per graduate per year times 3.5 years (from graduation age 18-1/2 through age 21) equals \$245 total average expenditure per graduate.
2. The Part 2 in-school program appropriation of \$201 million divided by the 11.6 million graduate equals \$17 per graduate times 2-1/2 years in school (at ages 16 through 18-1/2) equals \$43 total per graduate.
3. Part 3 programs' appropriation of \$125 million divided by the 11.6 million graduates equals \$11 a year per graduate times 3 years (from age 22 through 24) equals \$33 total per graduate.

4. Part 4 programs' appropriations of \$342 million divided by the 11.6 million graduates equals \$29 a year per graduate times 6-1/2 years from graduation (at age 18-1/2 through age 24) equals \$189 total per graduate.

Combining the total average expenditures per graduate of each of these four sets of programs (\$245, \$43, \$33, and \$189) yields the estimated total investment of \$510 in second-chance programs for a high school graduate.

For high school dropouts, the per youth total expenditure in second-chance programs is \$1,180, the rounded addition of the totals calculated below:

1. Part 1 program total annual appropriations of \$921 million directed to dropouts divided by the 5.5 million dropouts equals \$167 average per dropout per year times 5 years (from dropout age 17 through age 21) equals \$835 total per dropout.

2. The Part 2 program appropriation of \$101 million divided by 5.5 million dropouts equals \$18 per dropout per year times 1 year in school (from age 16 to dropout age 17) equals \$18.

3. The Part 3 program appropriation of \$50 million divided by 5.5 million dropouts equals \$9 times 3 years (from age 22 through 24) equals \$27.

4. Part 4 program appropriations of \$210 million divided by 5.5 million dropouts equals \$38 times 8 years (from dropout at age 17 through age 24) equals \$304.

Investment in Postsecondary Noncollege Training

Appreciable portions of federal financial assistance to students for higher education are used to attend noncollege occupational training schools. Table I.2 presents estimates of how much of the three principal federal assistance programs are going to youth to attend proprietary (noncollege) schools, with a breakdown into the estimated shares going to high school graduates and to dropouts. Those proprietary schools account for about 75 percent of postsecondary noncollege training enrollment. The data do not include financing for public vocational institutes (sometimes attached to colleges), so the data totals here understate the extent of investment in postsecondary noncollege training.

**Appendix I
Methodology for Estimating Investment in
Youth and Training**

Table I.2: Postsecondary Noncollege Training: Public Annual Expenditure for Youth Age 16-24

Dollars in millions

Program	Total appropriations	Estimated appropriations for proprietary schools	Estimated portion for youth 16-24 ^a	Share estimated for ^b high school	
				Graduates	Dropouts
Pell grants for higher education ^c	\$4,484	\$1,121 ^c	\$841	\$682	\$170
Higher education insured loans ^d	3,554	1,280 ^d	960	768	192
Supplemental educational opportunity grants ^e	438	57 ^e	43	34	9
Totals	\$8,476	\$2,458	\$1,844	\$1,484	\$371

^aOf appropriations estimated as going to proprietary school students, the portion going to youth age 16-24 is estimated arbitrarily at 75 percent.

^bAssumes 80 percent for high school graduates, 20 percent for dropouts.

^cGAO report on training programs (p. 22) estimates 25 percent used for proprietary noncollege school students.

^dGAO report on training programs (p. 23) estimates 36 percent used for proprietary noncollege school students.

^eGAO report on training programs (p. 23) estimates 13 percent used for proprietary noncollege school students.

The table I.2 data are the bases for the estimates of the average investment in postsecondary noncollege training for youth, as calculated below.

For high school graduates, the average total expenditure per youth for such training in proprietary schools through age 24 by those major federal assistance programs is \$830: the annual appropriations of \$1,484 going to high school graduates divided by the 11.6 million graduates under age 25 equals \$128 average a year per graduate times 6-1/2 years (from graduation age 18-1/2 through age 24) equals \$830.

For high school dropouts, the average total expenditure by programs per dropout is \$540: annual appropriations of \$371 million divided by the 5.5 million youth dropouts equals over \$67 a year per dropout times 8 years from dropout age 17 through age 24 equals \$540.

Estimates of Public Investment

Table III presents the estimates, from the preceding data and calculations, of the U.S. public investment in education and training for youth during ages 16 through 24, distinguishing between college and noncollege youth. The estimates should be recognized as approximate, for they would shift a bit with changes in assumptions or further refining, but

**Appendix I
Methodology for Estimating Investment in
Youth and Training**

they can serve as sound indicators of orders of magnitude of current U.S. public investment practice.

Table I.3: Estimated U.S. Public Investment in Youth Education and Training During 9 Years From Age 16 Through 24 by Level of Education

Level of education and investment component	Average investment per youth	
	Total	By component
All college youth	\$19,940	
College graduate (4 years)	24,700	
College education, 4 yrs. x \$3,800 a yr.		\$15,200
High school education, 2-1/2 yrs. x \$3,800 a yr.		9,500
College attendee (1 to 3 years)	17,100	
College education, 2 yrs. x \$3,800 a yr.		7,600
High school education, 2-1/2 yrs. x \$3,800 a yr.		9,500
All noncollege youth	\$9,130	
High school graduate not attending college	10,840	
High school education, 2-1/2 yrs. x \$3,800 a yr.		9,500
Second-chance programs		510
Postsecondary noncollege training		830
Dropout from high school	5,520	
High school education, 1 yr. x \$3,800 a yr.		3,800
Second-chance programs		1,180
Postsecondary noncollege training		540

Training for Non-College-Bound Youth

We examined non-college-bound youth's participation in postsecondary occupational training programs and the impact of such training on employment and earnings. This analysis is based primarily on a paper prepared for GAO by Duane Leigh, Professor of Economics, Washington State University.¹ Leigh examined youth's participation in training provided by proprietary schools, by apprenticeship programs, and formally by companies. He analyzed data from the National Longitudinal Survey of Youth² to determine (1) how likely individuals are to receive various types of training and (2) what impact such training had on wages and stability of employment.

Participation in Postschool Training Programs

Leigh examined how participation in occupational training varied by ethnicity, gender, educational attainment, and type of training provider. This analysis showed that:

- There is a strong relationship between the amount of formal schooling obtained and the likelihood of receiving postschool training. High school graduation was found to significantly increase the likelihood of participating in a proprietary school program, company, or apprenticeship training. But college attendance and graduation further increase the likelihood of receiving company training.
- Women are less likely than men to gain access to apprenticeship programs and are more likely to participate in proprietary school training programs. Women and men appeared to be equally likely to participate in company training.
- All else constant, blacks are somewhat less likely than whites to participate in apprenticeship programs, but about as likely to participate in proprietary school and company training.
- With one exception, there seems to be no sizable difference between Hispanics and whites in the likelihood of participation in any of the three postschool training categories. Hispanic females are less likely to participate in proprietary school programs than are white women.

¹Duane Leigh, What Kinds of Training "Work" for Noncollege Bound Youth? October 1989. Paper prepared for GAO.

²The survey has collected data annually since 1979, when respondents were 14 to 21 years of age. It surveys a nationally representative sample of over 12,000 males and females. The sample Leigh used contains information from 1979 through 1987.

A related GAO analysis, using data from the 1984 Current Population Survey,³ found of all the respondents aged 16 to 24, 12 percent had received private or public occupational training during 1982-84. Of these, 7 percent were high school dropouts, and 3 percent received Aid to Families With Dependent Children welfare benefits.

About 50 percent of those receiving training received classroom skills training. About 30 percent received on-the-job training. Fifty percent of the respondents receiving training had it paid for by employers, and about 30 percent paid for the training themselves.

Impact on Wages and Earnings

Leigh also examined what impact training had on wages and earnings and whether the impact varied by ethnicity or type of training received. These findings of the National Longitudinal Survey of Youth analysis showed that:

- Company programs and apprenticeship training have positive and significant impacts on both wages and earnings. Apprenticeship programs have nearly twice the impact of company training.
- The evidence for proprietary schooling is mixed. Participation in proprietary school programs has a positive impact on annual earnings, but no impact on wage rates. This suggests that proprietary schooling increases time employed, but does not significantly upgrade skills.
- Only company training is as significant for blacks as it is for whites in terms of annual earnings and wage rates. Proprietary schooling appears to have a positive and significant impact for whites, but no positive impact for blacks and Hispanics.

³This GAO analysis was done using matched data files of the January 1984 supplement to the Current Population Survey and the March 1984 Current Population Survey. The January 1984 survey included supplementary questions on training. This survey asked respondents about classroom training, classroom basic education, on-the-job training, and job search; length of training; and source of training funds.

Major Contributors to This Report

Human Resources Division, Washington, D.C.

Sigurd R. Nilsen, Assistant Director, (202) 523-8701
Ellen B. Sehgal, Senior Evaluator
Gloria E. Taylor, Evaluator
Holly A. Van Houten, Evaluator
Hannah F. Fein, Writing Specialist
Joyce W. Smith, Secretary

European Office

Becky Kithas, Evaluator

Far East Office

Richard Meeks, Evaluator

Bibliography

United States

Altbach, Philip G. "Needed: An International Perspective." Phi Delta Kappan, Nov. 1989.

Anderson, Bernard E., and Isabel Sawhill, eds. Youth Employment and Public Policy. The American Assembly, Columbia University, 1980.

Ashwell, Andrew and Frank Caropreso, eds. "Business Leadership: The Third Wave of Education Reform," The Conference Board, Inc., 1989.

Banerjee, Neela. Unfair at Any Price: Welfare Recipients at New York Proprietary Schools. Interface Development Project, 1989.

Berlin, Gordon, and Andrew Sum. "Toward a More Perfect Union: Basic Skills, Poor Families and Our Economic Future," Occasional Paper 3, Ford Foundation Project on Social Welfare and the American Future, 1988.

Berreuta-Clement, John R., and others. Changed Lives: The Effects of the Perry Preschool Program on Youths Through Age 19. High/Scope Educational Research Foundation, 1984.

Berryman, Sue E. "The Economy and American High Schools: What Should We Teach? When? How? To Whom?" Paper prepared for Panel, "Making High School Work for Non-College Youth," Tenth Annual Research Conference, Association for Public Policy Analysis and Management, October 27-29, 1988.

Bishop, John H. "Incentives for Learning: Why American High School Students Compare So Poorly to Their Counterparts Overseas," in Investing in People: A Strategy to Address America's Workforce Crisis, Background Papers, Vol. 1. Commission on Workforce Quality and Labor Market Efficiency, U.S. Department of Labor, 1989.

———. "The Motivation Problem in American High Schools." Center for Advanced Human Resource Studies Working Paper #88-13, Cornell University. Paper presented at the Tenth Annual Research Conference, Association for Public Policy Analysis and Management, October 28, 1988.

———. "The Productivity Consequences of What Is Learned in High School." Center for Advanced Human Resource Studies Working Paper #88-18. Cornell University, June 20, 1989.

———. "Vocational Education for At-Risk Youth: How Can It Be Made More Effective?" Center for Advanced Human Resource Studies Working Paper #88-11. Cornell University, August 1, 1988. Prepared for the National Assessment of Vocational Education, U.S. Department of Education.

Bitney, JoAnn P. "Leave None Behind—Youth-at-Risk." National Commission for Employment Policy, Vol. 1, No. 8, September 1987.

The Business Roundtable Ad Hoc Committee on Education. The Role of Business in Education Reform: Blueprint for Action, April 1988.

Carnevale, Anthony P., and Leila J. Gainer. The Learning Enterprise. The American Society for Training and Development, 1988.

Carnevale, Anthony P., Leila J. Gainer, and Ann S. Meltzer. Workplace Basics: The Skills Employers Want. The American Society for Training and Development, 1989.

Children's Defense Fund. A Call for Action to Make Our Nation Safe for Children: A Briefing Book on the Status of American Children in 1988, 1988.

Commission on Workforce Quality and Labor Market Efficiency. Investing in People: A Strategy to Address America's Workforce Crisis. U.S. Department of Labor, 1989.

Committee for Economic Development. CED and Education: National Impact and Next Steps, A CED Symposium, 1988.

———. Children in Need: Investment Strategies for the Educationally Disadvantaged, 1987.

———. "Investing in Our Children, Business and the Public Schools," A Statement by the Research and Policy Committee, 1985.

Dertouzos, Michael, Richard Lester, Robert Solow, and the MIT Commission on Industrial Productivity. Made In America: Regaining the Productive Edge. The MIT Press, 1989.

Economic Policy Institute, Briefing Paper, Shortchanging Education: How U.S. Spending on Grades K-12 Lags Behind Other Industrial Nations, 1990.

Evans, Angela. "Education: Federal Concerns," Issue Brief. Congressional Research Service, Updated May 11, 1989. Fullerton, Howard, Jr. "New Labor Force Projections, Spanning 1988 to 2000." Monthly Labor Review, Vol. 112, No. 11 (Nov. 1989).

Glover, Robert. Apprenticeship Lessons From Abroad, Information Series No. 305. The National Center for Research in Vocational Education, 1985.

———. Integrating Work, Apprenticeships, and School for Youths at Risk, Unpublished paper, Center for the Study of Human Resources, Johnson School of Public Affairs, University of Texas at Austin, Oct. 1988.

Goodwin, David. Postsecondary Vocational Education, National Assessment of Vocational Education, Final Report, Vol. IV. U.S. Department of Education, August 1989.

Hayward, Becky Jon, and John G. Wirt. Handicapped and Disadvantaged Students: Access to Quality Vocational Education, National Assessment of Vocational Education, Final Report, Vol. V. U.S. Department of Education, August 1989.

Hodgkinson, Harold L. All One System: Demographics of Education, Kindergarten Through Graduate School. The Institute for Educational Leadership, Inc., 1985.

———. The Same Client: The Demographics of Education and Service Delivery Systems. The Institute for Educational Leadership, Inc., 1989.

The International Association for the Evaluation of Educational Achievement. The Underachieving Curriculum: Assessing U.S. School Mathematics From an International Perspective. Stipes Publishing Company, 1987.

Johnston, William, and Arnold Packer. Workforce 2000: Work and Workers for the Twenty-first Century. Hudson Institute, June 1987.

J.R. Reingold and Associates, Inc. Current Federal Policies and Programs for Youth. The William T. Grant Foundation, Commission on Work, Family and Citizenship, June 1987.

Kagan, Sharon L. "Early Care and Education: Tackling the Tough Issues." Phi Delta Kappan, Vol. 70, No. 6 (Feb. 1989).

Kennedy, Mary M., Richard K. Jung, and Martin E. Orland. Poverty, Achievement and the Distribution of Compensatory Education Services, An Interim Report from the National Assessment of Chapter 1. U.S. Department of Education, January 1986.

Kirsch, Irwin, and Ann Jungeblut. Literacy: Profiles of America's Young Adults. National Assessment of Educational Progress, Educational Testing Service, 1986.

Kutscher, Ronald. "Projections Summary and Emerging Issues." Monthly Labor Review, Vol. 112, No. 11 (Nov. 1989).

Lapointe, Archie, Nancy Mead, and Gary Phillips. A World of Differences: An International Assessment of Mathematics and Science. Educational Testing Service, 1989.

Levitan, Sar A., and Frank Gallo. A Second Chance: Training for Jobs. W. E. Upjohn Institute for Employment Research, 1988.

Lynton, Ernest A. "A New Pathway From School to Work." New England Resource Center for Higher Education, University of Massachusetts at Boston, Feb. 1989.

Markey, James P. "The Labor Market Problems of Today's High School Dropouts." Monthly Labor Review, Vol. 111, No. 6 (June 1988).

Marshall, Ray. "The JTPA and National Employment and Training Policies." Statement before the Committee on Education and Labor, September 29, 1988.

———. "A New Labor Market Agenda," In Workforce Policies for the 1990s. Paper Presented to an Economic Policy Institute Seminar on Labor Market Policy, April 29, 1988.

Mathematica Policy Research, Inc. Evaluation of the Economic Impact of the Job Corps Program: Third Follow-up Report, September 1982.

Moy, Joyanna. "Unemployment and Other Job Indicators in 10 Nations." Monthly Labor Review, Vol. 111, No. 4 (Apr. 1988).

National Alliance of Business. "The Fourth R: Workforce Readiness," A Guide to Business-Education Partnerships, Nov. 1987.

National Alliance of Business. Shaping Tomorrow's Workforce: A Leadership Agenda for the 90's, 1988.

Parnell, Dale. The Neglected Majority. Community College Press, 1985.

Quality Education for Minorities Project, Education That Works: An Action Plan for the Education of Minorities. Massachusetts Institute of Technology, Jan. 1990.

Redd, Kenneth, and Wayne Riddle. Comparative Education: Statistics on Education in the United States and Selected Foreign Nations. Congressional Research Service, November 14, 1988.

Rees, Albert. "An Essay on Youth Joblessness." Journal of Economic Literature, Vol. XXIV (June 1986).

Romero, Carol Jusenius. Past Is Prologue: Educational Deficiencies and the Youth Labor Market Problem. National Commission for Employment Policy, Vol. 1, No. 3, April 1987.

Rosenbaum, James E. "Empowering Schools and Teachers: A New Link to Jobs for Non-College Bound," in Investing in People: A Strategy to Address America's Workforce Crisis, Background Papers, Vol. 1. Commission on Workforce Quality and Labor Market Efficiency, U.S. Department of Labor, 1989.

Rumberger, Russell, and Henry Levin. "Schooling for the Modern Workplace," in Investing in People: A Strategy to Address America's Workforce Crisis, Background Papers, Vol. 1. Commission on Workforce Quality and Labor Market Efficiency, U.S. Department of Labor, 1989.

Silvestri, George T., and John Lukasiewicz. "Projections of Occupational Employment, 1988-2000." Monthly Labor Review, Vol. 112, No. 11 (Nov. 1989).

Sklar, Morton H. In-School Employment and Training Programs for Vocationally At-Risk Youth in New York State, A Briefing Paper for Policymakers. Center for Public Advocacy Research, Inc., April 1988.

Spar, Karen. "Job Training Partnership Act: Pending Legislation and Budget Issues," Issue Brief. Congressional Research Service, Updated Dec. 1, 1989.

Spring, William J. "A Public/Private Careers Service: Building a Network of Opportunity for the Majority of Our Young People," in School Success for Students at Risk. Harcourt, Brace, and Jovanovich, 1988.

State of New York Job Training Partnership Council. "A Statement of Policy on Youth Employment Investment in New York State," 1988.

United Nations. Department of International Economic and Social Affairs, Statistical Office. 1986 Demographic Yearbook, 1988.

U.S. Congress, Congressional Budget Office. Educational Achievement: Explanations and Implications of Recent Trends, August 1987.

U.S. Congress, Joint Economic Committee. The Education Deficit, A Report Summarizing the Hearings on "Competitiveness and the Quality of the American Workforce," Dec. 14, 1988.

U.S. Department of Education. National Center for Education Statistics. Dropout Rates in the United States: 1988, Analysis Report, September 1989.

U.S. Department of Labor. Employment and Training Administration. Work-Based Learning: Training America's Workers, 1989.

U.S. Department of Labor, U.S. Department of Education, and U.S. Department of Commerce, A Joint Initiative. Building a Quality Workforce, July 1988.

U.S. General Accounting Office. Effective Schools Programs: Their Extent and Characteristics, GAO/HRD-89-132BR, Sept. 13, 1989.

———. Job Training Partnership Act: Services and Outcomes for Participants With Differing Needs, GAO/HRD-89-52, June 9, 1989.

———. Job Training Partnership Act: Summer Youth Programs Increase Emphasis on Education, GAO/HRD-87-101, June 30, 1987.

———. Job Training Partnership Act: Youth Participant Characteristics, Services, and Outcomes, GAO/HRD-90-46BR, Jan. 24, 1990.

———. Labor Market Problems of Teenagers Result Largely From Doing Poorly in School, GAO/PAD-82-06, March 29, 1982.

———. Many Proprietary Schools Do Not Comply With Department of Education's Pell Grant Program Requirements, GAO/HRD-84-17, Aug. 20, 1984.

———. School Dropouts: Survey of Local Programs, GAO/HRD-87-108, July 20, 1987.

———. School Dropouts: The Extent and Nature of the Problem, GAO/HRD-86-106BR, June 23, 1986.

———. Training Programs: Information on Fiscal Years 1989 and 1990 Appropriations, GAO/HRD-89-71FS, April 14, 1989.

———. Vocational Education: Opportunity to Prepare for the Future, GAO/HRD-89-55, May 10, 1989.

Wetzel, James. American Youth: A Statistical Snapshot. The William T. Grant Foundation, June 1987.

Whittaker, William. Apprenticeship Training in America: The Fitzgerald Act (1937-1987). Congressional Research Service, November 16, 1987.

The William T. Grant Foundation. The Forgotten Half: Non-College Youth in America, Interim Report. Commission on Work, Family and Citizenship, January 1988.

———. The Forgotten Half: Pathways to Success for America's Youth and Young Families, Final Report. Commission on Work, Family and Citizenship, November 1988.

Foreign

American Embassy, Bonn. "Labor Trends in the Federal Republic of Germany, 1987." Foreign Labor Trends, 89-6. United States Department of Labor. Bureau of International Labor Affairs, 1987.

American Embassy, London. "Labor Trends in the United Kingdom, 1987." Foreign Labor Trends, 89-4. United States Department of Labor. Bureau of International Labor Affairs, 1987.

American Embassy, Stockholm. "Labor Trends in Sweden, 1987." Foreign Labor Trends, 889-21. United States Department of Labor. Bureau of International Labor Affairs, 1988.

Carl Duisberg Gesellschaft. Vocational Training—Investment for the Future, The Dual Training System in the Federal Republic of Germany, 1983.

Commission of the European Communities. United Kingdom: Institutions, Procedures and Measures, 1988.

Confederation of British Industry. Towards A Skills Revolution--A Youth Charter, Interim Report. Vocational Education and Training Task Force, July 1989.

Employment for the 1990s. (Her Majesty's Stationary Office Cn 540, Dec. 1988.)

Evans, Norman. "England: Strategies for Preparing Youth for the Labor Market" (Draft paper prepared for the U.S. General Accounting Office, May 8, 1989.)

The Federal Minister of Education and Science. Vocational Training Act, 1969. Last amended by the Vocational Training Promotion Act of December 23, 1981. Bildung und Wissenschaft, Nov. 1984.

Federal Ministry of Education and Science. Basic and Structural Data 1988/89, 1988.

Ginsburg, Helen. Full Employment and Public Policy: The United States and Sweden. Lexington Books, 1983.

Glover, Robert W. "Youth Employment, Education and Training in the Federal Republic of Germany" (Draft paper prepared for the U.S. General Accounting Office, August 1989.)

Gordon, Margaret S., and Martin Trow. Youth Education and Unemployment Problems, An International Perspective. A Study prepared for the Carnegie Council on Policy Studies in Higher Education, 1979.

Ishikawa, Toshio. Vocational Training. Japanese Industrial Relations Series. The Japan Institute of Labour, 1987.

Jangenas, Bo. The Swedish Approach to Labor Market Policy. The Swedish Institute, 1985.

Jonzon, Bjorn, and Lois Recascino Wise. "Getting Young People to Work: An Evaluation of Swedish Youth Employment Policy." International Labour Review, Vol. 128, No. 3 (1989).

Kato, Hidetoshi. Education and Youth Employment in Japan. A study prepared for the Carnegie Council on Policy Studies in Higher Education, 1978.

Krekeler, Norbert. Learning for the Working World—Vocational Training in the Federal Republic of Germany. Bildung und Wissenschaft, 1986.

Maclure, Stuart. Education and Youth Employment in Great Britain. A Study prepared for the Carnegie Council on Policy Studies in Higher Education, 1979.

Marshall, Ray. "Youth Employment, Education, and Training in Sweden" (Draft paper prepared for the U.S. General Accounting Office, June 1989.)

Ministry of Labour, Sweden. "The Labour Market and Labour Market Policy in Sweden," A discussion paper for the 1990s, 1988.

National Labour Market Board. Young Persons and Employment. Swedish Labour Market Policy, 1987.

Nothdurft, William E. Schoolworks: Reinventing Public Schools to Create the Workforce of the Future, Innovations in Education and Job Training from Sweden, West Germany, France, Great Britain and Philadelphia, Pennsylvania. The German Marshall Fund of the United States, 1989.

Organisation for Economic Co-operation and Development. OECD Economic Outlook, December 1988.

———. OECD Employment Outlook, September 1988.

———. OECD Employment Outlook, September 1987.

———. OECD Employment Outlook, September 1986.

———. OECD Surveys: United Kingdom, 1988.

———. The Nature of Youth Unemployment, An Analysis for Policy-Makers, 1984.

Rehn, Gosta, and K. Helveg Petersen. Education and Youth Employment in Sweden and Denmark. A study prepared for the Carnegie Council on Policy Studies in Higher Education, 1981.

Reubens, Beatrice G. Bridges to Work: International Comparisons of Transition Services. Conservation of Human Resources Series; 3. Landmark Studies, 1977.

Reubens, Beatrice G. "A Comparative View of High School Education and Workforce Needs for a Competitive Economy." Prepared for a Conference at the School of Industrial and Labor Relations, Cornell University, September 1987.

Reubens, Beatrice G., John A.C. Harrison, and Kalman Rupp. The Youth Labor Force, 1945-1995: A Cross-National Analysis. Conservation of Human Resources Series; 13. Landmark Studies, 1981.

Riddle, Wayne. "Public Secondary Education Systems in England, France, Japan, the Soviet Union, the United States, and West Germany: A Comparative Analysis." Congressional Research Service, Dec. 1984.

Romer, Karl, Ulrich K. Dreikandt, and Claudia Wullenkord, eds. Facts About Germany: The Federal Republic of Germany. Verlagsgruppe Bertelsman GmbH, 1988.

Rosenbaum, James E. "High School Education and the Work-Entry Process in Japan" (Draft paper prepared for the U.S. General Accounting Office, May 15, 1989.)

Spring, William J. "Youth Unemployment and the Transition from School to Work: Programs in Boston, Frankfurt, and London." New England Economic Review, March/April 1987.

United States Department of State. Bureau of Public Affairs. "Background Notes: Japan," Feb. 1989.

Related GAO Products

Job Training Partnership Act: Youth Participant Characteristics, Services, and Outcomes (GAO/HRD-90-46BR, Jan. 24, 1990).

Effective Schools Programs: Their Extent and Characteristics (GAO/HRD-89-132BR, Sept. 13, 1989).

Job Training Partnership Act: Services and Outcomes for Participants With Differing Needs (GAO/HRD-89-52, June 9, 1989).

Vocational Education: Opportunity to Prepare for the Future (GAO/HRD-89-55, May 10, 1989).

Training Programs: Information on Fiscal Years 1989 and 1990 Appropriations (GAO/HRD-89-71FS, Apr. 14, 1989).

School Dropouts: Survey of Local Programs (GAO/HRD-87-108, July 20, 1987).

Job Training Partnership Act: Summer Youth Programs Increase Emphasis on Education (GAO/HRD-87-101, June 30, 1987).

School Dropouts: The Extent and Nature of the Problem (GAO/HRD-86-106BR, June 23, 1986).

Many Proprietary Schools Do Not Comply With Department of Education's Pell Grant Program Requirements (GAO/HRD-84-17, Aug. 20, 1984).

Labor Market Problems of Teenagers Result Largely From Doing Poorly in School (GAO/PAD-82-06, Mar. 29, 1982).