Vocational Education--Basic Grants To States (CFDA No. 84.048)

I. Legislation

Carl D. Perkins Vocational and Applied Technology Education Act (P.L.101-392), Title II, (20 U.S.C. 2311) (expires September 30, 1997). Although appropriations are authorized in the statute only through FY 1995 (with a one-year extension under General Education Provisions Act (GEPA) through September 30, 1996), the Omnibus Consolidated Appropriations Act, 1997 (P.L. 104-208) essentially authorized the act through FY 1997 and extended availability of funds through September 30, 1998.

II. Funding History

Fiscal Year	Appropriation	Fiscal Year	Appropriation
1965	$168,607,000	1987	$809,507,974
1970	342,747,000	1988	798,665,863
1975	494,488,000	1989	825,600,408
1980	719,244,000	1990	844,429,254
1981	637,315,000	1991	848,359,869
1982	587,736,648	1992	940,171,000
1983	657,902,000	1993	962,524,509
1984	666,628,758	1994	955,566,000
1985	777,633,758	1995	972,566,000
1986	743,965,099	1996	972,566,000

These amounts include funds provided to the states each year under the Smith-Hughes Act's permanent appropriation. For FY 1965 through FY 1984, the amounts represent funds authorized under P.L. 94-482. For FY 1985 through FY 1990, the amounts represent funds authorized under P.L. 98-524, and for FY 1991 through FY 1994 under P.L. 101-392.

III. Analysis of Program Performance

A. Goals and Objectives

Basic State Grants are intended to help states expand and improve their programs of vocational education and provide equal access in vocational education to people with special needs. The ultimate goal of this program is to make the United States more competitive in the world economy by more fully developing the academic and occupational skills of all students.

B. Strategies to Achieve the Goals

States use their funds to support a variety of vocational education programs developed in accordance with a state plan. Basic State Grants support secondary school vocational education programs and postsecondary and adult vocational education programs. In addition, grants are used to support programs for single parents, displaced homemakers, and single pregnant women; programs for criminal offenders; and sex equity programs.

C. Program Performance—Indicators of Impact and Effectiveness

The National Assessment of Vocational Education (NAVE), mandated by Section 403 of the Perkins Act, presents a comprehensive assessment of the status of vocational education programs supported under the act. Since the publication of NAVE, two additional reports, *Vocational Education in the United States: The Early 1990s* and *Trends in Participation in Secondary Vocational Education: 1982--1992*, now provide further analyses of vocational education.

Strengthen the academic and technical skills of vocational education students.

Available data indicate that although higher academic standards and large-scale changes in graduation requirements have improved the academic course-taking of vocational students, vocational students still lag behind other students in math and science.

- Among high school graduates in 1992 who focused on vocational education, 80 percent completed one or more high school math courses below the Algebra 1 level (this includes basic math, general math, applied math, and prealgebra); 57 percent took Algebra 1, 37 percent geometry, 30 percent advanced math, and 3 percent calculus. By comparison, 44 percent of students in the academic track completed one or more high school math courses below the Algebra 1 level, 74 percent took Algebra 1, 94 percent geometry, 95 percent advanced math, and 22 percent calculus. In addition, 73 percent of general track students took math courses below the Algebra 1 level, 69 percent took Algebra 1, 58 percent geometry, 47 percent advanced math, and 3 percent calculus.

- Similarly, 85 percent of the 1992 vocational education graduates completed one or more survey science courses, 83 percent took biology, and 11 percent advanced biology in high school. By comparison, 69 percent of academic students completed one or more survey science courses, 82 percent completed coursework in regular biology, and 41 percent in advanced biology. Approximately 79 percent of general track students completed coursework in survey science, 87 percent in regular biology, and 17 percent in advanced biology.

Course-taking data indicated that vocational students in the class of 1992 were less likely than other students to meet the academic standards established for science for non-college-bound graduates in *A Nation at Risk*, which called for three years each of math and science. Vocational students earned an average of 2.9 credits in mathematics, 2.4 in science, and 0.4 in computer science (classified as a subcategory of mathematics). However, graduates concentrating in the "high tech" fields of technical communications and business were more likely than other vocational student to meet all of the standards, and were just as likely as nonvocational students to do so.

Instruction in computer literacy in secondary vocational education is concentrated mainly in business and technical courses. Data from the 1992 National Education Longitudinal Survey (NELS) Followup show that business and technical students take more computer courses than other students. Some 72 percent of technical/communications students have taken at least one semester of computer science, as have 63 percent of business students. The proportions in other vocational fields range from 16 to 27 percent.

A study by the International Association for the Evaluation of Educational Achievement has found that business education not only trains many students in computer use, but encompasses a range of computer applications, including word processing, programming, spreadsheets, and data analysis.

Increase the number of vocational education students earning postsecondary education credentials.

Students in less-than-four-year public institutions are increasingly leaving school without credentials. Between the 1970s and 1980s, the proportion of students leaving community colleges without credentials increased from 30 percent to 42 percent, and the proportion leaving public technical institutions from 36 percent to 46 percent. The proportion for proprietary institutions remained fairly stable (around 40 percent).

- Data from the 1992 Beginning Postsecondary Study (BPS) show that two-and-a-half years after entering subbaccalaureate institutions, 26 to 65 percent of full-time students had completed their programs, depending on the type of institution. In less-than-two-year institutions, 44 to 65 percent of students earned a credential, whereas in two- or three-year institutions, 26 to 52 percent of students completed a program. Within community colleges, vocational and academic students leave school at about the same rate.

- The data suggest that high school vocational students seem relatively well prepared for short, occupationally focused, postsecondary education provided by proprietary schools, but are most likely to drop out of a longer-term postsecondary education program with an academic foundation.

- The relatively low completion rate and higher persistence rate (approximately 40 percent) at community colleges may reflect the continued enrollment of students who intend to transfer to four-year institutions, and of those taking courses for noncredentialing purposes. For these latter students, failure to receive a associate's degree is irrelevant to their "success."

Postsecondary students who complete nonbaccalaureate programs and attain certification (e.g., an associate's degree) have better economic outcomes, in terms of wages and employment, than students who complete the same number of credits but do not complete a degree program. Based on the 1972 National Longitudinal Study, 61 percent of those who attained a postsecondary degree in a vocational field found training-related jobs, in turn leading to better economic outcomes.

Increase the number of high school vocational education graduates obtaining training-related employment.

NAVE reports that less than half of the high school graduates with occupational training obtain a job associated with their training. For the high school class of 1982, about 38 percent of all occupationally specific vocational courses were used in skilled jobs approximately 16 months after high school graduation. By fall 1985, the skilled jobs course utilization rate had risen to 44 percent.

- High school vocational education graduates earned higher wages in jobs where vocational training is directly related to job tasks. Students who had concentrated in a particular vocational field and obtained employment in a related field earned 7 to 8 percent more than vocational students who found a job unrelated to their training or students who completed a general track program in high school.

- High school graduates who found a job that matched their field of study had a 3 percent lower rate of unemployment and spent almost 20 percent more time in the labor force than a comparison group of general track students. By contrast, those vocational track students who did not find a job that matched their field of study had no employment advantages over the general track students.

Expand involvement of employers and raise their level of satisfaction.

Current data show that employers' opinion of high school graduates as young workers is mixed. Employers who are knowledgeable about secondary vocational and work experience programs like them, while employers who are unfamiliar with them have negative views of the work-related abilities and attitudes of high school graduates.

- Typically, large employers and those with high-performance workplace components are more knowledgeable about vocational education programs than other employers.

- Employers in the process of reorganizing toward high-performance workplaces are less satisfied with the quality of secondary vocational programs than are employers still using traditional models of production. Also, when higher skills are demanded, employers look to workers with more training and experience than high school graduates have--even those from vocational programs.

Employers who participate in vocational education do so in a variety of different ways--providing career information to students, actively recruiting and hiring students, and supervising students in co-op or other work-based situations.

Improve the quality of vocational education by strengthening requirements for coherent course sequences.

High school graduates who complete a coherent sequence of vocational courses are more likely to find training-related jobs and to earn more in these jobs, and are less likely to be unemployed over time.

- However, NAVE reports that few students take a coherent sequence of vocational courses, fewer students who take vocational education concentrate their course-taking in a specific program area, and fewer vocational students take upper-level courses. Secondary students were less likely to concentrate their vocational coursework in 1990 than in 1987.

- The ratio of first-level to second- or higher-level courses is a measure of the extent to which students take sequenced vocational programs. Graduates of the class of 1987 took about 2.7 first-level courses for every upper-level course, compared with 3.5 for 1990 high school graduates.

- The proportion of graduates earning at least four credits in specific labor market areas declined from 32 percent in 1987 to 28 percent in 1990. Moreover, among high school graduates earning at least four credits in one specific labor market area, 42 percent took at least two of those credits at second or higher levels in 1987, compared with only 29 percent in 1990.

Explore and expand opportunities for career education and work experience.

Opportunities for students to learn about careers and interests are expanding, in part, because of a renewed interest, at both high school and postsecondary levels, in work experience programs to help ease the transition from school to work. Schools use a variety of approaches to expand students' access to career information, including using technology for self-directed career exploration; emphasizing job shadowing, worksite visits, and career fairs; and systematically infusing career awareness materials into academic classes.

High school students now are offered a variety of work experience programs, including cooperative education (co-op), new youth apprenticeships, and school-based enterprises. These programs give students the opportunity to use skills acquired in the classroom in a workplace setting. Although evaluation data for these programs are largely unavailable, evidence from literature suggests that the quality of such programs is variable.

- Most secondary districts and postsecondary institutions have co-op programs, and over 400,000 secondary students participate in them.

- Research indicates that students and employers like co-op programs, but evidence of positive academic or occupational outcomes is conflicting and inconclusive.

- There are some new youth apprenticeship programs, in which students receive occupational training on the job under the supervision of mentors, but they are generally small. A 1993 canvass of states located 55 youth apprenticeship programs. Altogether, the programs enrolled about 3,400 students.

- Some work experience programs at the community college level are a direct extension of high school programs. Although far fewer students participate in these programs at the postsecondary level, the anecdotal evidence about program effects is positive.

Use standards and measures developed by the states for program improvement.

As required in the Perkins Act, all states have now developed performance assessment systems, many developing more than the minimum measures and standards set forth in the statute. Some 27 states have at least two systems of performance measures in place--one for secondary and one for postsecondary vocational education. In addition, 34 states have designed their accountability systems to evaluate the performance of all students in vocational education programs at the secondary level, and 30 states are doing the same at the postsecondary level.

Most states have developed measures of academic skills (47), retention or completion (42), and occupational competencies (43), and some (28) are using placement as a measure of labor market outcomes.

- At the secondary level, about half of the states are using a one-time required test to measure academic skills. Others use a pre- and post-test model or course completion rates to measure academic skill gain.

- States' methods for measuring academic gain are less consistent at the postsecondary level. Some 23 states are using completion of specific basic and advanced courses as measures of academic gains; 15 have left it up to local school districts and postsecondary institutions to select assessment instruments and measurement tools.

- Almost all states are using placements to measure labor market outcomes of vocational students; 49 states do so at the secondary level and 45 at the postsecondary level. Forty states use training-related placements as a measure. Included in placement measures are factors such as joining the military or enrolling in further education/training, as well as job placement. Few states are using entry wages and job retention as measures of labor market outcomes.

The literature on occupational skill standards suggests that developing a comprehensive system of standards may provide a number of benefits for students. However, little has been done to develop industry-oriented skill standards. Those industry-level or occupational cluster standards that have been developed were done haphazardly, are poorly defined, and not tied to school curricula.

- Industry-related skill standards that are being developed by most business-education-labor technical committees are the occupational or job-specific standards characteristic of most occupational certification in the United States (e.g., electrician, hairdresser, nurse).

- Many states lack access to appropriate and reliable occupational standards and assessment instruments, and have left the selection or development of such to localities.

Local districts have encountered some difficulties in translating state-developed plans into locally implemented systems. Little or no attention has been given to how local educational agencies should use measures or standards to evaluate and improve local programs. In addition, state and local administrators do not have access to training or technical assistance in techniques of using measures and standards for local program improvement.

- Local implementation is time-consuming because it often involves modifying the data collection of many local assessment systems within a state.

- Moreover, the absence of widely accepted industry skill standards and assessment instruments makes it difficult for localities to assess occupational gains at both the secondary and postsecondary levels. Many postsecondary institutions also find it difficult to measure academic gains.

By spring 1993, many states were working on procedures for adjusting performance measures and standards for special populations. States are further along in these efforts at the secondary level than at the postsecondary level, and have most often developed measures and standards for disabled students, followed by disadvantaged students and students with limited English proficiency (LEP).

In all states, the development of a performance measurement system involves some coordination with other programs receiving federal assistance, but the extent of this coordination varies among states.

The Office of Vocational and Adult Education's (OVAE) Division of Vocational-Technical Education is monitoring a task order to identify and implement a common set of outcome measures to establish a unified system of performance measures. Each state vocational educational agency, in compliance

with the Perkins Act, developed a system of outcome measures and standards for evaluating secondary and postsecondary vocational education programs in the state. Each school-to-work partnership, in compliance with the School-to-Work Opportunities Act, is developing performance measurement systems to provide information on participation, outcomes, and the progress achieved in meeting the diverse needs of students. This task order will help state school-to-work (STW) partnerships and the state vocational education agencies create a common set of outcome measures.

The current legislation requires the states to collect data on academic outcomes, school retention and completion, and skill preparation for postsecondary education and workforce entry. Although the Perkins Act is fairly explicit in defining the broad areas in which information must be compiled, the legislation offers states considerable flexibility in defining specific measures. For example, while all states must report information about student learning and competency gains, each may define its own measure of academic and occupational skill. The definition of who is a vocational student is another example that is open to interpretation.

Use a wide range of strategies to promote education reform.

Education reform has gained momentum in the states, and vocational program administrators at the state and the local levels, along with parents and teachers, are cooperating with other programs in activities. Eight states included Perkins in their consolidated application under the Improving America's Schools Act, and more are expected in the next period.

Investments in vocational education, particularly in tech-prep education, have helped states and communities to implement education reforms and create school-to-work systems. At the secondary level, OVAE has identified about 30 "New American High Schools" that are using federal vocational education and school-to-work resources to improve achievement for all students.

The Department is sponsoring Department-wide integrated reviews of federal programs. The purpose of an integrated review, through monitoring and technical assistance, is to improve teaching and learning for all children by supporting effective implementation of federal programs; encouraging cross-program coordination, planning, and service delivery; and enhancing integration of federal programs and local initiatives.

Analysis of the 1992 NELS shows that applied learning is a fairly prominent feature of secondary vocational education, and applied academic courses are increasingly being accepted as satisfying postsecondary admissions requirements.

NAVE reports that 29 states accept applied academic courses for credit toward university admission under various circumstances. "Principles of Technology" is the most widely accepted course, with 26 of the 29 states accepting a form of this course. Applied mathematics is accepted in 19 of the 29 states.

IV. Planned Studies

Several studies are being planned in the area of enrollment/completion in postsecondary vocational education, and academic achievement and labor market outcomes of vocational education.

V. Sources of Information

1. Program files.

2. The Continuing Development of Local Tech-Prep Initiatives. (Princeton, NJ: Mathematica Policy Research, 1996).

3. The Emergence of Tech-Prep at the State and Local Levels. (Princeton, NJ: Mathematica Policy Research, 1995).

4. National Assessment of Vocational Education (NAVE) Final Report, (Washington, DC: U.S. Department of Education, 1994).

VI. Contacts for Further Information

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