DOCUMENT RESUME

ED 050 292 VT 013 229

TITLE	Report of the Analysis Group for Vocational Education Review Task Force. Volume 2: Appendices.
INSTITUTION	Operations Research, Inc., Silver Spring, Md.
SPONS AGENCY	Department of Health, Education, and Welfare, Washington, D.C.
PUB DATE	25 Sep 70
NOTE	112p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$6.58
DESCRIPTORS	Content Analysis, *Data Analysis, Decision Making, Definitions, Educational Attitudes, *Educational Needs, Educational Objectives, Federal Aid, *Program Evaluation, Program Planning, *Statistical Data, *Vocational Education

ABSTRACT

This document contains the appendices for the report prepared by an analysis group that quantitatively presented the status of vocational education and implications for the future. Appendixes A-F contain: (A) documentation supporting the discussion of the vocational education system, (B) documentation supporting the discussion of measuring achievement of objectives in an economic sense, (C) planning and evaluation activity, (D) a new approach to vocational education, (E) the "marketable skill" concept, and (F) a bibliography. The complete report of the analysis group is available as VT 013 228 in this issue. (GEP)

Volume II of II

Report of the Analysis Group HEW Vocational Education Review Task Force

Appendices

25 September 1970

Prepared for

Dr. James Abert
Deputy Assistant Secretary
Evaluation and Monitoring
Department of Health, Education, and Welfare
Washington, D. C. 20201

Operations Research, Inc.
1400 Spring Street
Silver Spring, Md. 20910

FOREWORD

This volume contains material which supports and expands the vocational education "status" discussion in Volume I. Some of the appendices provide supporting material for various sections of Volume I, while others contain directly relevant information that did not fit directly into the discussion. Appendices A, B, and E provide supporting information, while Appendices D and E contain additional material dealing with unique topics.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

APPENDIX A

DOCUMENTATION SUPPORTING THE DISCUSSION OF THE VOCATIONAL EDUCATION SYSTEM

VOCATIONAL EDUCATION IN PROPRIETARY SCHOOLS

Private vocational schools offer hundreds of different courses; one source quotes 1,483 separate courses of instruction in 944 reporting trade and technical schools alone.[1/] However, no single instance has been found in which the facilities of a private business school have been utilized to carry out a program under a contract authorized by the Vocational Education Act of 1963.[2/] Students have been and continue to be trained in private vocational schools under other Federal legislation administrated by the following Federal agencies:

- Veterans Administration
- Vocational Rehabilitation
- Manpower Administration

1/ A.H. Belitsky, Private Vocational Schools and Their Students: Limited Objectives—Unlimited Opportunities, Schenkman Publishing Company, Inc., Cambridge, Massachusetts, 1969.

2/ Testimony of Richard A. Fulton, United Business Schools Association, before the House Committee on Education and Labor on H.R. 15066, "A Bill to Amend the Vocational Education Act of 1963," March 1968.

- Immigration and Naturalization Service
- Office of Economic Opportunity
- National Vocational Student Loan Insurance
- Bureau of Indian Affairs.

Just as Federal funds come from diverse sources to private schools offering diverse programs, the schools themselves are widely different. Some require high school graduation or its equivalent for admission (232 of 411 trade and technical schools in 40 states),[3] others have no formal educational requirements (49 of the 411 schools). Some start classes as often as weekly (14 of 83 schools belonging to the National Association of Trade and Technical Schools (NATTS));[4] very few limit starting classes to once or twice annually (9 of the 83 schools) as is the case in the public school system. Virtually all private schools operate on a year-round basis (124 of 128 NATTS schools surveyed by Belitsky operated 48 weeks or more per year). State licensing of proprietary occupational schools is found in only 20 states and the regulations vary widely. Accreditation of trade and technical schools by a designated agency of the U.S. Office of Education was first introduced in 1967.

The costs of instruction in private schools vary substantially. In FY 1970 the Federal Government expended $20,524,452, under programs administered by the U.S. Department of Health, Education, and Welfare, Office of Education, for 10,866 trainees attending 138 different courses at more than 155 private schools. A breakdown of this expenditure into cost per trainee shows the following distribution:

Total Federal cost per trainee*	Number of courses	Percent of total courses
Less than $1,000. . .	35	25.4
$1,000 - 1,999 . . .	33	23.9
$2,000 - 2,999 . . .	30	31.7
$3,000 - 3,999 . . .	25	18.1
$4,000 and more . . .	15	10.9
	138	100.0

*Table drawn from HEW information.

The average cost per trainee was $1,899. The lowest cost per trainee was $210 (waiter-waitress) and the highest $8,250 (medical clerk). Since one may assume

---

[3] Belitsky, op. cit.

[4] Ibid.

that large numbers of the estimated 1.6 million students attending private schools (1966) do so at their own expense, the question may be asked, why do people pay for vocational education when free courses are offered by the public school system. A Stanford Research Institute Study limited to Santa Clara County, California, reported that:

> Students most frequently mention time, convenience and course content in explaining their decision to enroll in a proprietary school program. They observed that they could usually start class within a week after enrolling, and that the course length set completion within a relatively short period of time—less than a year and often under six months. They pointed out that the curriculum was entirely skill-oriented and free of what they considered to be non-essential subjects. Finally, many students mentioned placement service believing that the school's continuation as a commercial enterprise would depend on the degree to which its students were successful in securing employment after training.[5/]

One study of 1,105 students, limited largely to high school graduates taking auto mechanics and auto body fender repair courses, indicated 128 dropouts, or less than 13 percent.[6/] The same source also reports that of 128 NATTS schools surveyed, 75 percent reported providing placement service to the students while they attend school, 99 percent reported providing this service upon graduation, and 80 percent reported that they provide placement service "for life."

Data are available on a demonstration project of the United Business Schools Association (USBA) funded under the MDTA program which involved participation of member private business schools in 17 States and the District of Columbia to train 1,080 trainees. The purpose of the program was to demonstrate the effectiveness of private school participation in serving the disadvantaged and to demonstrate the use and effectiveness of the "individual referral method" by local employment services in contrast with the established "class group" or "under contract" method of referral. The program was broadened to include member schools of NATTS, so technical as well as business courses were included in the program.

Covering the period 15 February 1967 through 31 August 1969, USBA reported 50 private schools participating, with 1,173 enrollments, 818 trainees who had completed the training objectives, and 355 (30 percent) who had not.[7/]

[5/] Quoted by Fulton in hearings, footnote 2, supra.

[6/] Belitsky, op. cit.

[7/] Data source: Parts I and II of final report prepared by USBA for USOE under contract OEC2-7-002930-2930.

The average tuition cost per completion was reported as $584 for one program and $737 for another. The average tuition cost "per clock hour" varied from a low of $0.51 (West Virginia) to a high of $1.03 (Indiana and Massachusetts). Available data on the background of the trainees are sketchy, since not all participating schools reported. However, from those that did (39 schools) it appears that the bulk of the trainees were female, in the 19-34 age group, had never been employed before or had been gainfully employed less than 2 years, and had completed the twelfth grade prior to enrollment. Many were unemployed or underemployed at the time of enrollment and over 200 were reported to have been "hard-core unemployed" (27 weeks and over). It is worthwhile to note that the first trainee was enrolled in school 35 days after the contract was signed.

Employment data were available on only one program involving 227 referrals who had completed their courses; of these, 165 (73 percent) were employed at the time of the report (30 June 1968). The pertinent information is as follows:

Status		Placement		Salary (weekly)	
In occupation for which trained	128	By employment service	33	$90 or more	15
In related occupation	22	By the school	85	$65-90	122
In nonrelated occupation	7	Self	37	<$65	23
Unknown	8	Other	2	Unknown	5
		Unknown	8		
Total	165	Total	165	Total	165

While this is a small sample of the 818 students who completed training in the entire program, it indicates that (a) the training is employment-related and (b) the school assists in placement.

A follow-on program was initiated for the period 28 June 1969 to 31 August 1970 to expand the use of private schools in 26 States and the District of Columbia to meet two objectives of MDTA:[8/] (a) provide upgrade training to meet the needs of employers in the community and (b) provide part-time upgrade training to create new entry level positions. As of 17 April 1970 there were 43 participating private schools with 633 enrollments in Project Upgrade (147 male, 550 female) and 64 dropouts (9 percent). The average tuition cost was $356. The trainees were about half white and half Negro (10

8/ Memorandum to: State Directors of Vocational Education, from Howard A. Matthews, Division of Manpower Development and Training, 21 November 1969.

American Indian), and mostly in the 19-34 age group. The great majority of the trainees (389) in this program had completed grades 9-11; only 90 had completed the twelfth grade; 22 had post-secondary education.

WORK EXPERIENCE PROGRAMS: COOPERATIVE VOCATIONAL EDUCATION AND WORK-STUDY

Two important programs in vocational education include work experience for students while they are still in school; however, the two have quite different objectives. The objective of cooperative vocational education is to provide work experience that parallels or supplements classroom activity. The objective of work-study is simply to provide income to students who would have great difficulty remaining in school without it.

The material on the two programs is presented in a comparative manner and is organized into three sections: the first deals with the legislative background supporting each; the second presents information on funding and enrollment; and the final section is a summary that includes some evaluation of the programs.

Background of Legislative Authority

Work-study and cooperative vocational education programs are not new. Work-study programs were authorized in Section 13 of the Vocational Education Act of 1963 (PL 88-210, 18 December 1963) along with funds of $30 million for FY 1965, $50 million for FY 1966,and $35 million for the two succeeding fiscal years. According to the statute, the Commissioner of Education had the responsibility to divide the amounts appropriated between work-study programs and residential vocational education schools.

Cooperative vocational education programs, on the other hand, were not authorized specifically in the act of 1963 but were funded as a method of education under the broader provisions of Section 4 ("Uses of Federal Funds"). Payments to employers were not authorized.

In the Vocational Education Amendments of 1968 (PL 90-576, 16 October 1968) separate parts are devoted to each program (Part G—"Cooperative Vocational Education Programs" (Section 171), and Part H—"Work-Study Programs for Vocational Education Students" (Section 181)). Both programs are aimed toward providing financial assistance that would be of benefit to disadvantaged youth. In the case of cooperative vocational education programs, the amendments provided that the State plan shall set forth policies and procedures which give assurance that "priority...is given to areas that have high rates of school dropouts and youth unemployment." (Section 173.(a)(5). In the case of work-study programs, the State plan is to set forth principles for determining priority that gives preference to applications submitted by local educational agencies "serving communities having substantial numbers of youth who have dropped out of school or who are unemployed"(Section 182.(a)(3).)

Under the 1968 amendments, therefore, funds for both cooperative programs and work-study programs are directed toward disadvantaged areas, those with high dropout rates and high youth unemployment. Work-study programs are directed, in addition, to disadvantaged students. Employment shall be provided only to a student who "is in need of the earnings from such employment to commence or continue his vocational education program." (Section 182.(b)(2)(B).) This specific orientation to the disadvantaged is significant and will be returned to later in connection with evaluation of the programs and their suitability for expansion.

Two important changes were made in cooperative programs by this legislation. First, provision was made for reimbursement of unusual student cost (Section 171); second, provision was made

> ...for reimbursement of added costs to employers for on-the-job training of students enrolled in cooperative programs, provided such on-the-job training is related to existing carrier (sic) opportunities susceptible of promotion and advancement and does not displace other workers who perform such work. (Section 173.(a)(3).)

Federal funds are authorized for paying all or part of the State's expenditures on cooperative programs, and 80 percent of the amount expended for student compensation and administration under work-study programs.

Summary Characteristics of the Two Programs.[9] The different objectives of the cooperative and work-study programs were noted at the outset of these remarks. Attention should be drawn at this point to other differences. Payment under work-study is limited to full-time students at least 15 years of age and less than 21 years of age. The amount of payment is limited to $45 in any month ($60 if the student is not within reasonable commuting distance of the school) or $350 in any academic year ($500 if commuting distance is a problem), and the employment shall be for the local educational agency or for some other public agency or institution. There is no requirement that the employment and the in-school vocational training be related.

Cooperative programs are available to a broader group of participants but require formal ties between school and employer for the provision of school training and on-the-job training. A cooperative program is defined as a

> ...program of vocational education for persons who, through a cooperative arrangement between the school and employers, receive instruction, including required academic courses and related vocational instruction by

---

[9] See U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Adult Vocational and Technical Education, Division of Vocational Education, Development Branch, Resource Manual 71 for the Development of Cooperative Vocational Education Programs (draft), 3 August 1970.

alternation of study in school with a job in any occupational field, but these two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and to his employability. (Section 175, emphasis added.)

The program is available to "persons" in any occupational field and, although wage payments for the students come from the employers, Federal funds may be used to reimburse employers for added costs. To recapitulate the requirements--an "arrangement" between school and employer must be made whereby both contribute to planning and supervising the school and work experience. The objective is to enhance both the student's education and his employability.

Funding and Enrollment

The authorizations and appropriations for the two programs under the 1968 act (Parts G and H) are as shown in Table 1.

TABLE 1.—Federal funds authorized and appropriated for cooperative vocational education and work-study programs

Fiscal year	Cooperative programs, $ millions		Work-study programs, $ millions	
	Authorized	Appropriated	Authorized	Appropriated
1969....	20	0	35	0
1970....	35	14	35	4.25
1971....	50		45	
1972....	75		55	

Source: USOE, BAVTE, Division of Vocational and Technical Education, Development Branch, Resource Manual 71 for the Development of Cooperative Vocational Education Programs (draft), 3 August 1970.

Two observations may be drawn from the data on authorizations and appropriations. First, no appropriations were made for FY 1969 and the appropriations for FY 1970 were modest in terms of authorizations, particularly for work-study programs. The second observation is, given the recent availability of limited funds shown, there is little likelihood that programs implementing Part G and Part H of the act of 1968 are far enough along at the present time for meaningful evaluation of these techniques as spelled out in that legislation. As is more fully developed in the next section, the evaluation of these programs is based upon what took place under the 1963 act and by analogy to MDTA and other manpower training programs.

Appropriations, expenditures and enrollments for work-study programs are presented for the fiscal years 1965 through 1970, inclusive, in Table 2. The data show:

- Federal expenditures less than appropriations in all years
- Large Federal expenditures in fiscal year 1966 were followed by increasing State and local expenditures in the next 2 years.
- Enrollments increased more than threefold from FY 1965 to FY 1966 and decreased each year in the 2 later years.
- Expenditures per enrollee varied from $153 to $316, well below the $350 and $500 limits in the act of 1963 (Section 13.(c)(3)).
- No Federal funds were appropriated for work-study in FY 1969; data on State and local expenditures and enrollments are not available for that year.

Enrollments in cooperative vocational education are available only for FY 1969 (shown in Table 3) and since these programs were not funded separately under the 1963 act as a method of instruction, there are no data available on expenditures. Over 90 percent of the enrollments shown are at the secondary level; distribution, office, and trades and industry dominate the occupations for which training is provided. An important observation, not shown in the table, is that the 230,229 enrollments in cooperative programs represent 4.8 percent of all enrollments in secondary and post-secondary vocational curricula in FY 1969 (4,785,480 total enrollments).

Summary and Evaluation

Work-Study Programs. No evaluations have been found of work-study programs in vocational education (for example, the extent to which work-study has permitted students to remain in school). In the Annual Report on Vocational and Technical Education for FY 1968, the decline in enrollments from FY 1967 to FY 1968 (from 50,041 to 37,008 shown in Table 2) is reported with the remark that "many students needing financial assistance were unable to participate in work-study because of reduction or cancellation of programs." The report goes on to note that the Neighborhood Youth Corps (NYC) in-school program has objectives similar to work-study, but in some cases different requirements for eligibility. For example, some (but not all) NYC programs are limited to high school students. The report states that the average cost per work-study enrollee of the NYC in-school program was $722 (Federal share at $650). Assuming a vocational student eligible for either program, this suggests he stands to receive greater financial assistance under NYC.

TABLE 2. — Vocational work-study program appropriations, expenditures, and enrollment, FY 1965 through FY 1970 inclusive

Fiscal year	Source of funding	Appropriation ($ millions)	Fed share (%)	Federal exp ($ millions)	State and local exp ($ millions)	Total exp ($ millions)	Enrollment	Exp per Enrollment ($)
1965	PL 88-210, Sec 13	5,000	100	2,800	.029	2,829	18,563	153
1966	PL 88-210, Sec 13	25,000	100	20,381	.514	20,895	70,139	298
1967	PL 88-210, Sec 13	10,000	75	7,838	3,506	11,345	50,041	227
1968	1/	10,000	75	8,140	3.565	11,706	37,008	316
1969	PL 90-576, Part H	0	80	0	0	0	0	0
1970	PL 90-576, Part H	4,250	80	NA	NA	NA	NA	NA

1/ $10,000,000 was transferred from OEO for work-study to be administered under provisions of the Vocational Education Act of 1963 (PL 88-210, Section 13). Authorization expired 30 June 1968 for work-study (PL 88-210, Section 13). In 1968, 97.7 percent of Federal funds was used for student compensation and 2.3 percent for administration.

TABLE 3.—Enrollments in cooperative vocational education by occupational category, FY 1969

Occupational Category	Secondary	Post-secondary	Total
Agriculture	6,507	2,608	9,115
Distribution	93,351	6,104	99,455
Health	6,708	963	7,671
Home Economics	3,372	79	3,451
Office	55,668	5,519	61,187
Technical	114	1,229	1,343
Trades and Industry	40,121	4,833	44,954
Other	3,053	--	3,053
Total	208,894	21,335	230,229

Source: Analysis and Reporting
Planning and Evaluation Branch
DVTE/BAVTE/OE
1 September 1970

The future use of work-study under the provisions of Part H of the 1968 act by students seeking financial assistance would seem to depend, therefore, upon the availability of other programs. If one assumes for FY 1970 that 80 percent of the $4.25 million of appropriated Federal funds was spent, approximating the experience of FY 1967 and FY 1968, and that State and local expenditures and enrollments were the same in FY 1968 ($3.6 million and $37,008, respectively); then, work-study would be able to provide approximately $190 per enrollee in FY 1970. Since the program experienced a decrease in enrollments from FY 1966 to FY 1967 and FY 1967 to FY 1968, when larger amounts were available both absolutely and on a per enrollment basis, it is difficult to see a vigorous future for work-study.

It should be recognized in this connection that work-study has had an "on-again off-again" history. Stable and consistent funding, coupled with early availability of funds for disbursement throughout the school year, might reverse the trend shown. Legislative changes that increased the level of payments per enrollee would also work in this direction and would very likely increase the programs' impact in areas of high dropout rates and high youth unemployment. The effect on increasing enrollments would be even more pronounced if competing NYC programs were cut back.

Cooperative Programs. No evaluations of cooperative vocational programs at the national level have been found. A cost-effectiveness study of selected cooperative vocational education programs as compared with vocational programs without a cooperative component was started in the summer of 1970.[10] Unfortunately, the proposal specifies that "no follow-on studies of students will be conducted as a part of the proposed research project," nor will any measurement of the effectiveness of cooperative programs in terms of contribution to the employability of participating students (Section 175) be made.

Cooperative programs are highly regarded. The National Advisory Council on Vocational Education reported in 1968 that "the part-time cooperative plan is undoubtedly the best program we have in vocational education. It consistently yields high placement records, high employment stability, and high job satisfaction."[11] However, virtually no evidence has been found in either Publication 1 (Highlights and Recommendations) or Publication 2 (General Report) of the Advisory Council to support the statement quoted above. Furthermore, this language appears only in the highlights document.[12]

---

[10] U.S. Department of Health, Education and Welfare, USOE, Request for Proposal No. 70-14, Task 4, awarded to Battelle Memorial Institute in June 1970.

[11] General Report of the National Advisory Council on Vocational Education, USOE, 1968.

[12] The General Report refers to the "proven success of the part-time cooperative program" (p. 375) but presents no information or data that would support such a conclusion.

In the previous section it is noted that there were 230,299 enrollments in cooperative programs and that this was nearly 5 percent of all enrollment in all vocational education programs in FY 1969. It should be pointed out that there are additional students receiving "simulated" business experience in programs in distributive education. Under the 1963 legislation to which these figures relate, cooperative programs were funded under general provisions as a method of education. In USOE's Vocational and Technical Education Annual Report, fiscal year 1968, it is reported that many States adopted the technique of "project training" to increase participation in distributive programs. Prior to 1963, these programs were limited to serving "employed" persons. The report states:

> In the project method, students participate in supervised and coordinated work-related activities, primarily in the school laboratory rather than on the job, and enter into a series of contracts with a teacher coordinator rather than an employer.

No separate breakdown of students participating in the project method is available. However, the existence of the method and its reported widespread use give evidence of the merit assigned cooperative programs by the professional vocational education community.

The Office of Education has taken a number of steps toward the development of cooperative vocational education programs under Part G of the Vocational Education Amendments of 1968.[13/] A reading of A Guide for Cooperative Vocational Education shows a large input of study, analysis, and other efforts on the part of vocational educators in the public school system but virtually no input from the community of employers. The sole stated contributor from the latter group is the vice president for public relations of Montgomery Ward and Company. It is also stated in the "Foreword" to the Guide that the National Conference participants who prepared the draft document were divided into 10 task forces, each of which was led by an outstanding vocational educator.

Thus, the Guide, which was prepared to assist the States in starting new programs under Part G, reflects the absence of meaningful participation by employers. Evidence of two-sided cooperation between school and employer is lacking. For example, less space is devoted to "Reimbursing Employers for Certain Costs" (page 63) than is devoted to "Equipping the Coordinator's Office" and "Furnishing the Classroom" (page 55). Furthermore, the statement is made that Part G provides for reimbursing employers "when necessary for certain added costs incurred in providing on-the-job training through work experience"

13/ See particularly: Resource Manual 71, noted above, and University of Minnesota College of Education, Division of Vocational and Technical Education, A Guide for Cooperative Vocational Education, Minneapolis, September 1969.

(emphasis added). In this connection it is stated in Resource Manual 71 (noted earlier) that "payments to employers will be made only when necessary; reimbursing employers for added costs, therefore, is not to be implemented as a standard practice." The "when necessary" language appears in the "Findings and Purpose" of Part G (Section 171) of the statute. Section 173 dealing with the "Plan Requirement" of a State, requires that the policies and procedures adopted "must give assurance that provision is made for reimbursement of added costs to employers..." (emphasis added). Since Part G contemplates vocational instruction by alternation of study in school with a job in any occupational field, and reimbursement for added costs is an obvious inducement to employers, one may question the wisdom of the vocational education community preparing, unilaterally, a guide for the States with the interpretation stated. As is shown later from the evaluations that have been conducted of MDTA and JOBS programs, the question of employer reimbursement (who pays) is important because it has a direct influence on who is to have effective control of the program.

The Guide for Cooperative Vocational Education also contains a draft contract between school and employer, "Cooperative Vocational Education Training Agreement Program" (page 69). The form was adapted from the form developed by the Department of Vocational Education, Texas Educational Agency. No information is provided in the guide regarding employer participation in preparation of the draft, or the strengths and shortcomings of the text as seen through the eyes of potential employer participants in Part G programs. Neither is there any evaluation of the proposed language based on the Texas experience with the instrument.

Part G programs in vocational education (a) require employer participation for on-the-job training; (b) require a cooperative agreement between school and employer; (c) are to contribute to both the education and the employability of the participant; and (d) are primarily to serve areas that have high rates of school dropouts and youth unemployment. A number of MDTA and JOBS projects aimed at training the disadvantaged which have cooperative elements between school and employer and which meet additional requirements of Part G, have been evaluated.[14/] There is not a one-to-one relationship between these "remedial" programs which have been evaluated and the "preventive" programs contemplated in Part G. For example, the congressional mandate simply requires that State plans give priority to areas that have high school dropout and youth

---

14/ These include: UBSA contract; Timony Halnon, The Region IV Pilot Cooperative Program, Findings and Recommendations (unpublished report), Division of Manpower Development and Training, December 1969; Jack R. Grisham, Evaluation of the Manpower Development and Training Program in the State of Florida FY 1971; Evaluation of the JOBS Program in Nine Cities, TM-WD-(L)-313/001/00, Systems Development Corporation, September 1969; and The Job Opportunities in the Business Sector Program, An Analysis of Impact in Ten Standard Metropolitan Statistical Areas, Greenleigh Associates, Inc., June 1970.

unemployment rates. The remedial programs are directed toward the "hard-core" unemployed, which is an older population. Part G (and prior) cooperative programs in vocational education do not require that the persons (as opposed to areas) served be disadvantaged. Employers tend to prefer (and teachers tend to place) nondisadvantaged students in cooperative jobs. However, to the extent that programs under Part G might be expanded, they must necessarily dig deeper into the population of disadvantaged areas, and this will tend to narrow the gap between the target populations of remedial programs and preventive programs. The evaluation experience of remedial programs is relevant here.

Any major expansion of Part G programs will likewise tend to close the gap between the "cooperative" employers now participating in cooperative vocational education programs and the participants in the remedial programs, who tend to be representative of the business community. Employer participation under Part G is strictly voluntary. Most participating employers are service oriented, e.g., marketing, retailing, office, and the like. A recent (1970) study[15] in which the National Association of Manufacturers participated shows that only a token dialogue now exists between industrial employers and the public school community of vocational education administrators and educators. An expansion of programs under Part G, particularly of those which are industrially oriented, should foster better communication.

It should also be noted that the remedial programs tend to be massive programs funded at the level of hundreds of millions of dollars at the present time.[16] By comparison there is room to expand Part G programs, which were, as noted above, funded in the amount of $14 million for FY 1970.

Given the distinguishing characteristics of the remedial and the preventive (Part G) programs, there are at least three findings from evaluation of remedial programs that are relevant to Part G programs and to their expansion. The first is that the business community appears reluctant to enter into cooperative agreements and pay the minimum wage when the standards for the program are not their sole province. This seems to be the case even when employers are fully compensated for the services they render. If this attitude is as prevalent as some of the evaluations suggest, the provision in Part G to reimburse employers for added cost only "when necessary" and not as a matter of course will act as a major limitation on the growth of the program. A large number of employers prefer to operate their own training programs rather than "get involved in government red tape." Reimbursement for added costs of training and lowered

---

[15] National Association of Manufacturers, "Vocational Education Study-Group Discussion Paper," xeroxed, undated.

[16] See: "Remarks" by William R. Bechtel, Staff Director, Senate Subcommittee on Employment, Manpower and Poverty, 13 May 1970.

productivity should provide an incentive to employers, particularly where the in-school training is related to the job.

The second finding that seems to be common to these evaluations is that a successful program requires that funds be made available for transportation expenses (to and from the job, the student's residence, and between school and job) and also that funds be provided for all kinds of expenses which are usual to the more fortunate but unusual to many potential trainees, particularly the hard-core unemployed. More than half of this target population are women; thus, for example, provision for child care is essential to a successful school-job program. In describing the needs of student participants, one study found that

> . . . health matters may be more significant in a cooperative training endeavor than in a full-time institutional situation...Individual projects reported other needs. Macon reported a range of physical disabilities. Knoxville expressed a need for clothes, especially before trainees are expected to be placed in cooperative employment. One woman, for example, had only one dress and was reluctant to report for work in such condition...The most serious obstacle to successful cooperative employment, apart from employer reluctance, was the fact that many if not most industries required some form of physical examination as a condition of employment. 17/

The provision in Part G to pay for only the unusual costs of students, unless liberally interpreted, will work to increase dropouts and the number of skipped classes and job assignments, as well as to limit the program's successful expansion. The statute directs the States to give priority "to areas that have high rates of school dropouts and youth unemployment." The evidence is clear that the more this is interpreted to mean give priority to the hard-core unemployed, the greater will be the requirement in Part G to interpret "unusual costs" more liberally.

Many other program characteristics are noted in the evaluations that have been found to be associated with successful programs: clear understanding between school and employer on such matters as the procedure for referrals (not mentioned in the draft agreement on page 60 in the Guide for Cooperative Vocational Education, noted above); flexible scheduling, additional staff training, and sensitivity training for employer staff; employing available waivers of child labor and minimum wage laws; and so on. From all that has been reported, one additional characteristic has been singled out for relevance to the programs provided under Part G--the need for pre-vocational training and the associated requirement to fit the training period to the needs of the student. The evaluation of Florida's MDTA program, cited previously, addresses the issue of pre-vocational training:

17/ Halnon, op. cit.

> Of the total trainees (146) received from 12-9-68 through 10-31-69, 37% were reading below the 5th grade level, 15% were working on or below the 5th grade level in math, and 16 trainees had a history of mental illness and had been in Mental Institutions. . . . The program first lacks the needed personnel for testing, training, and counseling and basic education . . . It is beyond the ability of the coordinators to teach specific skills, such as Nurse Aide, etc., and it is impossible to place trainees in On-Job-Training while performing at the low level . . . Further, it is felt that the time limit for the training of the hard-core disadvantaged is unrealistic. If each trainee is to progress at his/her individual rate until reaching full time employment maturity then no time limit should be set. This experience yields that out of the 149 trainees referred, at least 80% need to go beyond the initial 22 weeks and 20% will have early completion. Employers are unanimous in their receptivity of the program only if the trainees have had some type of pre-vocational training in the occupation in which the employer will be willing to continue training the trainee.[18]

This evaluator is saying that successful cooperative programs for the disadvantaged require flexibility. They require flexibility in curricula and in periods of training. Pre-vocational programs and other special training should be provided when needed and bypassed when not. Training periods should match the needs of the individual student. Part G programs require the obvious flexibility of frequently starting classes, varied curricula, and the 12-month academic year that is characteristic of private vocational schools. As shown in Chapter III of this report, the public vocational school system generally, and USOE in particular, have been reluctant to contract with private vocational schools, which offer the flexibility an expanded Part G program will require.

In summary, the development of successful cooperative programs under Part G of the 1968 amendments will depend upon the degree to which the individual projects become true joint ventures of employer and school. At the

---

[18] Grisham, op. cit.

present time there is little evidence that the interests and attitudes of the business community or participation by that sector, are reflected in the planning undertaken by the Office of Education. In addition, application of the program to disadvantaged students will be limited by the statutory provisions and administrative interpretation that curtail payments for added costs to participating employers, calling for reimbursement only "when necessary"; by the statutory limitation on payments to students for only "unusual" service costs (unless "unusual" is liberally interpreted); and by the failure to use private vocational schools that offer additional required flexibility.

EXEMPLARY PROGRAMS AND PROJECTS

Introduction

Exemplary programs and projects provide a bridge between innovative occupational programs or projects that show promise from earlier research, and established vocational education programs. Since they are designed to serve as models for widespread adoption, the Federal role is to be a catalyst for development and testing of such programs and to disseminate the results of these tests whether they are Federally funded or not.

The discussion here is broken in three parts. The first deals with the legislative authority for exemplary programs; the second with the administration of these programs by the Office of Education. The final section contains an overview on legislative and administrative strengths and weaknesses, and an evaluation of the Federal role.

Legislative Intent, Authority, and Funding

The Vocational Education Act of 1963 (PL 88-210, 18 December 1963) provided that a State's allotment may be used, in accordance with its approved State plan, among other things, for "special demonstration and experimental programs . . ." (Section 4.(a)(6).) Identical language appears in the Vocational Education Amendments of 1968 (PL 90-576, 16 October 1968) under a new heading, Part B—"State Vocational Education Programs" (Section 122.(a)(8).) Although congressional authorization for exemplary programs and projects is, therefore, not new, the intent of the later act is to increase activity in this area at both the Federal and State levels.

The 1968 amendments contain a new part devoted entirely to the subject: Part D—"Exemplary Programs and Projects." Separate authorization of funds is provided: $15 million for FY 1969, $57.5 million for FY 1970, and $75 million for each of the two succeeding fiscal years (Section 142.(a)). From these sums, which are apportioned to the States by formula in the legislation, the Commissioner of Education is authorized to make half of the grants and the State boards to make half. There is no Federal-State matching requirement for grants or contracts made under this part of the amendments.

Part D contains a statement by the Congress of findings and purpose (Section 141):

> The Congress finds that it is necessary to reduce the continuing seriously high level of youth unemployment by developing means for giving the same kind of attention as is now given to the college preparation needs of those young persons who go on to college, to the job preparation needs of the two out of three young persons who end their education at or before completion of the secondary level, too many of whom face long and bitter months of job hunting or marginal work after leaving school. The purposes of this part, therefore, are to stimulate, through Federal financial support, new ways to create a bridge between school and earning a living for young people, who are still in school, who have left school either by graduation or by dropping out, or who are in postsecondary programs of vocational preparation, and to promote cooperation between public education and manpower agencies. (Emphasis added.)

Section 141 has been set forth in its entirety and will be referred to in the discussion of administrative implementation of the legislation. Part D lists, in addition to the quoted section on findings and purpose, seven areas in which grants or contracts may be made (Section 143.(a)(2).) Funds may also be used for planning and development in these areas, and for "establishing, operating, or evaluating exemplary programs or projects designed to carry out the purposes set forth" in the statement of findings and purpose.

Administration of the Legislation

Administrative responsibility for Part D—"Exemplary Programs and Projects' rests, at the Federal level, with the Pilot and Demonstration Branch, Division of Vocational and Technical Education, Bureau of Adult, Vocational and Library Programs, U.S. Office of Education. At the State level this responsibility rests with the State boards. The first appropriation under the legislation initially was for $13 million in FY 1970, 50 percent to the States and 50 percent to the Commissioner. The latter share was subsequently reduced by 10 percent. The anticipated appropriation for FY 1971 is $16 million.

Programs and Projects Directly Funded by State Boards. There is one principal Federal constraint, in addition to the "uses of funds" provision in the legislation, on the use of the 50 percent of appropriated funds by the State boards. Every vocational education exemplary program and project must fit into the State system, i.e., it must be consistent with the State plan, which must be approved by the U.S. Commissioner of Education. The language of the plans is sufficiently general, however, and the reporting of data sufficiently

incomplete and non-uniform, that it is difficult to know in any detail in Washington what takes place at the State level. A list of the titles and funding of the exemplary programs and projects directly funded by the State boards is compiled from information copies of all proposals approved by the boards. Presumably, additional information about State programs and projects could be obtained by request of the U.S. Office of Education regional offices or by request of the research coordinating units (RCUs), one of which is located in every State.

The State-administered exemplary projects in vocational education vary widely in content and funding. In most cases more than one project was funded in each State. The project receiving the smallest amount of funding ($280) was for "Office Simulation" (Portland High School, Oregon); the project receiving the largest ($116,278) was for "Career-Centered Curriculum for the Vocational Complexes" (State Board of Education, Mississippi).

Programs and Projects Funded by the Commissioner. State boards or local educational agencies seeking their share of the 50 percent of appropriated funds allocated to the Commissioner must follow the procedures administered by the Pilot and Demonstration Branch of USOE. Proposals to be funded must describe programs or projects that combine five aspects in a single operational setting:

- Occupational orientation at the elementary and secondary school levels
- Work experience, cooperative education and similar programs
- Specific training in job entry skills, just prior to leaving school, for students not previously enrolled in vocational programs
- Occupational guidance and counseling, and initial placement during the last years of school
- Provision for follow-on funding from regular sources.[19]

The proposals received are read and evaluated in terms of responsiveness to the above requirements. There are 15 outside readers of vocational education exemplary proposals all of whom, with a single exception, are involved in the administration of vocational education at the State and local levels, either as principals of vocational schools or State officials in cha...

19/ USOE, Bureau of Adult, Vocational and Library Programs, "Policy Paper," AVL V70-1, 2 October 1969. Manual: Instructions and Procedures (draft), 1 November 1969, contains specifications for proposing and conducting exemplary programs and projects.

of vocational education programs. Each proposal is read by no fewer than five people, including outside and in-house personnel. The 1 January 1970 deadline for receipt of proposals was waived for Model Cities in 16 states, in an effort to tie some specific exemplary projects with the Model Cities program.

The 1970 goal of the Pilot and Demonstration Branch is to have one 3-year project (annually funded) operating in each State and territory. At the present funding level no "new starts" will be considered where there is an on-going program, except as a substitute for that program. The "Status Report of Part D Proposals (8/24/70)" shows that 168 proposals had been received (11 disapproved by States) from the 56 States and territories, and that 31 projects had been approved. In addition to the proposals themselves, management records are kept showing summary information about "Exemplary Projects in Vocational Education" (grants made) and the "Status of Projects in States Not Yet Approved (DVTE/PDB 9/10/70)." The amount of funds provided (1 year) when grants had been made varied from $101,049 (Wyoming) to $153,118 (California). As noted earlier, the State allocation is determined by legislation.

Projects funded by the Commissioner will be subject to yearly monitoring trips by personnel from the Pilot and Demonstration Branch and visits by personnel from the appropriate regional office on an "as needed" basis. In addition to quarterly progress reports, the grantee is required to prepare an interim report at the end of each 12-month funding period and a final report at the end of the 3-year project period. The proposal itself must include a plan, to be carried out by a third party, for evaluating the effectiveness of the program or project. A guide for authors in preparing evaluation reports is available.[20]

The following abstracts of funded exemplary projects were taken verbatim from the script of an address given by Dr. Albert J. Riendeau, chief, Pilot and Demonstrations Branch, at the National Institute on Exemplary Projects in Vocational Education held at Squaw Valley, California, 19-23 July 1970:

> Colorado—The Aims Junior College District, formally approved in the State as an area vocational school, will provide among the several exemplary components, peer counseling for disadvantaged Mexican-American students who are potential or actual dropouts from the secondary schools. The plan calls for working with the entire family unit, with special efforts to be aimed at working with the father. Individual learning packages and intensive tutorial assistance will be provided these students.

---

[20] HEW, Preparing Evaluation Reports, A Guide for Authors, U.S. Government Printing Office, 1970.

Massachusetts—The New Urban League of Greater Boston, Inc., will implement the Exemplary Program through the use of a Continuing Education Center. Unique among the activities at the Center will be the advocate and Black Exemplar roles to be played by counselors. The focus is on inner city people, mostly Blacks. Incorporated into the design of the Boston project are the development of minority exemplars, occupational information, attitudinal change, parental involvement, skill training, and task analysis. This Exemplary Program reflects an effort on the part of a nonpublic sector group to provide realistic innovative action in education to meet a serious need.

Virginia—Called the DILENOWISCO Four I's Project (for Intervention, Introduction, Investigation, and Involvement), the applicant agency is a consortium of five local school divisions headquartered in Wise, Va. Located in an area of high unemployment the program is designed to intervene in the lives of a selected group of youths by introducing them to a broad range of occupational information; making it possible for them to investigate several occupational areas, they will become involved in actual work and learning experiences. The target group is largely potential dropouts.

Nevada—The Washoe County School District, with offices in Reno, developed an Exemplary Project which introduces new elements of vocational education at the elementary, secondary, and post-secondary levels and combines them with existing elements to form a smooth, sequential program. The new elements are occupational orientation at the elementary and junior levels, and a heavy concentration of counseling, job orientation, and placement at the high school level. A health occupations curriculum at the senior high school level is being tried in this program also.

Pennsylvania—The Pittsburgh Public Schools will, for the 7th and 8th grade orientation program, utilize the facilities of a renovated elementary school. Students will be rotated for career orientation and exploration. With a centralized location for occupational orientation, the Pittsburgh School District feels it can provide a greater variety of materials and equipment as well as keep them current at a more reasonable cost.

The report requirements imposed on the grantee were noted earlier. The Manual of Instruction and Procedures (Section 6; page 5), directs the proposer to describe how the results of his project are to be disseminated and to indicate the steps that will be taken to make materials, techniques, and other outputs of the

project available to others (Manual, Section 6, page 5). Presumably, descriptive materials will be available through the Educational Resources Information Center (ERIC) system.

Overview: Legislative and Administrative Strength and Weakness; Evaluation of Federal Role

At present there are no results available with which to measure or evaluate exemplary programs funded under Part D of the 1968 amendments. The only readily available sources of information about the programs and projects directly funded by the State boards are copies of the proposals; the amount of the funding granted is known. Not all of the States have had the projects they proposed funded by the Commissioner. Furthermore, not one of the programs funded has been in operation for more than a few months. One may question, however, whether Part D will result in more than a mere continuation of "special demonstration and experimental programs" initially authorized under the 1963 act and now carried forward in Part B of the amendments. There are both legislative and administrative considerations that detract from a vigorous exploitation of exemplary programs and projects under Part D.

The "Rules and Regulations" published by the Office of Education under Title 45—"Public Welfare," Part 103—"Research and Training, Exemplary, and Curriculum Development Programs in Vocational Education"[21] contain deletions of the language which appears in the congressional statement of "Findings and Purpose" in the 1968 amendments (set forth above in its entirety). The language deleted in the "Rules and Regulations" is that referring to reducing the seriously high level of youth unemployment by developing means for giving the same kind of attention to the needs of this group as is now given to the college preparation needs of young persons who go on to college. Two out of three young persons end their education at or before completion of the secondary level. This language is deleted not only from the published "Rules and Regulations," but also from the "Policy Paper" and the Manual: Instructions and Procedures (cited previously), which were prepared by USOE as guidelines for the submission of proposals on exemplary programs and projects to be funded by the Commissioner.

Thus a State board or local educational agency desiring to participate in the Commissior 's allottment under Part D could learn only by reading the act that Congress anted the means developed for giving the same attention to the job preparation needs of those ending their education at or before the secondary level as is now given to preparing young people for college. None of the material made available to assist such agencies in writing successful proposals to be funded by the grantor Office of Education provides this information.

21/ Federal Register, Vol. 35, No. 143, Part II, 24 July 1970.

If Congress really intended to offer a new development of the means to put the educational experience offered youth not college bound on the same basis as that offered the college bound, a case can be made that the Office of Education has constricted this purpose severely. Furthermore, in the amendments Congress aims at stimulating new ways to create a bridge between school and earning a living for young people; the word "new" is dropped from the text in USOE's manual.

The Office of Education has determined that exemplary programs shall not involve original research and developmental activities but must be based upon prior research and development.[22] As noted earlier the Office of Education has determined that all exemplary programs funded by the Commissioner must contain elements of each of four provisions (plus a fifth relating to follow-on funding): occupational orientation, work experience, specific training in job-entry skills, and occupational counseling. Special searches of the ERIC collection have been prepared, one of which summarizes the research and provides a bibliography in each area.

A fundamental question, therefore, is whether these four provisions will accomplish the findings and purpose set forth in the legislation for Part D. One study of 200 programs in vocational education (McCollum et al., 1968) aimed at disadvantaged students in secondary schools identified and described 25 elements that contributed to the effectiveness of the programs studied.[23] The four provisions required by the Office of Education for all exemplary programs were included in the list (items 6, 7, 11, and 14). The study report comments that further study and analysis directed toward verifying the four provisions in terms of accomplishing the purpose of the legislation is not possible. It is also reported in this study that the cost-effectiveness of the various programs could not be evaluated in a way that would bear up under criticism and that the relative effectiveness rank could not be determined for any of the programs. Clearly, grantees must report more complete cost and benefit data, on a consistent and continuing basis, if the effectiveness of alternative programs is to be determined.

The small amount of funds actually appropriated compared to the funds authorized by the legislation will act as a limitation on the effectiveness of Part D programs. The anticipated appropriation for FY 1971 ($16 million) is less than one-third the amount authorized by Congress for the second year of the program ($57.5 million). One may question, for example, how much impact the availability of $153,118 per year for each of 3 years for a pilot project can have on vocational education in a State with a school population the size of California's.

22/ USOE, "Sources of Information on Prior Research and Development Projects," undated.

23/ John W. McCollum et al., An Identification and Analysis of Effective Secondary Level Vocational Programs for the Disadvantaged, Social, Educational Research and Development, Inc., Silver Spring, Maryland, December 1968.

Based on reported enrollment of 1,036,086 in vocational education classes for FY 1968,[24] this works out to slightly less than 15¢ per student per year. Of course a State may match the share allocated by the Commissioner with its own share, and perhaps add funds obtainable under other programs. This was done in the District of Columbia to implement "A Plan for Career Development"[25] using the career cluster concept. The program is funded at more than $500,000 per year.

The available funds for an exemplary program could be concentrated in a school complex, for example--four elementary schools (1,200 students), two junior high schools (2,400 students) and one senior high school (2,000 students). In such a pyramid in California, the 5,600 students would each be recipients of about $27 in exemplary funds from the Commissioner's allocation along. If one further assumes that the pilot program can be offered at 75¢ per student-contact (or classroom) hour, this would provide approximately 36 hours of orientation, work-study, job-entry instruction, or counseling per school year. This is less than 1 hour per week.

There is evidence that these resources would not be adequate for a truly effective exemplary program. A recent study of selected exemplary programs for the education of disadvantaged children (preschool through grade 12) was based on 11 schools that had realized measured benefits of cognitive achievement.[26] Although most of the programs focused on reading and math rather than on the four provisions relating to vocational education noted earlier, it is relevant for our purposes that the students' exposure to the exemplary program or project was never less than 2 hours per week and in many cases it was for periods twice that long. The question may fairly be put whether it is possible to expect much in the way of "new bridges" and developing means to put our youth who are not bound for college on a par with those who are, given the level of effort that has been provided.

A final word about evaluation of the twofold Federal role--as a catalyst for development and testing of exemplary programs and as a disseminator of the results of such programs and tests. There is no question that the Office of Education has embarked upon a number of activities devoted to accomplishing these objectives in implementation of Part D of the 1968 amendments. It is too early to tell, however, how well the procedures and techniques being employed will work.

24/ USOE, Vocational and Technical Education Annual Report--Fiscal Year 1968, U.S. Department of Health, Education and Welfare, Table 1, p. 125.

25/ In Task Force Report on Vocational Education, May 1969.

26/ David G. Hawkridge et al., A Study of Further Selected Exemplary Programs for the Education of Disadvantaged Children, American Institutes for Research, Palo Alto, California, June 1969.

Perhaps a key issue is whether the four criteria for the funding of exemplary programs and projects comprise the most efficient (cost-effective) way of accomplishing the objectives of Part D. Data of sufficient quality to serve as the basis for evaluating, comparing, and selecting preferred exemplary programs and projects from among the many alternatives have not been found. Further, it does not appear that the required reporting by grantees will guarantee the availability of this information in the future.

APPENDIX B

DOCUMENTATION SUPPORTING THE DISCUSSION OF MEASURING ACHIEVEMENT OF OBJECTIVES IN AN ECONOMIC SENSE: COMPARING THE EFFECTIVENESS OF DIFFERENT OCCUPATIONAL PROGRAMS

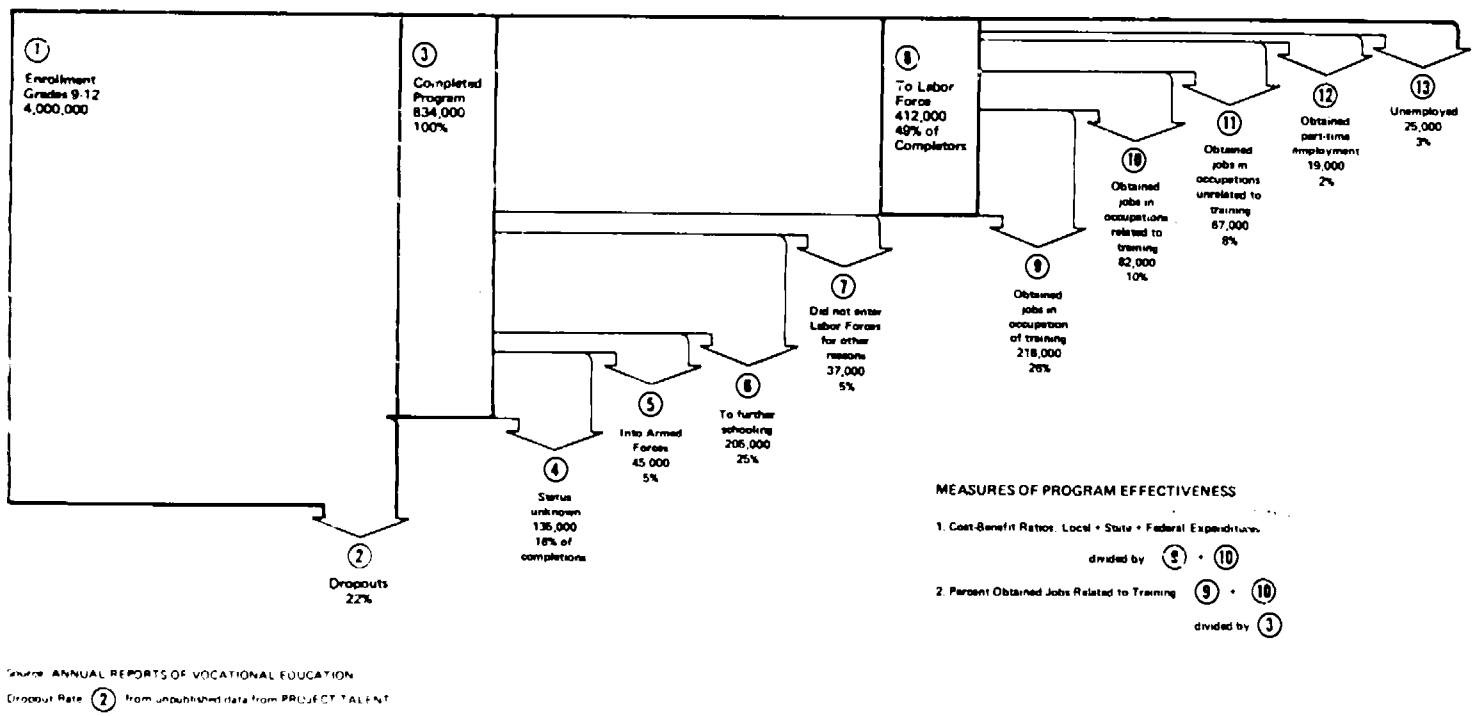
INTRODUCTION

This appendix, a supplement to Chapter VII of the report, is [illegible] with the cost-effectiveness assessment of the major existing vocation[illegible] tion programs (curricula). It will be apparent as the analysis is deve[illegible] the recommendation for a major study in this area is fully warranted. data available at the Federal level are State aggregates; the few effe[illegible] measures are included, and there are no control group comparisons. systematic analysis similar to that which exists for the manpower pro[illegible] not been developed for the evaluation of different types of occupatio[illegible] ing, simply because of the lack of accurate, disaggregated data to m[illegible] comparisons. Lack of data has also precluded other crucial compari[illegible] as work/study versus cooperative programs and urban-rural-suburban [illegible]ns.

BACKGROUND

The flow and disposition of vocational education students a[illegible] in Figures 1 and 2. Figure 1 applies to secondary school and Figure[illegible] secondary schools.

These flow charts were developed to serve several purpose[illegible] they indicate the kinds of data provided by the annual vocational edu[illegible] reports, which are available for program analysis. The cost-benefit[illegible] tions discussed in this section were based on data available throug[illegible]



Source: ANNUAL REPORTS OF VOCATIONAL EDUCATION
Dropout Rate (2) from unpublished data from PROJECT TALENT

Figure 1.—Disposition of vocational education completers—secondary schools, FY 1969.

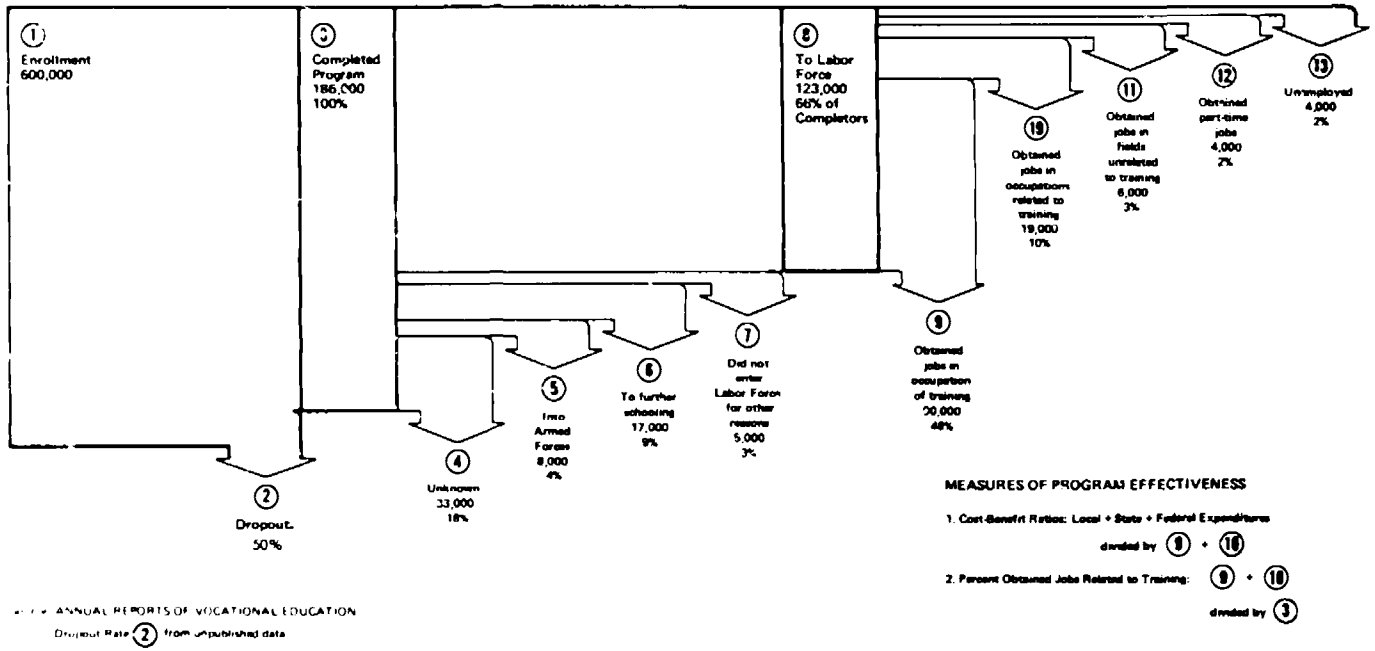


Figure 2.—Disposition of vocational education completers—post-secondary schools, FY 1969.

reports. The figures reported for FY 1969 are presented in the flow charts. The charts also indicate the items of data used in developing evaluative measures, such as the cost per placement and the percent of graduates placed in jobs related to their training.

The cost-benefit ratios developed in this section were limited by the extent and quality of reported data. For example, the only follow-up made was in the October following graduation. A longer span of observation would have provided more meaningful data. Further, no income information was available; thus, as discussed later, it is assumed in the calculations that all jobs obtained that relate to training are of equal value. Data on income differentials could have provided a basis for weighing the relative worth of the different types of jobs obtained.

EFFECTIVENESS

There are many different instructional programs provided by secondary and post-secondary schools. Included are such diverse courses as automobile repair, cosmetology, baking, and appliance repair. These courses are classified by the U.S. Office of Education into a system of occupational programs: agriculture, trades and industry, office, technical, distributive, home economics (useful and gainful), health, and "other."

Vocational education data for each of these programs are collected and reported annually by the States. The data pertain to the financing of programs, the instructional activities carried out, and the success of graduates. The reported data show a wide range of success across programs. This variation occurs in the costs of providing the instruction as well as in the results that are being achieved.

The graduate follow-up data reported provide information on the relative effectiveness of the different occupational programs in terms of finding graduates in jobs related to the training in October following graduation. In the secondary schools, distributive programs had 41 percent of their graduates placed in related jobs in FY 1969; this is the largest percentage for any program. The lowest percentage of graduates placed in training-related occupations was for home economics (gainful)—24 percent for FY 1969. These are median values derived from State data. The median for all secondary occupational training was 36 percent. For post-secondary programs, the average percentage of completers that obtained related jobs (65 percent) was almost twice as high as that for secondary programs (36 percent). The Table 4 shows the figures for each program, together with its dollar magnitude.

TABLE 4.—Percentage of completers obtaining jobs in fields related to instruction, FY 1969

Program	Number of Completers	Secondary		Post-secondary	
		Percentage[1]	Program size[2] ($ millions)	Percentage[1]	Program size[2] ($ millions)
Distribution	96.9	41	32.6	50	11.0
Office	425.3	35	126.8	57	44.4
Health	14.4	35	9.7	84	40.7
Trades and Industry	184.5	35	137.1	59	67.5
Agriculture	110.2	32	86.1	48	7.9
Technical	12.4	27	11.4	56	63.0
Home econ (gainful	227.7	24	7.3	50	3.3
All programs		36		65	

[1] Median values for State programs.

[2] Includes Federal, State, and local funds.

These figures represent the national experience. There is also considerable variation among States. Since the data are received separately, it is possible to examine each State individually. Not discernible from Federal reports, however, is the variation that also exists among the different school districts within States. Table 5 shows the amount of variation in program success (as indicated by percent of placements in training-related jobs) among States.

It is evident from these figures that the range of State experience is considerable. Nevertheless, the average deviations are moderate, showing definite clustering around the medians. The important point here is that even though the secondary distributive program is shown to be the most effective in the percent placed in related jobs (see Table 4), some states (Utah at 6 percent) have done considerably worse than the median.

TABLE 5.—Variation among States in percent of graduates obtaining training-related jobs

Program	Secondary		Post-secondary	
	Range, %	Avg deviation from median, %	Range, %	Avg deviation from median, %
Distribution . . .	6-68	9	7-100	17
Trades and Industry . . .	7-76	11	0-88	14
Office	4-84	14	13-100	19
Health	0-100	19	24-100	12
Agriculture . . .	3-100	10	0-100	24
Technical	4-100	14	11-100	17
Home econ (gainful) . . .	5-100	14	0-100	24

COST

The degree to which an objective, such as placement in jobs, is achieved can only be regarded as part of an evaluation. There is also the consideration of cost, for it may be that higher placement rates are being achieved at greater expense.

The program expenditures submitted in the annual reports do not represent the total costs incurred for the students. Only the expenditures directly associated with vocational instruction are included, and this has the effect of bringing the program cost to a level substantially below the total per student cost incurred. Nevertheless, for purposes of making comparisons among the different programs, the use of program costs is appropriate; the cost-effectiveness ratio (using job placement in training-related fields as the measure of effectiveness), rather than being viewed in absolute terms, can be viewed as an index of the comparative worth of programs. Estimates of cost-benefit ratios developed on the basis of estimates of full costs are presented later.

RELATED COST-EFFECTIVENESS MEASURES

The figures shown in Table 6 were calculated by dividing total expenditures (Federal, State, and local) by the sum of the number of graduates placed directly in their fields of training plus the number placed in related fields. This calculation results in a cost per placement in training-related jobs, which in effect is a cost-effectiveness ratio. The flow charts shown earlier (Figures 1 and 2) identify the elements used in the calculation of this measure. The introduction of cost into the comparison of effectiveness significantly alters the ranking of programs within secondary and post-secondary vocational education. It does not, however, alter average placement rate and cost between the two (65 percent versus 36 percent, and $2,400 versus $1,350). At the secondary level, where the distributive program was the most effective program in terms of percent of students placed in training-related jobs, office occupational training becomes the most cost-effective. Home economics was the least effective in placing students, but on a cost-effectiveness basis, home economics occupies fourth place, which represents a considerable improvement in performance.

There is considerable variation among the different States in cost-effectiveness ratios, just as there was in the components of the ratios (expenditures and percent placed in related jobs). The range of the ratios is such that there is considerable overlap—some agricultural programs, for example, are more cost-effective than some office programs, even though these two programs are at opposite ends of the scale, on the average. Table 7 presents data on the dispersion around the median of State cost-effectiveness ratios for the various occupational programs.

Thus far, no adjustments have been made in the data. One adjustment could be made for graduates who do not make themselves available for employment. A substantial number of vocational education graduates do not enter the labor force. In 1969, 51 percent of the graduates of secondary programs could not be found or did not make themselves available for employment for a variety of reasons. Some went on to further education (25 percent) and some entered the armed forces (5 percent); there were 16 percent whose status was not known.

There is a question as to whether the cost-effectiveness calculations should not exclude the graduates who do not make themselves available for employment. As a consequence, Table 8 was prepared to present ratios based on costs reduced by a proportion equal to the proportion of graduates that did not enter the labor force.

Deletion of costs for non-entrants reduces the cost per placement for secondary programs by about one-half and for post-secondary programs by about one-third. This adjustment does not change the relative positions at the post-secondary level at all, and causes only minor shifts at the secondary level.

TABLE 6.—Program costs per placement in job related to training, FY 1969

Program	Secondary		Post-secondary	
	Program costs[1] ($ per placement)	Program size[2] ($ millions)	Program costs[1] ($ per placement)	Program size[2] ($ millions)
Office	868	126.8	1,906	44.4
Distribution . .	925	32.6	2,019	11.0
Health	1,324	9.7	1,225	40.7
Home econ (gainful) . .	1,533	7.3	1,916	3.3
Trades and industry . .	1,944	137.1	2,592	67.5
Technical . . .	2,728	11.4	4,208	63.0
Agriculture . .	2,893	86.1	5,061	7.0
All programs	1,349		2,397	

[1] Median values for State programs.

[2] Includes Federal, State, and local funds.

TABLE 7.—Variation in cost per placement among States

Program	Secondary		Post-secondary	
	Range	Avg. deviation from median	Range	Avg. deviation from median
Office	$30-6,783	$395	$7-18,025	$1,702
Distribution . .	455-2,904	289	70-15,073	2,567
Health	301-13,933	925	547-11,812	687
Home Econ (gainful) . . .	356-13,739	1,059	52-20,229	2,018
Trades and industry	844-7,435	833	543-13,298	2,032
Technical . . .	163-15,717	3,613	333-20,422	3,230
Agriculture . . .	715-16,647	1,618	1,061-5,036	2,329

TABLE 8.—Cost per "successful" placement adjusted for graduates not entering the labor force

Program	Cost per placement	
	Secondary	Post-secondary
Office	491	$1,135
Distributive	491	1,855
Home econ (gainful)	708	1,476
Health	741	1,062
Trades and industry	975	1,937
Agriculture	1,203	2,206
Technical	1,504	2,482

Since suitable income information by occupational program is not available on a national basis, it would not be possible to weight the ratios by expected earnings, although such analysis would be useful for national planning, to make clear the sensitivity of the rankings to weighting, according to expected incomes.

Finally, with the wide dispersions that exist, there is a question regarding the significance of "average" ratios. In other words, does the variation (i.e., range) within programs explain the variation found between programs (e.g., office versus agriculture)? To answer this question, the differences in the means of the ratios for the various programs were tested for statistical significance by analysis of variance, and the differences were found to be significant. Variations within occupational programs cannot explain the differences observed among programs, nor can they be attributed to chance. From a program evaluation standpoint, therefore, it can be inferred that the different occupational programs are indeed producing different results.

POLICY IMPLICATIONS OF THE RELATIVE RANKINGS

Having determined that the apparent differences in the results of the various occupational programs are real, what are the policy implications? There is no question but that it is a policy to maximize the benefits from the resources being expended for vocational education systems. A system is functioning optimally when the marginal returns for each element or each program are equal. Although the calculated cost-effectiveness ratios are averages, there is evidence that in the case of vocational education, averages are close approximations of marginal values. Bringing a system of occupational programs into equilibrium, therefore, would necessitate a gradual substitution of funds from programs with higher costs per placement to those with lower costs until the ratios are equal for all occupational programs. Because of the variations among States, this substitution process should take place within the States and should involve reallocations of funds from all sources—Federal, State and local. Such reallocations, or substitutions, would have to be done gradually so that the impact at the margin could be measured and kept under surveillance.

DATA QUALITY

As mentioned earlier, these cost-effectiveness ratios were developed from reported data; obviously, therefore, the accuracy of the reports is an important consideration. Three distinct approaches toward assessing the data were taken. On the basis of these tests, it was our conclusion that it would not be possible to claim that the data reported are without validity.

First, we examined data over a longer time span to see if there was stability in the cost-effectiveness ratios. If the data had not been valid, we could have expected to find erratic changes in the ranking of the occupational programs. For the secondary programs, we found but one switching of positions of two adjacent programs. On the whole, the ranking of the programs showed stability over the 3-year period 1966-1969.

Second, a sample of State capital cities was visited to discuss data gatherings procedures with vocational education officials and learn their assessment of the validity of the reports. From these visits, it was concluded that although there were problems and uncertainties, the reports generally reflected conditions with reasonable accuracy.

Third, the data were subjected to certain statistical tests. The analysis of variance described above also has implications for assessing the validity of the reported data. If the reports had been invented or fictitious, it is likely that all of the occupational groups would have tested as having come from the same population; according to the variance test, however, the data for the different groups came from different populations.

Another aspect of the data reflecting on their validity is the frequency distribution of the values. Frequency distributions were developed for each occupational program, and in most cases the ratios within occupations programs follow a distribution that is unimodal and positively skewed, which should be expected for this type of activity. An inference of homogeneity within groups can be drawn from such distributions. This inference could not be drawn for only two of seven programs tested, and in both of these cases the number of observations was relatively small. On the whole, therefore, the frequency distributions of the observations indicate homogeneity within groups, which would be expected from valid data.

Inferences from frequency distributions and statistical testing, when taken individually, cannot be regarded as sufficient indicators of the accuracy of the data reported. When taken together, however, and while considering the highly dispersed sources of the reports, they are highly indicative: the differences among programs are significant and the distributions within programs show homogeneity; thus, considering that the data originated in many different jurisdictions, it would be highly improbable for the reports not to reflect actual conditions. In sum, although the evidence of course is not conclusive, there is no evidence that the data are unreasonable and therefore unusable for analysis. The statistical features usually associated with inaccurate reports are not characteristic of the data reported through the annual report on vocational education.

IMPLICATION OF USING TOTAL COSTS PER ENROLLEE RATHER THAN PROGRAM COSTS PER ENROLLEE

As was mentioned earlier, the vocational education expenditures used to develop cost-effectiveness ratios are program financial costs, not total costs per student. [1/] The costs incurred per student are substantially higher than program financial costs, which reflect only the direct instructional costs for vocational education. Construction costs are mostly excluded, and when vocational education is taught in comprehensive schools many of the joint costs are not reported as vocational. Also, the costs of nonvocational courses taken

1/ Foregone earnings and similar costs that might be regarded as part of the total costs are not considered here.

by vocational students are omitted from expenditures reported for vocational education. To illustrate the extent to which this can be a factor, 12 percent of secondary vocational education students take only one course in vocational education. An equal portion of students take only three courses. Only about half of the vocational education students carry five or more vocational courses; thus there is considerable difference if only instruction is considered, without regard to the number of courses taken.

One report on costs presents the following data comparing average per student costs for two types of post-secondary training:[2/]

	Average instructional costs	Full costs
Community colleges . . .	$599	$1,184
Technical schools	844	1,664

Per student costs for secondary vocational education are shown in a number of reports using data from the mid-sixties. The estimates range from $500 per year to $950 per year—not including capital expenses, which appear to represent from 8 percent to 20 percent of instructional costs.

A comparison of secondary and post-secondary program costs by occupational category, as calculated in this way from the annual vocational education reports, appears in Table 9.

TABLE 9.—Program financial costs per enrollee, FY 1967

Program	Secondary	Post-secondary
Agriculture	$151	$587
Trades and industry. .	261	347
Technical	333	412
Office	69	128
Health	149	418
Distributive	214	210
Unweighted avg . .	200	350

Source: USOE, Vocational and Technical Education Annual Report—Fiscal Year 1967, U.S. Government Printing Office, Washington, D.C.

2/ William G. Morsch, Study of Community Colleges and Vocational Training Centers: Cost Analysis (unpublished report prepared for the Department of Health, Education and Welfare, USOE, Bureau of Social Science Research, Inc., Washington, D.C., 1970.)

Comparing these figures with those appearing in the reports mentioned above, program financial costs can be seen to be considerably less than total costs per student. In the following tabulated comparisons, unweighted averages and mid-points are used for the data that were available:

	Annual program financial costs per enrollee	Annual total costs per enrollee
Secondary	$200	$ 725
Post-secondary . . .	350	1,424

These figures show that total per student costs for secondary vocational education are about 3.6 times the program financial costs, while total per student costs at the post-secondary level are 4 times the program financial costs.

The cost-effectiveness ratios presented earlier, being based on program financial costs, are suited to showing the relative efficiency of expenditures on the different occupational programs in terms of securing jobs for graduates. In terms of absolute dollars incurred per student, however, they are greatly understated. An approximation of the total per student costs for those actually placed can be made by scaling up the ratios by the factors of 3.6 and 4 for secondary and post-secondary, respectively. Such an approximation would be rough because, as mentioned earlier, the scaling factors are averages with some of the values derived from sparse samples; also, these factors do not reflect any differences by occupational program (i.e., they cannot discriminate among the different occupational categories). They can, nevertheless, be applied to the cost-effectiveness ratios that were developed for each occupational program, to produce ratios that more accurately reflect the total per student costs incurred by each. The scaled ratios are given in Table 10.

It can be seen from these figures that the cost of vocational education is substantial when all of it is attributed to the graduates who actually obtain jobs in their field of training. Here again, the variation among programs is considerable. At the secondary level, it costs three times as much to place a graduate in a technical or an agricultural position as it does to place one in an office occupation. At the post-secondary level, it costs over four times as much to place a graduate in agriculture as in a health occupation.

The reader should be warned to use extreme caution with regard to these estimates. They are based on fragmentary data and were developed only to permit the compilation of very rough estimates of the full cost implications of the placement of an individual in a job related to his training. "Loading" the individuals so placed with full program cost carries the implication that those not in related jobs received no benefits from their training, with the consequence that none of the cost is assigned to them. In addition, the scaling factor had to be derived from fragmentary data—the only data available to this analysis—representing a single locality, although it is well known that there is considerable variance in costs among localities. Since the scaling factor is used as a multiplier, moderate differences in it would result in larger differences in the product ratios.

In assessing the results of these calculations, it should also be kept in mind that the costs do not represent single-year costs. Dividing the year's program costs (which encompass 4 years) by the number of placements in related jobs has the effect of including all of the years of the graduates' education in the costs. Using full program costs also has the effect of "charging the graduates" the costs incurred by dropouts, even dropouts who have in fact gotten related jobs. This was not a matter of choice; follow-up data on dropouts are not available. It should be noted, further, that no provision has been made for the sizable portion of graduates about whom nothing is known. Computationally, they are all treated as not having obtained jobs related to their education, and their costs are shifted to the graduates that are known to have been placed in such jobs. In sum, the values should be treated as rough approximations having a number of areas of uncertainty in their derivation.

An important conclusion from this analysis is that there is a need to improve the analytical data base so that a more precise assessment can be made of the quality of the graduates' occupational training experiences. An examination of nonplacement benefits should also be possible, as should some appraisal of the displacement effect (which, for example, may be less in the technical occupations than in the distributive), although on the basis of cost per placement the technical training appears less effective.

TABLE 10.—Cost-effectiveness ratios increased to reflect total costs per student placement in a training-related job

Program	Secondary	Post-secondary
Office	$ 3,124	$ 7,624
Distributive	3,330	8,076
Health	4,766	4,680
Home econ (gainful)	5,519	7,664
Trades and industry	7,038	10,368
Technical	9,821	16,832
Agriculture	10,415	20,244

Thus far we have been attributing costs, whether they be program financial costs or full costs per student, to those who have been placed in jobs related to their training. The estimated costs per placement are high, for two basic reasons. First, per student costs for vocational education are relatively high, and second, only a portion of the graduates obtain jobs in fields related to their vocational education. Estimates can be made of the amount of "unproductive" money that is spent on these students (i.e., unproductive in achieving placements related to student training),[3/] as shown in Table 11.

Calculations were presented earlier of the percentage of graduates that obtained jobs in training-related occupations. The balance of the students were either unemployed, employed only part-time, employed in jobs unrelated to their training, in the Armed Forces, involved in additional full-time schooling, or could not be found. A statistical proration of costs can be attributed to the balance of students who received training but did not use it in an occupational context. The statistical proration was made through use of the following:

$$\sum_{i=1}^{51} P_i - 100(E_i)$$

where

P = percentages of completers obtaining jobs in related fields

E = expenditures made in the State.

There are major data needs to improve the type of strategy evaluation. First, the classification scheme of occupational, or program, categories should be improved. The classification system is too aggregative. More and better classifications are required to clearly delineate categories such as "Technical" and "Trades and Industry." Another major shortcoming is in the time horizon of follow-up, which extends only to the October following graduation. A 5-year follow-up would contribute significantly to program evaluation.

In general, this analysis can be useful in providing an overview of the relative performance of the different kinds of training. It cannot, however, be used to explain why the programs performed as they did, or how the programs performed on a greater set of needs.

3/ The term "unproductive" is not to imply that graduates who do not get training-related jobs do not benefit from their education in other ways.

TABLE 11.—Estimates of vocational education expenditures made on students who did not obtain jobs related to fields of training or who were not found

Program	Secondary		Post-secondary	
	% not obtaining related jobs[1/]	Estimated cost of training	% not obtaining related jobs[1/]	Estimated cost of training
Distribution . . .	58	$ 18,930,481	56	$ 3,404,656
Office	53	66,718,940	35	15,405,353
Health	66	6,342,086	25	8,628,708
Trades and industry . . .	57	76,095,111	43	227,955,174
Agriculture . . .	68	58,380,835	42	3,275,012
Technical . . .	75	8,259,692	43	22,746,553
Home econ . . .	74	5,265,743	57	1,161,618
Overall . . .	60	$239,992,888	39	82,577,074
Total program expenditures		$405,083,223		$213,040,678

1/ These values are arithmetic means and are not comparable to the median values shown in Table 4.

APPENDIX C

VOCATIONAL EDUCATION PLANNING AND EVALUATION ACTIVITY

INTRODUCTION

This appendix provides an overview of planning and evaluation activity within the realm of Federally-funded vocational education. It focuses on the activities of groups responsible for planning and evaluation at the Federal, regional, State, and local levels.

The basis for this presentation is information obtained in part through discussions with vocational education personnel involved, in various capacities, with planning and evaluation. Other information was obtained from various vocational education reports, working documents, and plans that indicated the manner in which planning and evaluation is being conducted at the various levels. The bulk of all information utilized was obtained at the Federal level.

Summary

The planning and evaluation of Federally-funded vocational education programs may be viewed as a continuum of activity from the Federal level, through the regions and States, to the local level. It may be viewed as an interactive process involving each level with the next above and/or below.

Planning and evaluation at each of the levels is affected both by guidelines and constraints imposed from above and by limitations imposed from below. For example, at the Federal level national vocational education priorities and budget appropriations generally are determined at the department and office levels; planners and evaluators will work within these, having little control over them. At the same time the planners and evaluators are being called upon for data on current programs, projections of future requirements, and evaluative information

on what works and does not work in vocational education, and the data they require to respond in these areas are in general not available from the States reporting to them.

A similar situation exists at the State level. Planners and evaluators must be responsive to both Federal and State legislation and priorities, and they must work within the imposed budget limitations. They often are expected to respond to data requirements of the Federal level and do not, in general, have the mechanisms to obtain the needed data from the local education agencies, although a number of States are developing this capability. Because of the autonomous nature of public education, there is little leverage from Federal to State, or from State to local area.

At the Federal level vocational education planners and evaluators devote time to responding to the requirements of the overall Government planning cycle. They also provide assistance and support to the regional, State, and local vocational education operations, in an effort to improve the capability to plan and evaluate, and thus improve the quality and scope of information provided to the Federal agencies. Assistance and support are also given to the national and State advisory councils for vocational education.

The role of the regional level is emerging now in the area of vocational education planning and evaluation. Consistent with the recent Federal movement toward regionalization of program administration, regional vocational education personnel are assuming a larger role in planning and evaluation. The regions are assisting Federal headquarters by taking responsibility for the review and approval of State plans. They are also developing the capability to assist their States in the planning and evaluation of State-level programs.

In the States, planners and evaluators are responsive to requirements from above, but they also devote time to working with local education agencies to develop improved local capability and improved data for use at both local and State levels and for use in reporting to the regions and Federal headquarters. The State plan appears to be a model for planning and evaluation activity at the State level.

Local planning probably shows greater variation in style, format, and comprehensiveness than planning at any other level. The scarcity and inconsistency of data, combined with whatever restrictions are imposed at the local level (legal, political, or otherwise), apparently affect the quality of local plans. A few more progressive districts are moving toward a learning systems approach that will be based on program planning and budgeting (PPB) techniques and will place heavy emphasis on evaluation. Others are attempting to improve outreach and increase the effectiveness of existing facilities by joint cooperative planning with adjacent areas.

While planning and evaluation personnel at all levels are stressing the development and improvement of information systems that would provide usable data for measuring program effectiveness, current systems are not yet providing a data base that would support a comprehensive planning or evaluation program. At all levels, independent research efforts are relied upon at this time for most needed information. Federal planning and evaluation personnel are also stressing the need to develop statements of measurable objectives for vocational education at all levels, beginning with the Federal.

Finally, it is apparent that program evaluation at all levels is severely hampered by the lack of an agreed upon measure of effectiveness (e.g., cost per student placement). Far too much reliance has been placed on qualitative indices of effectiveness in the absence of more precise, quantitative measures.

FEDERAL PLANNING AND EVALUATION

At the Federal level, the responsibility for vocational education program planning and evaluation is lodged with the Planning and Evaluation (P&E) Branch in the Division of Vocational and Technical Education, Bureau of Adult Vocational and Technical Education (DVTE, BAVTE). This branch is organized into three sections—Planning, Evaluation, and Analysis and Reporting. The three sections are staffed by 10 professionals in addition to the branch chief.

In examining the functions and activities of the Planning and Evaluation Branch, it may be helpful to group them into two major areas, the first dealing with planning and evaluation support provided within the Federal structure (to the U.S. Office of Education and HEW), and the second dealing with planning and evaluation support provided to other levels—the regions, the States, and the local education agencies (LEAs).

Support Within Federal Structure

The planning and evaluation activities of the P&E Branch within the Federal structure may be characterized as essentially responsive to needs identified at higher levels within HEW and USOE. The annual HEW planning cycle provides the basis for all planning activity relating to vocational education at the Federal level. (See "FY 1972 Planning Calendar" included at the end of this appendix.) Within a framework of annual goals and objectives determined for HEW at the Secretary's level, the Commissioner of Education identifies preliminary issues and program thrusts, and requests responses and comments on these from the bureau level. The "issue papers" that are written in response to these requests are the primary means of inputting planning and evaluation information upward through USOE. The issue papers are an attempt to assemble as much information as is available to the P&E Branch to describe the problem or situation in question and influence the programming needed to deal with that problem or situation.

A second activity carried out by the P&E Branch as part of the annual planning cycle involves the provision of justification for the budget lines or budget estimates for vocational education programs each year. The P&E Branch has no role in the determination of the funding levels for vocational education, in that these are predetermined for all Federal offices and programs at the department level. Rather, the P&E Branch responds to the budget estimates given with information on need for the programs (and funds) and plans for the expenditure of the funds by the programs. Here again, all relevant information available to the P&E Branch is utilized in providing the justification for the budget line.

In addition to responding to issue papers and developing budget justifications, the P&E Branch is also called upon to review and comment on USOE's "Program Memorandum," prepared by the Office of Program Planning and Evaluation (OPPE) under the deputy assistant secretary for monitoring and evaluation. Since this memorandum is the complete statement of the USOE programs proposed for the following fiscal year (it is based upon issue papers or selections from them), the P&E Branch reviews it to ensure that vocational education priorities and program plans are properly described and clearly represented. The responses made by the P&E Branch are reviewed, and may be modified, at the bureau level, before submission to OPPE.

The P&E Branch is attempting to coordinate all of its activities with the recently introduced "management by objectives" (MBO) plan of HEW. Under MBO, in general, the Secretary states priority goals for the department for the fiscal year, the Commissioner of Education translates these into objectives for education, bureau chiefs develop appropriate objectives and action steps, and division directors develop the activities required to ultimately contribute to objective attainment. The P&E Branch develops the specific planning and evaluation activities it will carry out during the year in response to the MBO. However, it should be noted that there are few policies and procedures covering MBO at this time; it has not yet been completely reconciled or integrated with the existing annual planning cycle, and whether budget makers pay a great deal of attention to MBO has yet to be determined.

Support to Other Levels

The second major area of planning and evaluation activity at the Federal level—support to the regions, States, and local education agencies—may be subdivided into the three following areas:

a. P&E Branch staff organize, conduct, coordinate, or simply attend conferences and seminars on planning and evaluation at all levels. For example, since 1967 seminars have been held to introduce PPB concepts to vocational education planners at the State level. Staff members also devote time to delivery of speeches at various functions concerned with vocational education planning and evaluation.

b. P&E Branch staff provide technical assistance at all levels, including staff training in regional offices, work with data reporting personnel in State offices, and work with State advisory councils and administrative and program officers at all levels on planning and evaluation for general administration and for specific content areas.

c. P&E Branch staff publish both statistical reports and working documents for use at all levels. In addition to the Technical and Vocational Education Annual Report, which summarizes and analyzes the statistical data contained in each of the State's Annual Vocational Education Report (six issues thus far), which is used for its conferences and seminars. Staff members also provide articles on planning and evaluation to journals and magazines.

Comment. The influence that the P&E Branch can exert on planning and evaluation below the Federal level is constrained by a number of factors. Of the funds allotted for vocational education programming, 90 percent are granted directly to States based upon State population by age groups needing vocational education and per-capita income. Further, the Federal funds inputted represent a very small portion, when compared to State and local inputs, of the total expenditure for vocational education programs. Administration of the funds is the responsibility of the State education agency (SEA); and the local education agencies are responsible for the conduct of the programs.

Because of the autonomy of each SEA and LEA, Federal influence is necessarily restricted to the aforementioned activities centering around conferences and seminars, technical assistance, and publications. It should be noted, however, that according to P&E Branch staff members, State and local vocational education personnel have been very receptive to this Federal support and very responsive to its content. They report that when new ideas or approaches to planning and evaluation are imparted to State and local personnel, they are very often visible in subsequent planning and evaluation activity within those SEAs and LEAs.

Data for Planning and Evaluation

The most serious constraint affecting planning and evaluation at all levels is the lack of sufficient baseline data on program operations. According to P&E Branch staff members, no funds have been made available within vocational education for the development of the "benchmark" data that would be required for effective planning or evaluation.

The data that are now relied upon by the P&E Branch for use in all of its activities and publications are drawn from (a) the State plans and annual reports submitted to the Division of Vocational and Technical Education by each State; (b) Department of Labor reports and publications containing manpower and labor statistics; (c) published studies from professional journals and other sources. In addition to these sources, the P&E Branch relies heavily on the individual evaluation studies for which it contracts with various public and private research organizations. For FY 1970 the entire budget line of $900,000 for planning and evaluation (both share the same budget line within USOE) was committed to nine major contracted evaluation projects and some miscellaneous small projects and support activities in evaluation and monitoring (see list of education and evaluation projects included at the end of this appendix). P&E Branch personnel feel that in the absence of any funding for the development of an information system for vocational education program monitoring at the State and local levels, the contracted evaluation studies will continue to be relied upon heavily as the basis for planning priorities and recommendations at the Federal level.

The time lag in the information flow that now exists is also a problem affecting planning. During calendar year 1970 the annual HEW planning cycle for FY 1972 is underway. At the same time, the program data obtained through the annual reports from each State are still being compiled for the FY 1969 Vocational and Technical Education Annual Report.

Because of this general lack of baseline data on vocational education programs, the P&E Branch is limited in the planning and evaluation methodology it may employ. In the area of planning, treatment of data consists mainly of analysis of trends in program enrollments, analysis of manpower and labor market data for trends in occupational areas, analysis of results of contracted research, and review of advisory committee recommendations and expert opinion regarding future vocational education needs—all of which contribute to projections of program requirements by area, level, type, for use in issue papers, budget justifications, reports, etc.

In the area of evaluation, the contracted evaluation studies are relied upon completely for the assessment of vocational education program operations. Evaluation personnel are concentrating on providing assistance to SEAs and LEAs—helping them to develop the capability to identify measurable objectives, and to develop and assemble the baseline data required for identification of objectives and subsequent measurement of attainment. Evaluation personnel are preparing a manual containing guidelines for Federal interaction with States for program evaluation. Further, studies are now being developed by the P&E Branch that will begin picking up program effectiveness data in addition to the input-type data that are now collected. The P&E staff anticipates that with HEW support (resources), these studies could be expanded during the next 2 to 3 years. They are currently working with top training managers of companies

such as General Motors, Ford, and Xerox, who are apparently very supportive in this effort to develop effectiveness studies.

Impact of Vocational Education Amendments

The Vocational Education Amendments of 1968 should have a positive effect on planning and evaluation at all levels. They spell out the role of the National Advisory Council on Vocational Education to include review of the operation of programs, and evaluation of their effectiveness. The amendments also spell out the role of the State advisory councils to include evaluation of programs, services, and activities, as well as the publication of an annual report containing evaluation results and change recommendations. Under Part B, Section 122, funds are available to States to assist in development of the required State plans, administration of the plans and collection of manpower and labor market data, and evaluations of programs and dissemination of results. A most important requirement included in the amendments under "State Plans" is that local education agencies shall submit applications for vocational education funds to the State level. This means the LEAs must involve advisory groups in planning, must ensure that local plans display local capability to meet the needs of the target population and labor market, and must provide for periodic evaluation of the programs in operation.

The thrust of the amendments is toward process-oriented planning, at the Federal, regional, and State levels, that communicates priorities and channels Federal funds to the right programs. P&E Branch personnel feel that the focus of the 1968 amendments on improved planning should enhance the accuracy and utility of the State plans and the program data that will be reported from the local to the State to the Federal level.

Role of OPPE

While the Planning and Evaluation Branch is focusing exclusively on vocational education programming, the Office of Program Planning and Evaluation, under the deputy assistant secretary for Planning Research and Evaluation, is responsible for support in planning and evaluation throughout the Office of Education. OPPE consists of three divisions, with the Post-Secondary and Special Education Programs Division having the primary interface with the P&E Branch for work in the area of vocational education. OPPE is heavily involved in the annual HEW planning cycle, coordinating the preparation of program memoranda, program financial plans, and issue papers.

In the area of planning, OPPE strives to make key issues in education (including vocational education) highly visible within USOE and HEW. OPPE reviews the research studies that are performed, summarizes information relevant for policy-making and submits it to the USOE Policy Advisory Board which, at this point in time, is functioning only as a forum for discussion of key issues in education.

A major activity involving both OPPE and the P&E Branch deals with the contracts let for evaluation studies in vocational education. P&E Branch personnel devote much time to the development of the requests for proposal (RFPs) for the contracts. The P&E Branch develops the research tasks for which studies would be required; OPPE reviews and approves these tasks and assigns the funding level for them; the P&E Branch writes the work statements for the RFPs; both are involved in review of proposals, selection of contractors, and monitoring of studies during the contract period.

In the area of evaluation, a major responsibility of OPPE is the development of the USOE's "Annual Evaluation Plan." This plan structures and defines all of the evaluation studies to be sponsored by OPPE as well as all of the individual USOE bureaus, and in so doing takes into account such factors as HEW-OE priorities, legislative mandates, Executive Office interest, public interest, etc.

Role of the National Advisory Council

The National Advisory Council on Vocational Education supports the planning and evaluation activities conducted within USOE in a number of ways. Its 21 members are appointed by the President. Currently the council includes representatives of the educational community, industry, post-secondary vocational training programs, the disadvantaged, and minority groups. In addition, a student was appointed to the Council for the first time, in January 1971. (See Volume I, Chapter V, of this report for more detailed discussion of Council membership.) It employs a full-time executive director and support staff. By virtue of its members' broad representation of interests and their individual expertise in the area of occupational education, the National Council is equipped to advise USOE on matters of program regulation, administration, and operation. It reviews vocational education program effectiveness, makes recommendations for modifications, and submits annual reports to the Secretary of HEW covering its findings and recommendations. The Council may contract with private institutions or organizations for program evaluations.

REGIONAL PLANNING AND EVALUATION

The regional role in planning and evaluation is currently changing. As recently as 1965 most regional program officers were oriented toward manpower and curriculum areas, for example, contract officers for MDTA and, somewhat later, subject matter specialists. In fact, until FY 1970 there was little, if any, planning and evaluation performed at the regional level. Impetus for increased regional participation has evolved from the requirement that each State submit an annual and long-range State plan for vocational education.

The regional directors of vocational education and their staffs have been providing guidance to the States in the development of the State plans. In reviewing individual plans they have attempted to help underscore important

areas such as the specific needs of the people residing in the State and priorities which should be attached to training in specific occupational categories. From a broader standpoint the regional office has been concerned with what might be called "the process of planning" employed by the States, i.e.: How do the individual States intend to implement programs so that the results will be both achievable and measurable? Thus far, in the absence of solid data, the regions have had to rely heavily on information generated within the State itself and made available through the cooperation of the State employment service and the Bureau of Labor Statistics. During the current fiscal year State plans will not be forwarded to Washington, D.C., as they were in the past; instead, the entire review is to take place at the regional level. If the individual plans are approved, a memorandum to that effect originating from the regional director of vocational education will be all that is required to certify eligibility for Federal funds. (While not required for approval purposes, copies of State plans may in fact continue to be sent to Washington for information purposes.)

In FY 1972, although major emphasis will still be on the "planning process," the regional office will continue to expand its role vis-a-vis the States within its jurisdiction. In accordance with the general philosophy of "management by objectives," the objectives of the Secretary of HEW and the goals established by the Commissioner of Education will be translated into priorities by the regional director. The regional office will meet with State representatives and seek to identify measurable objectives that coincide with regional priorities. An integral part of this process is the development of an operational planning document which, while currently in an embryonic state, holds great promise for the future. High on the list of objectives is the complete changeover within each State to a PPB system.

Data for Planning and Evaluation

There are two primary sources of data available for evaluation at the regional level: the annual report submitted by each State, and "on-site" visits. The latter are initiated at the regional level and usually involve a team of four or five program officers who go to a given State with a prepared agenda. The questions generally asked include (a) What programs are underway? (b) How are the programs organized? (c) How does the State make decisions? (d) Why were certain decisions made? (e) Have target groups been reached? On-site visits occasionally are made in local districts to see how well the State plan is being implemented.

At least one region is planning to expand its role during the coming year to include a special evaluation of two major occupational areas. Although these areas have not been designated as yet, there is a strong possibility that construction trades and health occupations will be selected. There are also indications that some attempt will be made to develop evaluation instruments that can be used in all the States within the same region.

STATE PLANNING AND EVALUATION

The Vocational Education Amendments of 1968 stipulate that "any state desiring to receive the amount for which it is eligible for any fiscal year pursuant to this title shall submit a State Plan . . . which meets the requirements set forth in this title." The State plan itself is organized into three parts. The first part contains the administrative provisions that will govern the expenditure of the vocational education funds in the State and assurances that all requirements of the act will be met—with explanations of how they will be met. The second part contains the provisions for the proposed long-range (5-year) program for vocational education in the State, including narrative and statistical information describing current and projected programs and requirements. The third part contains provisions for the proposed annual program plan, including descriptions of all of the programs to be provided, numbers of programs, teachers, students, graduates, and related information. Because the State plan is (a) a required contractual agreement, (b) a description of what will be needed and offered each year, and (c) a 5-year projection of future needs and activities, it represents the focal point for all planning and evaluation at the State level. This is the first time that States have been required to report on their effectiveness in reaching their state objectives.

Each state board of education has ultimate responsibility for the administration of the plan. Thus, the board ultimately is responsible for State planning and evaluation; specific planning and evaluation activities, however, are performed by various groups and individuals within, or associated with, the State departments of vocational education. The people involved at the State level would, in general, fall into three groups:

a. State advisory councils work in an advisory capacity with the boards of education. Councils review State plans and contribute their experience and expertise to establishment of objectives and priorities for programming in the State.

b. Bureaus/divisions/programs within the departments of vocational education have specific responsibility for State planning and evaluation across all vocational education program areas. Such groups may include research, survey, exemplary programs; bureaus of program planning and development; bureaus of program services and evaluation; and service area supervisory units. The functions of planning and evaluation may or may not be handled together by a single group in any given State. The research coordinating units (RCUs) in many States are heavily involved in research and evaluation activity, and to a lesser degree in planning. Although the activities of RCUs

vary from State to State, generally speaking these units are responsible for development, coordination, and assistance in performance of research and evaluation for program improvement and planning purposes.

c. Specific program areas within the departments of vocational education are responsible for planning and evaluation of their own programs. Included here are organizational units that advise agriculture, distributive education, home economics, and other programs, that are responsible for determining program objectives and priorities for State planning purposes, and that conduct evaluations of the ongoing programs in their specific areas.

Program Planning—Long Range

At the State level, planning may be characterized as an interactive process involving each of the three basic groups just described. The following planning steps are structured in the State plans and will involve all of the groups to some extent, with the second group having perhaps the heaviest involvement, since it is responsible, in most States, for the coordination and completion of the overall long-range planning activity each year.

Just as vocational education planners at the Federal level must be responsive to program priorities and budget limitations determined at higher levels in the government, so too must State planners be responsive to the dictates of legislation, Federally-determined priorities, and limitations of funds allocations to the States. Given these fundamental guidelines and constraints, the basic planning steps performed include the following:

a. Analyze manpower needs and job opportunities in the State. These must be determined to provide the basis for vocational education programming that will ensure a match between programs and the labor market.

b. Analyze availability of vocational education in the State. This involves identification of specific economically depressed areas, areas in which there is a high unemployment rate, areas in which there is a high school dropout rate, and the areas of greatest population density.

c. Analyze the State's population in terms of vocational education needs. This involves analysis of the characteristics of the population, both current and projected. Characteristics relevant to vocational

education planning include population by secondary school, post-secondary, and adult age; physical and mental handicaps; socioeconomic status, etc.

d. Specify vocational education program needs. This involves the examination of the three foregoing areas of analysis to determine the priorities for vocational education programming in the State. Priorities are stated in terms of target groups and target areas to be served, and in terms of employment needs and labor demand.

e. Specify vocational education objectives. In addition to and consistent with program need priorities, vocational education objectives are stated in terms of levels, program areas, and numbers and types of students who will be enrolled and who will complete programs 1 and 5 years into the future. For example, enrollment objectives will be spelled out for secondary, post-secondary, and adult; disadvantaged and handicapped; consumer and homemaking; cooperative and work study.

f. Analyze State's vocational education program. This includes a breakdown of program enrollment, numbers and types of vocational education schools, construction projects, numbers of teachers and teacher training enrollment, and estimates of total funds needed for programs as planned for the following 5 years.

To conclude the review of State level vocational education planning and evaluation, two significant points should be made. First, the lack of accuracy and precision in existing manpower surveys continues to be a major barrier to effective vocational education planning. Second, in addition to items such as population characteristics, unemployment, job openings, and employment forecasts, other factors—including training costs and wages—deserve greater attention in the planning process at the State level.

Research for Planning and Evaluation

In addition to planning oriented to operational programs in vocational education, planning priorities and objectives are also developed for areas of exemplary and research programs. Selected examples of objectives for exemplary programs include

- Increase or develop community and industry involvement and coordination with educators in providing improved vocational education offerings.

- Provide a work orientation program for 75 percent of students at K-6 grade level that will encourage constructive work attitudes in all youth.
- Institute series of workshops to be used in planning, implementing, and evaluating vocational education programs.

Selected examples of objectives for research programs include:

- Develop procedures for evaluating projects for the disadvantaged and handicapped.
- Evaluate labor force demands compared to vocational training supply.
- Develop occupational trends forecasting information systems
- Institute computer-assisted vocational education instruction.

The exemplary and research programs at the State level are concerned with improving vocational education programs and their administration, but also represent a significant portion of the program evaluation that is performed or is planned to be performed over the projected 5-year period.

Program Planning—Annual

While the long-range planning activity focuses on the establishment of program priorities, objectives, and projected service needs and levels, the annual planning activity takes each program area (agriculture, distribution, health, etc.) down to the instructional level—describing the levels at which each program will be offered, the number of programs to be continued or expanded, the number of teachers, and the estimated enrollments and completions for each program for the year.

Based upon all of the analysis performed as part of long-range planning, the annual plan determines for each program area, the target area, the target groups to be served, the geographic areas to be served, the occupational offerings, as well as facilities construction plans, teacher education plans, curriculum development plans, etc. There is some question at the Federal level, however, whether the annual State planning activity involves sufficient scrutiny of alternative approaches to programming and alternative methods of delivery. It is felt that State planning capability in general has not yet developed to this point.

Annual planning activity also involves each of the three groups previously described. Again, the second group—the bureaus, divisions, and programs within State departments of vocational education—is the most heavily involved in coordinating the inputs of the other two groups, assembling the data, and producing the plan.

Evaluation

The long-range plans for each State describe the research and exemplary programs, which include the planned program evaluation projects. The annual plans describe how evaluation will be performed, and by whom, for each year.[1/] In general, responsibility for evaluation is shared by the three groups previously described.

State Advisory Councils. Each council is now required to submit as part of the State plan an evaluation report on the effectiveness of vocational education programs and services in meeting the annual and long-range program objectives. This report, requested by the Vocational Education Amendments of 1968, is now being submitted to the Federal level for the first time, and so its contribution to the overall evaluation effort has not yet been assessed. In some cases, councils may employ full-time staff members responsible for program evaluation; in other cases, councils may contract with institutions (universities) or private research organizations for evaluation plans or studies.

State Vocational Education Units. Specific organization units within the State departments of vocational education are responsible for evaluation of programs overall. In some cases, this is simply a check on local programs to ensure they are in compliance with Federal and State regulations. In other cases, it involves working with local education agency personnel in developing their capability to conduct program evaluation. As previously mentioned, the research coordinating units in some States play a central role in planning and evaluation. Examples of RCU functions include:

- Development of State evaluation models, including systems for collection, storage, retrieval of data
- Identification of needs and assignment of priorities for research, evaluation, program development, teacher training programs
- Preparation of special studies (e.g., to support formation of vocational education school districts)
- Preparation of annual vocational education reports for the State
- Preparation of both annual and long-range program provisions for the State plan

---

1/ Some critics contend that the majority of State plans are of little use for the purpose of sophisticated evaluation. In general, badly needed informa- is either completely lacking (e.g., data on student aptitudes, follow-up, etc.) or is too gross to permit proper analysis.

- Collection, summarization, dissemination of research findings relevant to vocational education.

In regard to program evaluation, the RCU also may be responsible for evaluation studies that are contracted by the State to institutions or private research organizations. It is felt at the Federal level that although the RCUs are well equipped and have the technical ability to work effectively in planning and evaluation, they are probably not being fully utilized by all States in these areas.

At the State level as well as the Federal level, evaluators must rely heavily on contracted research. While a number of States are developing overall evaluation plans and data collection systems to support them, few State level evaluation systems are now in operation.[2/] In general, it is felt that the data available at the State level on vocational education programs are insufficient in scope and detail to meet recent expectations for evaluation to display program effectiveness.

State Vocational Education Program Area Units. Specific program groups within the State departments of vocational education are responsible for evaluation of programs within their areas. State supervisors or directors of areas such as consumer and homemaking education, cooperative programs, etc., are responsible for development and initiation of evaluation activities, as well as for providing assistance to local programs in their areas in developing evaluation strategies and conducting the actual evaluations. They are further responsible for assembling evaluation data and results at the State level for coordination with groups such as the RCU for State level planning and evaluation purposes.

The evaluation activities performed at the State level are focused, in general, on the examination of program operations in light of the Federal and State regulations governing them (as spelled out in the State plan), and in light of the stated objectives for each of the programs. The former focus could be construed as more of a "quality assurance" activity; the latter could be construed as broad measurement of program effectiveness. State-level evaluation, in terms of methodology, appears to be oriented toward examination of program outcomes in light of stated objectives, rather than toward comparative evaluation or cost-effectiveness evaluation of programs (although State plans indicate that evaluation techniques of this nature are being developed).

2/ One notable exception is the "Occupational Training Information System (OTIS)" developed at Oklahoma State University. Data published in 1970 suggest that the success of graduates is related to program type (public or private) and area of training (trade and industry, business, etc.).

Data for Planning and Evaluation

The general lack of baseline data useful for planning and evaluation is as much a problem at the State level as it is at other levels. For planning purposes, data are usually assembled from numerous different sources and often are not consistent or compatible in terms of time frame, definitions, area of coverage.

Data now being utlized by States for program planning include the following selected types and sources:

- Data on economically depressed areas—obtained from Federal Economic Development Administration reports, State departments of urban affairs, State departments of labor, reports of private research organizations, State economic research divisions
- Data on labor market needs—obtained from reports of labor demands and projections published by State departments of labor, private research organizations, State CAMPS plans, U.S. Department of Labor Manpower Administration
- Data on population characteristics—obtained from reports by State departments of education and finance, State employment services, the Manpower Report of the President; private research organizations.

In terms of data on program operations, State-level planners and evaluators are limited to the data being reported by the LEAs in their local plans and in their annual statistical reports on program operation which are needed at the State level for completion of the annual report for USOE. As previously mentioned, planners and evaluators also rely on the data made available through the individual research studies conducted at the State and local levels. It should be observed, however, that a number of States have been devoting much attention to the Development of information systems capable of supporting effective planning and evaluation, and are very close to having such systems operational.

LOCAL PLANNING AND EVALUATION

As a condition of eligibility for Federal funding, the Vocational Education Amendments of 1968 require a local plan for vocational education Some local plans not only serve as applications for funding but also delineate the programs, activities, and services in vocational education. According to PL 90-576 local planning (a) is done "in consultation with representatives of the educational and training resources available in the area;" (b) should programs that will enable the student to make ample progress toward career

preparation; and (c) in conjunction with the comprehensive area manpower program, should provide solid assurance that the vocational education needs within that community will be served.

Based on the provisions set forth in PL 90-576, each State develops guidelines for a vocational education master plan which local areas use in developing their own plans. Although there is little consistency in the way guidelines are developed, the following is a representative "shopping-list" of general items that go into a local plan:

- The basic philosophy and major objectives of the school district
- An analytical presentation of the needs, interests, and abilities of all students to be served in the area, including the disadvantaged, handicapped, dropouts, etc.
- An analytical presentation of community needs and opportunities, including projections of future trends
- The educational and guidance programs currently operating in the district, and those that will be needed in the future based on trend projections
- The data and additional information necessary for implementing programs (i.e., research, curriculum development of guidance services to include placement and follow-up, teacher recruitment and education, and any needed organizational changes)
- Strategy for community involvement and the development of public information services
- Probable program costs and funding strategies with a description of how Federal, State, and local funds will be allocated
- A program evaluation plan and methods that might be used to implement needed changes in program content, etc.
- The sequence of steps to be followed.

A few localities have relied heavily on a general advisory committee in the formulation of a vocational education master plan. The advisory committee includes faculty, administrative personnel, and representatives from the local community. For example, organizations outside the public school system that have sometimes been represented include OEO, Urban League, State employment service, labor council, mayor's office, CAMPS commission, public health department, human rights commission, and private schools.

In addition to the general advisory committee, a master plan steering committee may also be formed to further contribute to overall planning, and the steering committee may be augmented by additional administrator, or, in some cases, students, and supported by specialists from the general advisory committee. Joint planning and coordination of programs occur at this level.

At least two different subcommittees occasionally function below the steering committee. A curriculum committee may be charged with the responsibility for approving new subject matter or course changes. In some instances advisory committees are also formed for each vocational education program. Their activities include the development of guidelines with respect to the following tasks:

- Identify needs for vocational training.
- Prepared job descriptions.
- Prepare task analysis.
- Develop curriculums.
- Develop course content.
- Provide work experience.
- Determine need for equipment and facilities.
- Determine criteria for selecting students.
- Determine methods for recruiting students.
- Review, evaluate, and suggest curriculum changes.

It should be observed that the effectiveness of any advisory committee or subcommittee is a function of the support given it by the top local school administrator. The effectiveness of the local plan in general is dependent upon this administrator's willingness to respond to expert recommendations and redirect existing resources to meet the vocational education needs identified.

Some of the more progressive localities are beginning to move toward a "learning systems" approach in vocational education planning. Functions are identified and then grouped into meaningful combinations to facilitate the implementation of the plan. For example, the functions are sometimes combined in the following ways: a) data collection-population analysis job market analysis/job performance requirements analysis; (b) occupational guidance and counseling-occupational education promotion/student recruitment/guidance and counseling services/placement; (c) occupational instruction-curriculum resources and ancillary services/program planning/program review/occupational instruction; and (d) evaluation.

Data Collection Function

Population Needs Analysis. The major source of data is a current information file, maintained and updated on a yearly basis, which describes the

in-school and out-of-school population to be served by vocational education programs. Included in the file are regular publications and informal memoranda received by agencies such as the State employment service, Model Cities, the Human Rights Commission, the local CAMPS organization, and the public school system. Other sources of information can be identified and collected as needed.

Job Market Analysis. A second file, similar to the population needs file, is used to maintain information on the local job market. Data from the file are used for planning and assessing need for vocational programs offered by the school system. In addition to the data sources used for the population needs analysis file, periodic reports from the city planning department, the local chamber of commerce, and the U.S. Departments of Labor and Commerce are collected, compiled, and analyzed on a continuous basis.

Job Performance Requirements Analysis. In collaboration with the local community, a task analysis is performed to determine job specifications for each occupational program. Data for the analysis are furnished by knowledgeable individuals who understand what skills are required for the job and know what is needed for certification. This analysis would apply not only to training for entry level employment, but to advanced training and preparation to meet promotional criteria as well. Standards of performance related to each program are established and revised as required.

Occupational Guidance and Counseling

Occupational Education Promotion. One duty of the administrative staff and faculty is to promote (on a regular basis) the merits and advantages of the occupational programs offered by the school system. Communications with the general public and appropriate institutions are to be maintained through various formal and informal media. Important targets for promotional material are feeder schools, industrial and labor groups, and the business and professional communities. Because this is not a funded activity at the local level, the amount of effort that is actually being expended in this area is uncertain.

Student Recruitment. Administrators and faculty are often assigned some responsibility for student recruitment. The school district relies heavily on personal contacts between school personnel and the in-school and out-of-school population to effect a satisfactory enrollment in vocational education programs. Classroom visits by potential students or guidance counselors are sometimes an effective method of drawing attention to specific courses of instruction.

Guidance and Counseling. A critical but often weak link in the system is the occupational and career guidance service. Ideally, counselors and members of advisory committees perform three functions: they assist students in making sound career choices based on interests, abilities, and aspirations; they provide continuous assessment of students with respect to performance, progress, and career direction; and they keep students informed about opportunities and conditions of the job market.

Placement. The public school administration and faculty have responsibility for providing placement assistance to students enrolled in vocational education programs. Included in this package are current information on the job market and employment opportunities; assistance in finding employment or entry into advanced training programs; and needed encouragement for students trying to find job opportunities on their own initiative. It appears that placement services provided by the public schools are relatively unstructured and informal in comparison to what is offered by the local employment services offices, which view job placement as a major responsibility.

Occupational Instruction

Curriculum Resources and Ancillary Services. The faculty and administration are charged with the responsibility for identifying and evaluating required resources such as equipment, materials, teaching aids, physical plant, special instructors, and noncertified personnel. They also provide ancillary services: in-service education for teachers, libraries, and audiovisual and model shops to support vocational programs and services. Evaluation results are reported regularly and included in an annual report for review by administrative personnel and for budgetary considerations.

Program Planning. Program planning is done annually and includes 5-year projections that are judged to be realistic goals and in the best interest of the community. The planning committee, mentioned earlier, sometimes includes anywhere from 20-50 individuals representing administration and faculty, business and industry, community organizations, school students, etc. How often the committee meets is up to the superintendent of schools; most meet at the beginning of the fall term to consider the budget and at least twice more during the course of the year. In some localities, minutes of the committee meetings, rather than a formal report, are used to support future changes in program content.

Data used for planning come from a variety of sources but mainly from the information files established from the population and job market analyses. Although it should be a sine qua non for all planning, only a very few districts have comparable cost/student-hour data for vocational and general education. Some districts either already have, or are in the process of changing over to, a PPB system; others seem to be making little progress in that direction.

Program Review. The quality, completeness, and coordination of vocational education is to be examined by a program review committee of school district faculty and administration, management leaders, union representatives, and concerned parents and students. The review is designed to provide an estimate of how well programs are meeting population and labor market needs. It is not certain at the Federal level whether the criteria used by these committees are adequate to measure the effectiveness of programs in meeting these needs.

Occupational Instruction. The goals set for occupational instruction occasionally include the following: it should be consistent with the readiness, interests, aspirations, and abilities of the individual student; it should be offered at appropriate times in order to meet target group needs; preparatory training, upgrading, related training, retraining, and refresher training should each be of appropriate length and duration; instruction should include lecture-demonstration presentations, practical applications exercises, and work-study experiences in appropriate areas; and instruction should be provided by competent and qualified teachers.

Evaluation

Evaluation of vocational education programs, like the program planning function, varies widely from area to area. In some planning documents, page after page is devoted to specific questions to be asked; in others, evaluation procedures merit a scant line or two. It would probably be safe to say, in general, that techniques of evaluation are lagging far behind other areas of planning methodology. At times, evaluation has been performed by committees or specified individuals within the school system. A few districts have asked the State for help or have looked for assistance from private associations of schools and colleges. Local evaluation is apparently process-oriented in general, but follows the traditional accreditation approach to evaluation.

At least three types of evaluation have been done in more progressive areas. The first type is preprogram evaluation, which utilizes data on items such as instructional objectives, area employment needs and opportunities, persons to be served by the programs, criteria for selecting qualified personnel, and evidence that former evaluation results are being used in current or future planning. A second category is ongoing evaluation, that questions how well each basic function is meeting its objectives. Required here are data on methods, materials, and other program components leading to modification or drastic changes in practices and procedures. The third category is end-point evaluation, which may use follow-up studies on graduates and dropouts. Cases may be based only on teacher judgments. At other times, data for end-point evaluation have been obtained via postcard questionnaires mailed to both June and January graduates. The data utilized include, for example, number of placements, location of placements, and how long on the job. Other kinds of data that might be used at various times include enrollment levels, enrollment attrition, number of persons returning for training after completing certain phases of the training and, in a few instances, employer satisfaction with trainees.

In summary, local planning varies considerably from area to area—even within the same State. Some plans are very comprehensive while others are poorly formulated presentations of statistical data written for the sole purpose of complying with State regulations. The design, development, and implementation of local vocational education plans probably depend on the standards of performance that exist among the individuals charged with the responsibility

for the planning. Another factor is the degree of cooperation between the staff and faculty representing each division of vocational instruction—secondary, post-secondary, and adult.

A few more enlightened areas have insisted on joint advisory committees to facilitate greater coordination and consistency among divisions. Other communities are moving toward regional planning in an effort to combat problems affecting districts linked by common boundaries, such as duplication of occupational programs, facilities, equipment, and personnel, and poor target group coverage.

It is felt at the Federal level that, in general, local education agencies are not yet getting the analysis of data that would be necessary to weigh alternative programs and make well-grounded recommendations for local programming.

APPENDIX D

A NEW APPROACH TO VOCATIONAL EDUCATION: FOCUSING PROGRAM OPPORTUNITIES ON THE HIGH-POTENTIAL POPULATION AS A POSSIBLE POLICY ALTERNATIVE

BACKGROUND

Complaints about vocational education are more and more frequently expressed. It is alleged to be quite costly and not very effective. Although there is no doubt that substantial improvements are possible in the current organizational modes and delivery mechanisms for vocational education services—e.g., better teachers and equipment, more attention to placement, use of private facilities—it may also be the case that organization and delivery are not keyed to fundamental trends in the U.S. economy and in American society in general. Certain features of current social reality would seem in fact to be at variance with the structure of contemporary vocational education and with our expectations about it. Thus this appendix is provided to supplement the Volume I discussion of vocational education structure by exploring some of the discontinuities and inconsistencies in that structure and attempting to derive directions for change.

In 1968 there were more than 7.5 million vocational-technical education students in the United States (see Table 12). More than 8 million people were enrolled in federally operated, aided, or regulated programs to provide vocational skills. This figure was more than 70 percent higher than the number of persons enrolled only 4 years earlier. Table 13 gives percentage breakdowns by age group for combinations of programs for the years 1966 and 1968. Vocational education, strictly defined, is seen to concentrate on the secondary school age group (15 to 18), with a lesser concentration on adults (defined as 22 years old and over). The post-secondary age group

TABLE 12.—Persons enrolled in federally operated, aided, and regulated programs that provide vocational, technical and skill training, by age group, for years 1964, 1966, 1968.

Program	1964				1966				1968			
	Sec.[1]	Post sec.[2]	Adult[3]	Total	Sec.[1]	Post sec.[2]	Adult[3]	Total	Sec.[1]	Post sec.[2]	Adult[3]	Total
Federally aided voc ed[4] . .	2,141	171	2,255	4,566	3,048	442	2,521	6,070[5]	3,843	593	2,987	7,534[5]
MDTA Institutional[4]	7	17	45	69	28	39	111	178	20	34	86	140
MDTA OJT[4]	-	-	-	-	10	13	35	58	12	24	65	101
Job Corps	-	-	-	-	22[6]	19[6]	0	41	32[6]	27[6]	0	59
NYC-OS[7]	-	-	-	-	104	83	0	187	86	49	3	138
Subtotal.	-	-	-	-	3,212	596	2,577	6,534	3,993	727	3,141	8,002
Registered apprenticeship[8]	NA	NA	NA	171	NA	NA	NA	208	NA	NA	NA	238
Total				4,806				6,742				8,240

[1] Secondary years are 15-18.

[2] Post-secondary years are 19-21.

[3] Adult years are 22 and over.

[4] Figures are for fiscal year indicated.

[5] Includes "Special Needs" vocational education.

[6] Age breakdown calculated from percentages appearing in characteristics of a sample of Job Corpsmen surveyed in 1966. See U.S. Department of Labor, Manpower Report of the President (1967) U.S. Government Printing Office, Washington, D.C., April 1967, p. 317.

[7] School year: i.e., 1966 means September 1965-August 1966.

[8] In training at end of calendar year.

Source: U.S. Department of Labor, Manpower Report of the President (1970), U.S. Government Printing Office, Washington, D. C., pp. 300, 310, 312, 316, 321, 322.

(19 to 21) accounts for only a small fraction of enrolled students, but the size of this group has expanded in absolute terms by a factor of 3 since 1964, when it accounted for only 4 percent of vocational educational enrollments. Other forms of federally funded skill training are seen to be more evenly balanced by age group, with something like a third in each group in both 1966 and 1968. Overall, in 1968 about half of all vocational program enrollees were under 19 and approximately 6 out of 10 were under 22.

TABLE 13.— Percentage of persons in various age group categories: enrollees in federally operated and aided programs offering vocational training, 1966 and 1968.

Program	1966				1968			
	All ages	Sec.	Post sec.	Adult	All ages	Sec.	Post sec.	Adult
Federally assisted voc ed.[1/]	100	50	8	42	100	51	8	41
MDTA (Institutional and OJT), Job Corps and NYC Out-of-School	100	35	33	32	100	34	31	35

[1/] The 1964 percentages for the three age groups were 47 percent, 4 percent, and 49 percent.

Source: Table 12.

If some practioners and observers had their way the concentration would shift to even younger age groups through the extension of intensive vocational preparation to children below high school age.[1/] It is offered as a remedy for the apparently disappointing effectiveness of current vocational education, discussed in other papers submitted to this task force. The usual defense of the view rests on the implicit argument that if a program lacks impact, expanding the program is the solution. Often accompanying this argument is the observation that other countries—West Germany, USSR, Switzerland—have extensive vocational education/apprenticeship systems that supply trained and work-ready 15-year-olds to the labor market.[2/]

[1/] See, for example, V.A. Adams, "Vocational Training: Still for Someone Else's Children," School Management, September 1970, pp. 12-15.

[2/] For a general review of research on youth behavior in many countries, see L. Rosenmayr, "Towards an Overview of Youth Sociology," International Social Science Journal, Vol. 2, No. 2, 1968, pp. 286-315.

To many, programs like these aimed at early teenage years are advantageous because they help meet skill shortages, provide young people with constructive activities, and, in general, seem to fulfill desires for orderly, controlled social relationships. But in many respects they speak more to conditions of the societies where they were developed than to the society for which they are being advocated.

In the United States it seems to be the case that the age at which people emerge from dependency into true self-sufficiency is systematically receding. For the sons and daughters of the upper middle class and for many college students of diverse backgrounds, formal education continues to and often past the mid-twenties. Growing numbers follow formal education with a year or two of travel (and many, of course, plan permanent dropping-out). Evidence from the most recent Manpower Report of the President [3] shows that the fraction of young people employed in jobs has been trending downward over time (see Figure 3).

The figure treats as not employed those young people who were either not in the labor force or who were searching for but without jobs. This is because for young workers the distinction between non-participation in the labor market and unemployment is not very clear. In other words, when a mature family man claims to be seeking a job (i.e., in the labor force but unemployed) his claim carries more credibility than the same statement by a teenager. In any case, at least some officially unemployed young persons are probably not diligently pursuing jobs. Further bits of evidence as to the weak labor force attachment of young workers are easy enough to find. In 1969, for examply, the unemployed young worker (16-19 years old) was almost as likely to have left his last job as to have lost it; 12 percent of the unemployed of this age left jobs; 15 percent lost them. For mature male workers, on the other hand, leaving a job is a much less likely reason for unemployment than is losing a job (17 percent versus 58 percent). [4]

For young males the labor force participation rates, even of those not enrolled in school, has been declining through the 1950s and 1960s as shown in Table 14. A similar, although not so pronounced, trend has been noted for young female workers (in Manpower Report of the President for 1970, cited previously, page 250).

The explanation of these phenomena is no doubt complex. Partly they are the result of affluence; parents use increased incomes to purchase more leisure (and more career preparation) for their offspring. Added to this, probably — although here the statistical evidence is weak — is a reduction in the demand for unskilled labor as the economy grows in technological complexity. The shift in general attitudes concerning the importance of work and leisure is also of undoubted importance, although harder to pin down empirically. A societal drift along the continuum from puritanism to hedonism impacts most strongly on the young, but it also influences the way parents view nonremunerative activity by their children.

---

[3] U.S. Department of Labor, Manpower Report of the President (1970), U.S. Government Printing Office, Washington, D.C.

[4] Ibid., p. 236.

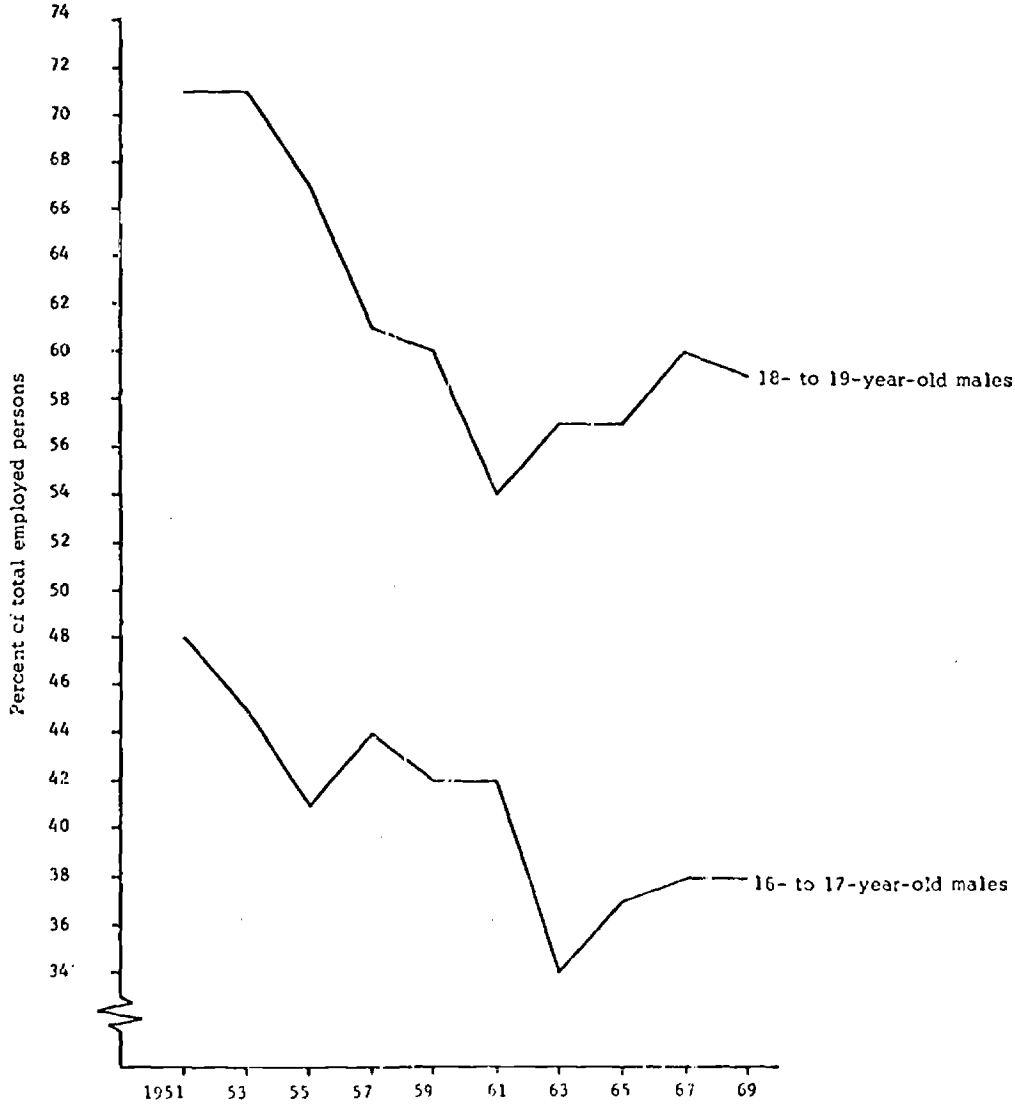


Figure 3.—Ratio of employed persons to total in age group, 1951-1969.

Source: U.S. Department of Labor, Manpower Report of the President (1968), U.S. Government Printing Office, Washington, D. C., pp. 224, 229.

TABLE 14.—Labor force participation rates for young males not enrolled in school, 1953-1968—selected years

Year	Age group		
	16-17	18-19	20-24
1953	86.5%	95.9%	96.1%
1959	80.1	92.9	96.8
1964	72.5	92.0	96.6
1968	71.1	87.8	94.2

Source: U.S. Department of Labor, Manpower Report of the President (1970), U.S. Goverment Printing Office, Washington, D.C., p. 250.

Nor are parents alone in accepting, and even encouraging, later and later entry into the labor force. In 1955 about 28 percent of people in the 18-21 age group were in institutions of higher education; by 1969 this fraction had grown to 44 percent. In this same period graduate enrollments increased by better than a factor of 3, i.e., from 251,000 to 798,000.[5] Governmental decisions and action had something to do with this increase. For example, Federal-State-local support of higher education grew from just over $1 billion to almost $9 billion (of constant purchasing power) between 1950 and 1969. (See Table 15). Not only has the magnitude of resources grown, but the level of support per student has shot upward as well. In 1950 the average higher education student was subsidized with about $460 in public funds; by 1969 the subsidy had grown to $1,240 (both figures are in 1957-59 dollars).

Increased communication, through the media and the propinquity of people in urban settings, has meant that the life style adopted by college students has become increasingly apparent and increasingly available to noncollege young people of similar age. (Witness the "street people" colonies in Berkeley, Madison, Cambridge, and other college towns.) Woodstock and the counter-culture appear to be age-specific but not very class-specific.

All of this suggests that in the America of the last third of the twentieth century, the people who will occupy the kinds of positions vocational training prepares for will not be ready to assume those positions until perhaps they are well into their twenties. And this suggests in turn that vocational education

[5] American Council on Education, A Factbook on Higher Education, Washington, D.C., 1970, p. 2.

opportunities should be focused on the years immediately preceding serious commitment to the labor force and to a career. When vocational education opportunities are offered too early the benefits to students are probably reduced: absorption of material is impeded; attention wanders; inappropriate courses are pursued; skills, even if attained, are dissipated in the interval that precedes settling down. Thus, it is the contention here that premature emphasis, rather than generally insufficient resources, lies behind the problem of ineffectiveness in vocational preparation programs.

If this charge is true it should cause us to reexamine the changes in vocational training strategies and policies for the 10 critical years of a young person's life—from age 15 to age 25. The final section of this appendix sets forth some possible guidelines for an improved system of vocational education built upon current American social and economic reality. First, however, it is useful to review in a more systematic fashion the evidence on the relationship between the effectiveness of vocational education and the chronological age of the trainee.

TABLE 15.—Per student contributions to higher education by government, in dollars of constant value, 1950-1959—selected years

Year	Government contributions ($ billions)[1]				
	No. students (millions)	Federal	State & local	Total	Contribution per student ($)
1950	2.6	0.6	0.6	1.2	460
1955	2.7	0.5	1.0	1.5	560
1960	3.6	1.0	1.5	2.5	690
1965	5.5	2.6	3.2	5.8	1,050
1969	7.1	3.8	5.0	8.8	1,240

[1] In dollars of 1957-59 purchasing power according to the Consumer Price Index of the Bureau of Labor Statistics.

Source: American Council on Education, U.S. Department of Commerce, 1970.

EFFECTIVENESS OF VOCATIONAL EDUCATION AND THE AGE OF THE TRAINEE

A recent study compared the economic benefits—wages, earnings, employment stability—of a sample of more than 2,000 vocational course graduates in an attempt to dicover, among other things, the net contribution of level of schooling to economic benefits.[6] The levels identified were high school, post-secondary (includes all noncollegiate courses), and junior college. It was discovered that when the characteristics of students and labor market conditions were held constant, people who had junior college training invariably did better than secondary and post-secondary students. Post-secondary students tended to do better than secondary vocational students by lesser amounts, although the difference often was not significant.[7] An earlier multivariate analysis of a smaller group of North Carolina vocational course graduates showed strong net positive effects of post-secondary training (as compared to secondary) on monthly earnings.[8] Interesting background to these studies is provided in Corazzini, 1967; Kaufman and Schaefer, 1967; Kaufman, et al., 1968; and Sharp and Myint, 1969.[9] None of these studies, however, clearly answers the question on critical age. Having other objectives, the authors did not consider it important to analyze secondary versus post-secondary courses (whether collegiate or not) as alternatives, and therefore they did not employ as a variable the age at which vocational education was absorbed. The people in their samples who had post-secondary vocational education experience might also have had secondary courses in vocational education. Therefore, it cannot be determined whether the coefficient on level of schooling measures the contribution of an additional exposure to vocational education of a substitute exposure at a later date.

---

[6] S.F. Fernbach, "An Analysis of the Economic Benefits of Vocational Education at the Secondary, Post-Secondary and Junior College Levels," M.A. thesis (Industrial Relations), University of Wisconsin, Madison, 1970.

[7] Ibid., p. 97.

[8] A.B. Carroll and L.A. Ihnen, "Costs and Returns for Two Years of Post-secondary Schooling: A Pilot Study," Journal of Political Economy, December 1967, p. 862.

[9] A.J. Corazzini, "When Should Vocational Education Begin?" Center for Studies in Vocational and Technical Education, University of Wisconsin, Madison, 1967; J.W. Kaufman and C.J. Schaefer, Preparation of Youth for Effective Occupational Utilization: The Role of Secondary Schools in the Preparation of Youth for Employment (final report, Project No. OE-2897), Institute for Research on Human Resources, Pennsylvania State University, 1967; J.W. Kaufman, et al., A Cost-Effectiveness Study of Vocational Education, A Comparison of Vocational and Non-Vocational Education in Secondary Schools, (final report, Project No. OE-512), Institute for Research on Human Resources, Pennsylvania State University, February 1968;

Sophisticated analyses would be required to test adequately the relation between training effectiveness and age at which training is received and, given the paucity of processed data and the inappropriateness of existing studies, it was not possible to accomplish such analyses for this presentation. Longitudinal data are necessary, that follow a person from training well into his working life. This kind of data does exist, but it has not as yet been organized to help answer questions about the critical age for vocational education. For example, since 1960, Project TALENT has collected materials on the courses followed by a sample of high school students that originally numbered 400,000. Flanagan (1962) reports follow-up interviews by mail at 1-, 5-, and 10-year intervals after high school graduation. [10] The "Specialty Oriented Student" (SOS) surveys interview people in post-secondary institutions (collegiate, public, private) and gathers information on training experience and post-program job success 6 months, 2 years and 5 years later (see Hoyt, 1968). [11] A comparative analysis of these two sources, which standardized for the characteristics of the students and the quality and type of training, should permit conclusions as to the relative efficacy of teenage as compared to delayed training.

The preponderance of evidence seems to suggest the conclusion that vocational education experienced in early maturity, around the ages 23 to 25, might give more promise of leading to meaningful improvement in lifetime economic prospects. Junior and community college experience appears to confer more benefits than high school vocational courses and, although the comparisons are difficult to make, post-college training under both public and private auspieces might have an even higher payoff. These benefit estimates refer, essentially, to yearly income. They do not take into account two important negative aspects of delayed vocational training: the fewer years of active worklife that would remain to older students, and the higher costs in terms of foregone income which they suffer as a result of not working at, say, age 23 rather than age 18.

According to the most recent estimates the mean yearly income of a full-time worker in the age group currently favored in vocational education programs (i.e., 16-19) was $2,994; his counterpart in the age group being considered

---

L.M. Sharp and T. Myint, "Graduates of Vocational-Technical Programs in Junior Colleges: Results of a Follow-Up Study of the Class of 1966" (prepared for the Center for Studies in Vocational and Technical Education, University of Wisconsin), Bureau of Applied Social Research, Washington, D.C., 1969.

10/ See J.C. Flanagan et al., Design for a Study of American Youth, Houghton Mifflin, Boston, 1962.

11/ K.B. Hoyt, "The Specialty Oriented Student Research Program: A Five-Year Report," Vocational Guidance Quarterly, March 1968, pp. 169-176.

for concentration (i.e., 20-24) earned $5,574 per year.[12] Assuming that a vocational course for each would take 1 year, that the direct costs of education (i.e., teachers, buildings, equipment) would be the same, and that each would retire at age 65, then at a discount rate of 5 percent the person receiving training at 23 would have to earn an average of at least $150 more per year to justify the higher "foregone-earnings" cost of training and a shorter work life. At a discount rate of 10 percent the person with delayed training would have to earn about $260 more per year. This may be compared with the dollar premium in earnings Fernbach derived for junior college and post-secondary students as compared to high school vocational students.[13] While noting the earlier caveats as to the relevance of her findings for the purpose here, we see that the differentials were, respectively $198 and $83 per month.

If the social trends noted in the first part of this appendix are proceeding apace, then the immediate post-adolescent years are increasingly characterized by low earnings, sporadic attachment to the labor force, and a generally experimental attitude toward jobs.[14] These suggest in turn a declining receptivity to skill training and perhaps a growing gap between the payoffs available from early and late training as described here.

Clearly, the most important consideration in deciding the preferred age to offer vocational education depends on when "career readiness" begins for potential workers. Data on this topic are not readily available. One potential source, however, lies in the Social Security Administration's "Continuous Work History Sample," which has been organized into longitudinal records on employment and earnings for almost 900,000 covered workers for the period 1957-67 (LEED file). Workers are identified by age, race, sex; and quarterly information on earnings, firm and industry affiliation, and work location is given. Thus it is entirely possible to analyze these data to elicit the relationship between work force behavior—which might be defined, say, in terms of geographical, firm, and industrial mobility, the rate of earnings increases, and the like—and age of the worker or the age at which he entered the full-time labor force. Although such analyses have not as yet been performed, it is hypothesized that the data would show that "settling down" behavior is a function of age, and it might even appear that workers who enter later have more stable employment histories. Both points, however, are mere conjectures until such analyses are performed.

---

[12] U.S. Department of Commerce, Current Population Reports. Consumer Income, U.S. Government Printing Office, Washington, D.C., December 1969, p. 90.

[13] Fernbach, op. cit.

[14] S.J. Carroll and A. H. Pascal, Youth and Work: Toward a Model of Lifetime Economic Prospects (RM-5891-OEO), the RAND Corporation, April 1969.

The link between behavioral stability and age extends, of course, to areas of life other than work. [15] The sociological and psychological literature on delinquency (Singell, 1967; Glaser and Rice, 1959), [16] mobility (U.S. Department of Commerce, 1970), [17] drug addiction (Sagi and Weliford, 1968), [18] and even on alcoholism (Alexander, 1967), [19] auto accidents and neuroses (Shepard and Greenberg, 1957), [20] tend to show that less deviant patterns begin to emerge in the mid-twenties. Even the trend of decline in average age of marriage that occurred in the post-war years has begun to dissipate. [21] All of this seems to be added evidence for considering the years between about 23 and 25 as a strategic period for the provision of high quality vocational education programs.

The arguments advanced in this paper in favor of delay in offering comprehensive vocational education would appear to apply both to young men and to young women, although much of the evidence seems to pertain to males rather than females. Indications of deviancy seem to diminish and the tendency to settle down seems to emerge in a more marked fashion for young men at these ages. In work-oriented behavior as in many other forms of behavior, females seems to mature earlier.

---

[15] In general, see: B. Berger, "Adolescence and Beyond: A Review of Three Books on the Problems of Growing Up," Social Forces, October 1963, pp.394-408. R.E. Grinder, "Distinctiveness and Thrust in American Youth Culture," Journal of Social Issues, April 1968, pp. 7-20.

[16] I.D. Singell, "An Examination of the Empirical Relationship Between Unemployment and Juvenile Delinquency," American Journal of Economics and Sociology, October 1967, pp. 377-385; D. Glaser and K. Rice, "Crime, Age and Employment," American Sociological Review, October 1959, pp.679-686.

[17] U.S. Department of Commerce, Statistical Abstract of the United States, U.S. Government Printing Office, Washington, D.C., 1970.

[18] P.C. Sagi and C.F. Wellford, "Age Composition and Patterns of Change in Criminal Statistics," Journal of Criminal Law, Criminology and Police Science, March 1968, pp. 29-36.

[19] C.N. Alexander, Jr., "Alcohol and Adolescent Rebellion," Social Forces, June 1967, pp. 542-550.

[20] M. Sheperd and E.G. Greenberg, "The Age for Neuroses," Millbank Memorial Fund Quarterly, July 1957, pp. 258-265.

[21] J.R. Rile, "Trends and Differentials in American Age at Marriage," Millbank Memorial Fund Quarterly, April 1965, pp. 219-234.

A VOCATIONAL EDUCATION PROGRAM FOR TODAY'S LABOR MARKET

The implication of the foregoing arguments and evidence is that vocational education opportunities should focus more precisely on a group slightly older than the current target population, which consists mostly of high school and junior college age groups, i.e., those under 20 years of age. This does not mean that the training needs of the younger group should be ignored, but does suggest that a change in emphasis would be salutary. A system that would seem to fit this view of the requirements would be one that offers counseling, work exposure and experience, and education in basic skills and cultural and recreational pursuits to people in their late teens and early twenties, while providing intensive training in technical institutes, to more mature young people.

For the younger age group high schools and community colleges might present a pre-vocational program that consists of classroom work combined with part-time and summer jobs. The classroom instruction would concentrate on some of the more general industrial and commercial skills while at the same time offering the pre-vocational student a menu of courses designed to enrich his cultural perspectives and his recreational possibilities. An active counseling and job placement program would also be provided by the schools. Counselors would attempt to work out a program of job experience for their students, structured to provide them with a series of controlled experiences in the world of work. The stress would be on providing information and opening vistas rather than on what now often amount to premature attempts to insert a young person into a permanent career slot. Intensifying the payoff in learning experience might well result in frequent job changes by the student and thus, perhaps, in the general appearance of instability. In order to overcome any employer reluctance to offer part-time and short-term opportunities it may become necessary to provide small subsidies to eligible working students, to bridge the gap between their value to (and wages from) an employer and their own requirements for living expenses.

The pre-vocationalists ought not to be heavily penalized in loss of services if they drop out of the classroom learning part of the program. As long as the counseling contact is maintained, job finding and job placement service should continue, and in some cases the wage subsidy should continue as well. The main requirement for participation in the new vocational education program ought to be a serious commitment to useful exploration of alternative career possibilities, not good attendance at classroom sessions.

High quality technical training opportunities would be available to those who complete the pre-vocational phase described but may be open as well to applicants admitted on other criteria. There are two basic models

under which the technical training might be provided. Each has merits, and the wisest course would be to organize demonstrations of both approaches and to accompany each with a systematic evaluation of its costs and benefits.

The first model involves the organization of technical institutes under public auspices. They would depart from the current MDTA institutional training programs by concentrating on a somewhat older cross section of students, by offering a higher quality of training in somewhat more demanding skill categories, and by providing stipends to students sufficient for modest family support. The quality of training should be at least as high as that offered in the Armed Forces. In time, certificates of completion offered by the technical institutes, if quality of training standards are maintained, would come to have substantial value in labor markets. The issuance of a certificate of competency in a technical skill by a respected Government agency—with the backup commitment of resources implied by such a procedure—would begin to redress the balance in public attention to the problems of college and non-college groups.

The second model would make use of voucher schemes for the delivery of vocational training services to the eligible population. Trainees would in effect receive tuition grants in the same way that National Merit Scholarship students do. Grants or loans for living expenses, which might depend on family size and other sources of income, would accompany the "scholarships." Vocational training services for the age group being discussed seem a very appropriate application of the voucher method for a number of reasons. Quality control over services providers does not present large problems since the effectiveness of the product is directly observable, with an admitted time lag, in the employment success of graduated trainees. And the voucher recipients would certainly have strong incentives to seek out the best trade schools at which to use their tuition grants. Thus both supply and demand conditions seem such as to presage a successful use of this service delivery mechanism. The experience with educational benefits under the GI Bill following World War II, which was rather similar to what is proposed here, suggests that the strategy is workable. In any case, a carefully evaluated demonstration program should reveal whether the voucher mechanism is promising.

APPENDIX E

THE "MARKETABLE SKILL" CONCEPT

CHARACTERISTICS OF A MARKETABLE SKILL

If a vocational education program is to attract enrollees, a marketable skill must have private (enrollee) benefits which cover its private costs. This does not necessarily mean that a marketable skill is a skill which yields the highest private rate of return. It simply must have a nonzero rate of return or must have a positive net present value when private costs and benefits are discounted at the relevant private interest rate. Thus, the provision of a marketable skill does not necessarily ensure an economically efficient investment from the private standpoint. There can be alternative users for private funds, including investment in other types of education (very generally defined), that yield a higher rate of return or a higher net present value.

Because of the subsidy element involved in public education, the provision of a marketable skill could imply a positive private rate of return while the social rate of return could be zero or negative. Thus, there is no guarantee that a program is economically efficient from a social standpoint just because its graduates are hired. And, to reiterate, the fact that a person is hired, even steadily employed, is no guarantee that the skill in question gives the most advantageous private return—but it is marketable.

THE CORRESPONDENCE BETWEEN "MARKETABLE" AND "SHORT SUPPLY"

A marketable skill could be a skill which is in short supply. Presumably, the best evidence that a skill is marketable is demand for it by a firm or industry. However, there are two types, or concepts, of "shortage" which should be discussed here— structural and nonstructural. Figure 4 permits comparison of the two.

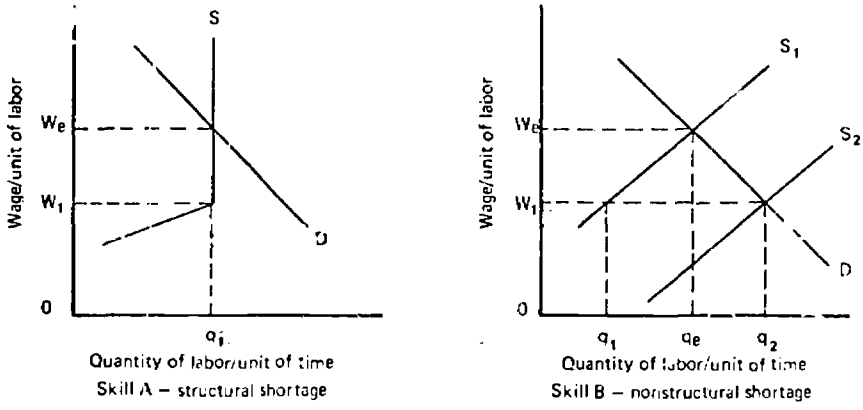


Figure 4.—Structural versus nonstructural skill shortage.

A structural bottleneck in Skill A exists, since the supply curve for the skill becomes vertical once the quantity Oq_1 is brought forth. Beyond this point wage increases will not induce a further increase in quantity supplied. Vocational education could be used to increase the supply of Skill A, either by moving the supply curve to the right or by changing its shape. The distance W_1W_e represents a rent being paid to the current workers in the skill, quantity Oq_1. The increase in supply of workers in Skill A reduces the private rent paid to existing workers but does not affect the incentive to supply labor for this original group of laborers. Society, however, will experience an increase in output and may find it efficient to provide this skill training even though some income redistribution will occur. An example of a marketable skill category characterized by structural shortage would be electricians in New York City, or construction workers in Chicago.

For Skill B, as shown in Figure 4, firms are originally offering wage rate OW_1, which is less than the equilibrium wage rate. There is a "shortage" of Skill B equal to q_1q_2, but it exists because firms are either unwilling or unable to pay the equilibrium wage rate OW_e. Under these conditions, at wage

rate OW_1, the quantity of Skill B persons equal to $q_1 q_2$ could be "marketed." Here, again, vocational education would be used to shift the supply curve from s to s'. This would wipe out the "shortage" and allow the wage rate OW_1 to be maintained.

This latter case does not represent a structural shortage, since by offering wage rate OW_e, the equilibrium supplied would be achieved at OQ_e. The result of raising the wage rate would be to reduce returns to other factors in the industry or to drive some firms out of the industry. In either case, though income redistribution would result, this would be more efficient than spending additional vocational education funds to abnormally inflate supply. If firms were forced out of the industry, this is prima facie evidence that they were inefficient firms and that society has better uses elsewhere for the resources tied up in them. Also, even though individual workers may receive a positive gross gain from being trained in Skill B, a higher net return could be gained for them if they were trained in an alternative skill, since the firm or firms in question are already operating under high cost, inefficient conditions.

Occupations with a high turnover rate, but no physical conditions such as seasonal factors or changing job locations causing this turnover, are likely prospects for skills that either are being paid below equilibrium wage rates or that otherwise offer wage rates too low to cover the opportunity costs of holding the job. In such cases the complaints by employers of a shortage of workers should not be taken as evidence that the skill is marketable. On the contrary, the opposite is implied. Likely prospects for inclusion in the false shortage category are such occupations as nurse's aide and waitress.

SUMMARY

The notion of a "marketable" skill, while a precise concept on the surface, is an ambiguous one in practice.

- The productivity of a person trained in such a skill must equal the money wage rate, but even when this criterion is met, the skill may not be the most efficient of a set of competing skills.
- What is marketable and/or most efficient in private and social terms may differ.
- Identification of a marketable skill is made difficult by problems of identifying occupational needs or shortages.

APPENDIX F

BIBLIOGRAPHY

Abt Associates, Inc., An Evaluation of Rural Concentrated Employment Programs. Unpublished report prepared for the U.S. Department of Labor, Manpower Administration. Cambridge, Massachusetts, 1969.

Adams, V.A.,"Vocational Training: Still for Someone Else's Children." School Management, September 1970, pp. 12-15.

Afro-American Associates, Inc., Final Research and Evaluation Report on the Mississippi Delta CEP Project. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Nashville, Tennessee, 1970.

A.L. Nellum and Associates, CEP II: A Study of the Concentrated Employment Program in Selected Cities—Final Report. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Washington, D.C., 1969.

Alexander, C.N., Jr., "Alcohol and Adolescent Rebellion." Social Forces, June 1967, pp. 542-550.

American Council on Education, A Factbook on Higher Education. Washington, D.C., 1970.

American Institutes for Research, An Analysis of Cost and Performance Factors for the Operation and Administration of Vocational Schools for Secondary Programs. Pittsburgh, Pennsylvania, 1967.

_____, Project TALENT: A National Data Resource for Behavioral, Social, and Educational Research. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Palo Alto, California, 1968.

_____, "Proposed Research Program on the Study of Vocational and Technical Programs Operated by Proprietary Schools." RFP 70-14, Task 5. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Pittsburgh, Pennsylvania, 1970.

_____, A Study of Selected Programs of Vocational Education and Secondary Schools. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Palo Alto, California, 1970.

Analytic Systems, Inc., "Proposed Research Program on Adult Vocational Education Follow-up." RFP 70-14. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Vienna, Virginia, 1970.

Arthur D. Little, Inc., Evaluation of the Concentrated Employment Program in Regions VII, IX, and X. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Washington, D.C., 1969.

Auerbach Corporation, An Appraisal of the Work Incentive Program. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Washington, D.C., 1970.

Austin, J.J. and A.A. Sommerfeld, An Evaluation of Vocational Education for Disadvantaged Youth. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Muskegon, Michigan: The Public Schools of the City of Muskegon, 1967.

Battelle Memorial Institute, "Proposed Research Program on Cost Effectiveness of Selected Cooperative Vocational Education Programs as Compared With Vocational Programs Without a Cooperative Component." RFP 70-14, Task 4. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Columbus, Ohio, 1970.

Belitsky, A.H., Private Vocational Schools and Their Students: Limited Objectives—Unlimited Opportunities. Cambridge, Massachusetts: Schenkman Publishing Company, Inc., 1969.

Berger, B., 'Adolescence and Beyond: A Review of Three Books on the Problems of Growing up." Social Forces, October 1963, pp. 394-408.

Blau, P.M. and O.D. Duncan, The American Occupational Structure, New York: John Wiley and Sons, Inc., 1967.

Boogs, G.E., "A Comparative Analysis of the Impact of Various Types of Curricula on the Vocational Success of School Dropouts." Unpublished doctoral dissertation. Stillwater, Oklahoma: Oklahoma State University, 1965.

Borus, M.E., "A Benefit-Cost Analysis of the Economic Effectiveness of Retraining the Unemployed." Yale Economic Essays, Vol. 4, No. 2. Fall, 1964.

Bourland, D.D., Jr., On Alternatives in Vocational Education. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of the Secretary, Office of Evaluation and Monitoring. McLean, Virginia: Semantics Research, 1970.

Bowen, W.G., "Assessing the Economic Contribution of Education: An Appraisal of Alternative Approaches." Seymour E. Harris, ed., in Economic Aspects of Higher Education. Paris, France: Organization for Economic Cooperation and Development, 1964.

Bowlby, R.L. and W.R. Schriver, Non-Wage Benefits of Vocational Training: Employability and Mobility. Unpublished report. Knoxville, Tennessee: University of Tennessee, N.D.

Brookover, W.B. and S. Nosow, A Sociological Analysis of Vocational Education in the United States. Unpublished report prepared for U.S. Department of Health, Education and Welfare. East Lansing, Michigan: Michigan State University, 1969.

Burt, S.M., The Volunteer in Vocational Education. Kalamazoo, Michigan: Upjohn Institute for Employment Research, 1969.

Bureau of Social Science Research, Inc., Graduates of Vocational-Terminal Programs in Junior Colleges—Results of a Follow-up Study of the Class of 1966. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Washington, D.C., 1970.

Cain, G.G., Benefit/Cost Estimates for Job Corps. Unpublished report prepared for Office of Economic Opportunity. Madison, Wisconsin: University of Wisconsin, Institute for Research on Poverty, 1968.

California State Department of Education, Vocational Education Section, Research Coordinating Unit, Evaluation in Vocational Education. Sacramento, California, 1967.

Capitol Publications, Inc., Economic Opportunity Report, Vol. 5, No. 9-36. Washington, D.C., 1970.

_____, Report on Education Research, Vol. 2, No. 5-18. Washington, D.C., 1970.

Comptroller General of the United States, "Review of Variations in Cost and Performance Among Community Action Program Service Activities." Report to the Congress, September 26, 1969.

Carlson, E., "Education and Industry: Troubled Partnership." Saturday Review, August 1970, pp. 44-60.

Carlson, J.W., B.G. Davis, and R. Raynsford, Necessary Manpower Adjustments in the United States Economy During the 1970's. Unpublished report prepared for the Eighth Meeting of Senior Economic Advisers, Economic Commission of Europe, United Nations. Washington, D.C.: Office of Management and Budget, Executive Office of the President, 1970.

Carroll, A.A. and L.A. Ihnen, "Costs and Returns for Two Years of Post Secondary Technical Schooling: A Pilot Study." Journal of Political Economy, Vol. 75, No. 6., December 1967.

Carroll, S.J. and A.H. Pascal, Youth and Work: Toward a Model of Lifetime Economic Prospects. The RAND Corporation, RM-5891-OEO, April 1969.

Case, C.M. and S.C. Clark, A Bibliographic Guide to Operations Analysis of Education. Unpublished report. Technical Note No. 43. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics, 1967.

Center for the Development of Community College Education, "Program Budgeting and Other Newer Management Tools in Higher Education: A Description and Annotated Bibliography." Occasional Papers, No. 6. Seattle, Washington, 1968.

Clark, S.C., R.J. O'Brien, and C.M. Case, Urban Education Systems Analysis. Unpublished report. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics, 1967.

Combs, J. and W.W. Cooley, "Dropouts: In High School and After School." American Educational Research Journal, Vol. 5, No. 3, May 1968, pp. 343-363.

Congressional Record, Vol. 116, No. 139 (August 1970). Washington, D.C.: U.S. Government Printing Office, 1970.

Cooley, W.W., "Interactions among Interests, Abilities, and Career Plans." Reprinted from Journal of Applied Psychology, Vol. 51, No. 5., Part 2, October 1967, pp. 1-15.

_____, and P.R. Lohnes, Project TALENT—Predicting Development of Young Adults. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Pittsburgh, Pennsylvania: University of Pittsburgh School of Education, and American Institutes for Research, 1968.

Corazzini, A.J., "When Should Vocational Education Begin?" The Journal of Human Resources, Vol. 2, No. 1, Winter, 1967, pp. 1-120.

_____, "The Decision to Invest in Vocational Education: Analysis of Costs and Benefits." Journal of Human Resources, Supplement, 1968.

Cureton, E.E., "Project TALENT—A Factor Analysis of Project TALENT Tests and Four Other Test Batteries." Prepared for U.S. Department of Health, Education, and Welfare, Office of Education. Pittsburgh, Pennsylvania: University of Pittsburgh School of Education, and American Institutes for Research, 1968.

Davis, B.F. and P.D. Patterson, Jr., Vocational Education and Intergovernmental Fiscal Relations in the Postwar Period. Prepared for U.S. Department of Health, Education and Welfare, Office of Education, Washington, D.C.: Georgetown University, 1966.

_____, and J.T. White, "Equalization Alternatives in Grant-in-Aid Programs: Allotment Formulas and Measures of Fiscal Capacity." National Tax Journal, Vol. 20, No. 2, June 1967.

Drob, J., School to Work Transition. Unpublished report. Washington, D.C.: U.S. Department of Labor, Manpower Administration, Division of Program Utilization, N.D.

Duncan, O.D., "A Socio-Economic Index for All Occupations." Occupations and Social Status, A.J. Reiss, ed. New York, New York: Free Press of Glencoe, 1961.

Eckerman, W.C., E.K. Gerstel, and R.B. Williams. A Comprehensive Assessment of the Problems and Characteristics of the Neighborhood Youth Corps Enrollees: A Pilot Investigation. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Durham, North Carolina: Research Triangle Institute, 1969.

Eninger, M.U., Report on New York State Data from a National Follow-up Study of High School Level T&I Vocational Graduates. Pittsburgh, Pennsylvania: Educational Systems Research Institute, 1967.

_____, The Process and Product of T&I High School Level Vocational Education in the United States: The Process Variables. Prepared for U.S. Department of Health, Education and Welfare, Office of Education, Project Number 1-2414. Pittsburgh, Pennsylvania: Educational Systems Research Institute, 1968.

_____, The Process and Product of T&I High School Level Vocational Education in the United States: The Product. Pittsburgh, Pennsylvania: American Institutes for Research, 1965.

_____, Report on New York State Data from a National Follow-up Study on High School Level T&I Vocational Graduates. Pittsburgh, Pennsylvania: Educational Systems Research Institute, 1967.

Evans, R.N., School for Schooling's Sake, The Current Role of the Secondary School in Occupational Preparation. Unpublished report. Urbana, Illinois: University of Illinois, 1968.

"Executive Order No. 11422." Cooperative Area Manpower Planning System. Unpublished report. Austin, Texas: Office of the White House Press Secretary, 1968.

Feldman, M., "Draft, Discussion Paper on Potential Administration Direction on Vocational Education." Xeroxed. Washington, D.C.: Office of Economic Opportunity, N.D.

Fernbach, S.F., "An Analysis of the Economic Benefits of Vocational Education at the Secondary, Post-Secondary and Junior College Levels," M.A. Thesis, Industrial Relations, University of Wisconsin, Madison, 1970.

Fine, S.A., 1965 Third Edition of the Dictionary of Occupational Titles—Content, Contrasts, and Critique. Kalamazoo, Michigan: The Upjohn Institute for Employment Research, 1968.

Fisher, W.N., A Comparative Study of the Employee Skills/Training Acceptable to Employers Under Varying Degrees of Labor Market Stringencies. Columbus, Ohio: Battelle Memorial Institute, 1968.

Fisk University, Center for Afro-American Studies, A Participant-Observer Analysis of the Nashville Concentrated Employment Program. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Nashville, Tennessee, 1969.

_____, A Participant-Observer Analysis of the Nashville Concentrated Employment Program, First Progress Report, July 1 - November 15, 1968. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Nashville, Tennessee, 1968.

Flanagan, J.C. et al., Design for a Study of American Youth. Boston, Massachusetts: Houghton Mifflin, 1962.

_____, A National Data Resource for Behavioral, Social and Education Research. Palo Alto, California: American Institutes for Research, 1968.

_____, Project TALENT Five-Year Follow-up Studies, Technical Progress Report. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Palo Alto, California: American Institutes for Research, 1970.

_____, Project TALENT 1957-1970. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Pittsburgh, Pennsylvania: University of Pittsburgh School of Education, and American Institutes for Research, 1970.

_____, and W.W. Cooley, Project TALENT Data Bank. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Pittsburgh, Pennsylvania: University of Pittsburgh School of Education, and American Institutes for Research, 1965.

_____, Project TALENT—One Year Follow-up Studies. Prepared for U.S. Department of Health, Education and Welfare, Office of Education, Pittsburgh, Pennsylvania: University of Pittsburgh School of Education, and American Institutes for Research, 1966.

_____, Project TALENT: Selected Findings and Data. Pittsburgh, Pennsylvania: American Institutes for Research and the University of Pittsburgh, 1970.

_____, "The Uses of Educational Evaluation in the Development of Programs, Courses, Instructional Materials and Equipment, Instructional and Learning Procedures, and Administrative Arrangements." Sixty-eight Yearbook of the National Society for the Study of Education, Part II. Chicago, Illinois: University of Chicago Press, 1969.

Folk, H., The Problem of Youth Unemployment. Unpublished report prepared for U.S. Department of Labor, Office of Policy Planning and Research. Urbana, Illinois: University of Illinois, 1968.

Freedman, M.K., The Process of Work Establishment. New York, New York: Columbia University Press, 1968.

Freeman, A.M., III, "Project Design and Evaluation with Multiple Objectives." Analysis and Evaluation of Public Expenditures: The PPB System. Joint Economic Committee, 91st Congress, 1st Session. Washington, D.C.: U.S. Government Printing Office, 1969, pp. 565-578.

Fulton, R.A., "Review and Comparison of the Legislative Background and Administrative Implementation of Federal Education Programs which Authorize, Under Contract, Training for the Conduct of Programs in Independent Schools." Reprinted from Hearings Before the General Subcommittee on Education of the Committee on Education and Labor. House of Representatives, 90th Congress, 2nd Session. February-March 1968.

Gertler, D.B., Directory Nonpublic Elementary and Secondary Day Schools. U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Directory Public Elementary and Secondary Day Schools, 1968-1969, Volume I, North Atlantic Region, U.S. Department of Health, Education, and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Directory Public Elementary and Secondary Day Schools, 1968-1969, Volume II, Great Lakes and Plains Region. U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Directory Public Elementary and Secondary Day Schools, 1968-1969, Volume III, Southeast Region, U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics, Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Directory Public Elementary and Secondary Day Schools, 1968-1969, Volume IV, West and Southwest Region and Outlying Areas. U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

Glaser, D. and K. Rice, "Crime, Age and Employment." American Sociological Review, October 1959, pp. 679-686.

Godfrey, E.P., Vocational Programs in the Public Schools: The Role of the Teacher. Unpublished final report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Washington, D.C.: Bureau of Social Science Research, Inc., 1969.

Goldstein, H., Youth in the Labor Market: Trends in Employment and Unemployment. Unpublished report prepared for Conference on the Transition from School to Work, Princeton, New Jersey, May 9-10, 1968. Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, 1968.

Goodman, L.H. and T.D. Myint. The Economic Needs of Neighborhood Youth Corps Enrollees, Final Report. Unpublished report prepared for U.S. Department of Labor, Office of Manpower Research. Washington, D.C.: Bureau of Social Science Research, Inc., 1969.

Grinder, R.E., "Distinctiveness and Thrust in American Youth Culture." Journal of Social Issues, April 1968, pp. 7-20.

Green, H.G., "Statement of Harry G. Green, President of United Business Schools Association, before the General Subcommittee on Education of the Committee on Education and Labor, House of Representatives, Concerning Amendments to the Vocational Education Act and H.R. 15066." March 7, 1968.

Greenleigh Associates, Inc., The Job Opportunities in the Business Sector Program—Evaluation of Impact in Ten Standard Metropolitan Statistical Areas. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. New York, New York, 1970.

Gridhsm, J.R., "Evaluation of the Manpower Development and Training Program in the State of Florida, FY 1961." Tallahassee, Florida: State Department of Education, 1970.

Groemping, F.A., Transition from School to Work in Selected Countries. Unpublished report prepared for Conference on the Transition from School to Work, Princeton, New Jersey, May 9-10, 1968. Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, 1968.

Haines, P.G. and B.G. Coleman, How High School Cooperative Trainees Fare in the Labor Market. A Follow-up Study of 1962 Graduates Who Received Training for Distributive, Office, or Trade and Industrial Occupations. Educational Research Series, No. 16. East Lansing, Michigan: Michigan State University, Office of Research and Publications, College of Education, 1963.

_____, and L.M. Ozzello, How High School Cooperative Trainees Fare in the Labor Market. Phase C: A Follow-up Study of 1964 Graduates Ten Months after Graduation. Educational Research Series, No. 34. East Lansing, Michigan: Michigan State University, Bureau of Educational Research Services, College of Education, 1966.

Hallister, R., A Technical Evaluation of the Mediterranean Regional Project. Paris, France: Organization for Economic Cooperation and Development, 1967.

Halon, T., The Region IV Pilot Cooperative Program, Findings and Recommendations. Unpublished report. Washington, D.C.: U.S. Department of Labor, Manpower Development and Training, 1969.

Hansen, N.M., "Regional Development and the Rural Poor." Journal of Human Resources, Spring, 1969.

Hardin, E. and M.E. Borus, Economic Benefits and Costs of Training Courses in Michigan. East Lansing, Michigan: Michigan State University, School of Labor and Industrial Relations, 1969.

Hausman, L.J., The Labor Market for 1966-67 School Leavers in Rural North Carolina. Unpublished report. Raleigh, North Carolina: North Carolina State University, N.D.

Hawkridge, D.G. et al., Study of Selected Programs for Vocational Education in Secondary Schools—Final Report. Palo Alto, California: American Institutes for Research, 1970.

"Hearings before the General Subcommittee on Education of the Committee on Education and Labor, House of Representatives, on H.R. 15066." Washington, D.C.: U.S. Government Printing Office, 1968.

"Hearings before the Select Subcommittee on Labor of the Committee on Education and Labor, House of Representatives, on H.R. 15045, Washington, D.C.: U.S. Government Printing Office, 1968.

Holmstrom, E.I. and L.M. Sharp, Study of NDEA Title IV Fellowship Program, Phase II. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Washington, D.C.: Bureau of Social Science Research, Inc., 1970.

House Republican Task Force on Education and Training, Report on Proprietary Vocational Schools. Washington, D.C.: House Republican Conference, August 1970.

Horowitz, M.A. and I.L. Herrnstadt, The Training of Tool and Die Makers. Boston, Massachusetts: Northeastern University, Department of Economics, 1969.

Hoyt, K.B., "The Specialty Oriented Student Research Program: A Five Year Report." Vocational Guidance Quarterly, March 1968, pp. 169-176.

Human Interaction Research Institute, A Qualitative Evaluation of the Concentrated Employment Program (CEP) in Birmingham, Detroit, Los Angeles, San Antonio, Seattle and South Bronx by Means of the Participant-Observation Method. Final Report, Vols. 1 and 2. Unpublished report prepared for U.S. Department of Labor. Los Angeles, California, 1969.

Hurley, R.L., "Public Schools and the Disadvantaged: Breakdown, U.S.A." Brown University Bulletin, October, 1968.

Indiana Employment Security Division, Research and Statistics Section, "Education and Vocational Training of TEC Claimants." Indianapolis, Indiana, 1963.

Indiana University Foundation, "Proposed Research Program on Economic Analysis of the Costs of Selected Manpower Programs." Prepared for U.S. Department of Labor, Manpower Administration. Bloomington, Indiana, 1970.

"Interagency Cooperative Issuance No. 71-1." Cooperative Area Manpower Planning System. Unpublished report. Washington, D.C., 1969.

"Interagency Cooperative Issuance No. 71-2." Cooperative Area Manpower Planning System. Unpublished report. Washington, D.C., 1970.

Kahn, G. and W.A. Hughes, Statistics of Local Public School Systems, Fall, 1968: Schools, Pupils, and Staff. U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Statistics of Local Public School Systems, Fall, 1967: Pupils/Schools/Staff, 1966-67: Expenditures. U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1969.

_____, Statistics of Local Public School Systems 1967-68: Finances: U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

Kapel, D.E., Project TALENT—Effects of Negro Density on Student Variables and the Post-High School Adjustment of Male Negroes. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Pittsburgh, Pennsylvania: American Institutes for Research, and the University of Pittsburgh School of Education, 1968.

Karpinos, B.D., "The Mental Qualification of American Youths for Military Service and its Relationship to Educational Attainment." in Proceedings of the American Statistical Association, Social Statistics Section, 1966.

Katzenmeyer, W.G., Report on the AEDS Educational Information Project (draft). Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Durham, North Carolina: Duke University, 1970.

Kaufman, J.J., "The Role of Vocational Education in the Transition from School to Work." in Public-Private Manpower Policies, A.R. Weleer, ed. Madison, Wisconsin: Industrial Relations Research Association, 1969.

_____, and M.V. Lewis, The School Environment and Programs for Dropouts. University Park, Pennsylvania: The Pennsylvania State University, Institute for Human Resources, 1968.

_____, and C.J. Schaefer and Associates, The Preparation of Youth for Effective Occupational Utilization: The Role for the Secondary School in the Preparation of Youths for Employment. University Park, Pennsylvania: Pennsylvania State University, 1967.

_____ et al., A Cost Effectiveness Study of Vocational Education: A Comparison of Vocational and Non-Vocational Education in Secondary Schools (Final Report, Project No. OE-512). University Park, Pennsylvania: Pennsylvania State University, Institute for Research on Human Resources, February 1968.

Kay, E.R., Inventory of Vocational Education Statistics Available in Federal Agencies. Washington, D.C.: U. S. Department of Health, Education and Welfare, National Center for Educational Statistics, 1970.

_____, Vocational Education: Characteristics of Teachers and Students (draft copy). Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, Adult and Vocational Education Surveys Branch, 1970.

Kirschner Associates, Inc., Evaluation of Five Concentrated Employment Programs in Manpower Regions I and II. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. New York, New York, 1969.

Koba Enterprises, Inc., "Proposed Research Program on Analysis of the Effectiveness of Services Available to Disadvantaged and Handicapped Persons in Regular Vocational Education Programs." Prepared for U.S. Department of Health, Education and Welfare. Washington, D.C., 1970.

Kotz, A., ed., Occupational Education: Planning and Programming, Vols. 1 and 2. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Menlo Park, California: Stanford Research Institute, 1967.

Lansing, J.B. and E. Mueller, The Geographic Mobility of Labor. Ann Arbor, Michigan: University of Michigan, Institute for Social Research, Survey Research Center, 1967.

Leasco Systems and Research Corporation, Quantitative Analysis of the Concentrated Employment Program, Vol. II. Technical Report MSG-101/69. Silver Spring, Maryland, 1969.

Little, J.K., Review and Synthesis of Research on Placement and Follow-up of Vocational Education Students. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1970.

Louis Harris and Associates, Inc., A Continuing Study of Job Corps Terminations, Wave II—Initial Interview with Terminations from August 15, 1966 to December 15, 1966—An Interim Report. Unpublished report. New York, New York, 1967.

Love, W.A., Jr. and D.K. Stewart, Project TALENT: Interpreting Economical Correlations—Theory and Practice. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Pittsburgh, Pennsylvania: American Institutes for Research and the University of Pittsburgh School of Education, 1968.

Machlup, F., The Production and Distribution of Knowledge in the United States. Princeton, New Jersey: Princeton University Press, 1962.

Main, E.D., "A Nationwide Evaluation of MDTA Institutional Job Training." Journal of Human Resources, Vol. 3, No. 2, Spring, 1968.

Mangum, G. L., Second Chance in the Transition from School to Work. Unpublished report prepared for Princeton Conference on Transition from School to Work, 1968.

"Manpower Agenda for America," New York, New York: McGraw Hill, 1969.

Marshall, F.R. et al., "Negro Participation in Apprenticeship Programs." Unpublished summary and recommendations of a larger report prepared for U.S. Department of Labor, Office of Manpower Policy, Evaluation and Research. Austin, Texas: University of Texas, Department of Economics, 1966.

Maxwell, J., Governmental Grants in Aid. Washington, D.C.: Brookings Institute, N.D.

McCollum, S.G., Education and Training of Youthful Offenders. Unpublished report prepared for the Seminar on the Transition from School to Work. Washington, D.C.: U.S. Department of Justice, Bureau of Prisons, 1968.

MDTA Legislation, 1970. Hearings, Subcommittee on Emphasizing Manpower and Poverty of the Commission on Labor and Public Welfare, U.S. Senate, May 5, 6, 11, 14, 18, 21. Washington, D.C.: U.S. Government Printing Office, 1970.

Miljus, R.C., H.S. Parnes, R.M. Schmidt, and R.S. Spitz, "Some Correlates of the Labor Market Status of Male Youth." Unpublished mimeographed report prepared for the U.S. Department of Labor, Manpower Administration. Columbus, Ohio: The Ohio State University, Center for Human Resource Research, 1968.

Miller, J.W., The Independent Business School in American Education. New York, New York: McGraw-Hill, Gregg Division, 1964.

Moles, O.C., "Up from Poverty—Intergenerational Movement Out of Low Income Occupations." Welfare in Review, Vol. 7, No. 3, May-June 1970.

Morsch, William C., Study of Community Colleges and Vocational Training Centers: Cost Analysis. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, Washington, D.C.: Bureau of Social Science Research, Inc., N.D.

Morton, J.E., On Manpower Forecasting. Kalamazoo, Michigan: The W.E. Upjohn Institute for Employment Research, 1968.

_____, On the Evolution of Manpower Statistics. Kalamazoo, Michigan: The W.E. Upjohn Institute for Employment Research, 1969.

National Advisory Council on Vocational Education, Vocational Education: The Bridge Between Man and His Work. Notes and Working Papers Concerning the Administration of Programs Authorized Under the Vocational Education Act of 1963. Prepared for the Subcommittee on Education, Committee on Labor and Public Welfare, U.S. Senate, 90th Congress, 2nd Session. Washington, D.C.: U.S. Government Printing Office, 1968.

National Association of Manufacturers. "Vocational Education Study-Group Discussion Paper." Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Evaluation and Monitoring. New York, New York: National Association of Manufacturers, Education Department, 1970.

_____, HEW-NAM Vocational Education Fact-Finding Program: Summary Report of First Study. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of the Secretary, Office of Evaluation and Monitoring. Washington, D.C., 1970.

_____, HEW-NAM Vocational Education Fact-Finding Program: Summary Report of Second Study. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of the Secretary, Office of Evaluation and Monitoring, Washington, D.C., 1970.

National Education Association, Research Division, Selected Statistics of Local School Systems, 1965-66. Research Report 1967-R15. Washington, D.C., 1967.

_____, Selected Statistics of Local School Systems, 1966-67. Research Report 1968-R11, Washington, D.C., 1968.

Office of Economic Opportunity, Job Corps, "Cost Evaluation and Educational Programs." A&R Report, No. 9, Washington, D.C., 1968.

_____, "Job Corps Benefit/Cost Study." A&R Report, No. 11, Washington, D.C., 1968.

Office of the Secretary of Defense, Directorate for Statistical Services, Selected Manpower Statistics.

O'Neill, "Determinants of Labor Turnover Costs in the Military." Studies Prepared for the President's Commission on an All Volunteer Military. Washington, D.C.: forthcoming from the U.S. Government Printing Office, 1971.

Operations Research, Inc., CEP Evaluation Methodology, Phase I Report, Technical Report 617 (draft). Silver Spring, Maryland, 1970.

_____, Progress Briefing, A Comparison of Selected Vocational Education Programs to Four Office of Economic Opportunity/Department of Labor Sponsored Manpower Programs. Unpublished report prepared for U.S. Department of Health, Education and Welfare. Washington, D.C., 1970.

Page, D.A., "Retraining Under the Manpower Development Act: A Cost-Benefit Analysis," in J.D. Montgomery and A. Smithies, Public Policy, Vol. 13. Boston: Harvard University Press, 1964.

Page, H.S., R.C. Miljies, and R.S. Spitz, Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth 14-24 Years of Age. Columbus, Ohio: The Ohio State University, Center for Human Resource Research, 1969.

Pennsylvania State University, A Cost-Effectiveness Study of Vocational Education--A Comparison of Vocational and Nonvocational Education in Secondary Schools--Final Report. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, Bureau of Research. University Park, Pennsylvania, 1968.

Pennsylvania State University, Institute for Research on Human Resources, The Preparation of Youth for Effective Occupational Utilization, The Role of the Secondary School in the Preparation of Youth for Employment. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, Bureau of Research. University Park, Pennsylvania, 1967.

Persons, E.A. et al., Investments in Education for Farmers, Summary of an Economic Study of the Investment Effects of Education in Agriculture (preliminary draft). Unpublished report prepared for U.S. Department of Health, Education and Welfare. St. Paul, Minnesota: University of Minnesota, 1968.

_____, G.I. Swanson, H.M. Kittleson, and G.W. Leske, An Economic Study of the Investment Effects of Education in Agriculture. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. St. Paul, Minnesota: University of Minnesota, College of Education, Department of Agricultural Education, 1968.

Planning Research Corporation, Cost/Effectiveness Analysis of On-the-Job and Institutional Training Courses. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Los Angeles, California, 1967.

Reaume, D. and W. Oi, "The Educational Attainment of Military and Civilian Labor Forces." Studies prepared for the President's Commission on an All Volunteer Military. Washington, D.C.: forthcoming from the U.S. Government Printing Office, 1970.

Rehabilitation Research Foundation, Draper Correctional Center, MDTA Vocational Experimental-Demonstration Project for Training and Placement of Youthful Offenders—15th Progress Report, March 1 - May 1, 1967. Unpublished report prepared for U.S. Department of Labor, Manpower Administration. Elmore, Alabama, 1967.

Resource Management Corporation, Evaluations of the War on Poverty—Analysis of CAP MIS Data, Vols. 1 and 2. Unpublished report prepared for General Accounting Office. Bethesda, Maryland, 1968.

_____, Evaluations of the War on Poverty—Education Programs. Unpublished report prepared for General Accounting Office under Contract No. GA-654. Bethesda, Maryland, 1969.

_____, Evaluations of the War on Poverty—The Feasibility of Benefit-Cost Analysis for Manpower Programs. Unpublished report prepared for General Accounting Office under Contract No. GA-654. Bethesda, Maryland, 1969.

Rile, J.R., "Trends and Differentials in American Age at Marriage." M Memorial Fund Quarterly, April 1965, pp. 219-234.

Robin, G.D., An Assessment of the In-Public School Neighborhood Yo Projects in Cincinnati and Detroit, with Special Reference t Only and Year-Round Enrollees—Final Report. Unpublished r pared for U.S. Department of Labor, Manpower Administrati

Rosenmayr, L., "Towards an Overview of Youth Sociology." Internat Science Journal, Vol. 2, No. 2, 1968, pp. 286-315.

Rosow, J.M., "The Problem of the Blue-Collar Worker." Unpublishe randum for the Secretary of Labor from the Assistant Secreta Washington, D.C., 1970.

Sagi, P.C. and C.F. Wellford, "Age Composition and Pattern of Cha minal Statistics." Journal of Criminal Law, Criminology and Science, March 1968, pp. 29-36.

Schweitzer, S.O., Occupational Choices, High School Graduation, a ment in Human Capital. Washington, D.C.: Urban Institu

Sharp, L.M., Follow-up Study of 1966 Junior College Graduates in Vocational-Terminal Programs—Preliminary Results. Unpublished report prepared for Center for Studies in Vocational and Technical Education at the University of Wisconsin in conjunction with the U.S. Department of Health, Education and Welfare, Office of Education. Washington, D.C.: Bureau of Social Science Research, Inc., 1970.

_____, The Use of Follow-up Studies in the Evaluation of Vocational Education. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Washington, D.C.: Bureau of Social Science Research, 1966.

_____, and T. Myint, "Graduates of Vocational-Terminal Programs in Junior Colleges." Draft prepared for the Center for Studies in Vocational and Technical Education at the University of Wisconsin. Washington, D.C.: Bureau of Social Science Research, 1970.

Sheperd, M. and E.G. Greenberg, "The Age for Neuroses." Millbank Memorial Fund Quarterly, July 1957, pp. 258-265.

Sheppard, H.L., Effects of Family Planning on Poverty in the United States. Kalamazoo, Michigan: The W.E. Upjohn Institute for Employment Research, 1967.

Sietsema, J.P., and B.O. Mongello, Education Directory 1969-70 Public School Systems. U.S. Department of Health, Education and Welfare, Office of Education, National Center for Educational Statistics. Washington, D.C.: U.S. Government Printing Office, 1970.

Singell, L.D., "An Examination of the Empirical Relationship Between Unemployment and Juvenile Delinquency." American Journal of Economics and Sociology, October 1967, pp. 377-386.

Social, Educational Research and Development, Inc., Identification and Analysis of Effective Secondary Level Vocational Programs for the Disadvantaged--Final Report. Silver Spring, Maryland: 1968.

Software Systems, Inc., A Job Corps Study of Relative Cost Benefits, Vol. 1. Unpublished report prepared for Office of Economic Opportunity, Office of Plans and Programs, Job Corps. Washington, D.C., 1969.

Somers, G.G., ed., Retraining the Unemployed. Madison, Wisconsin: The University of Wisconsin Press, 1968.

_____, J. Baum, and M. Roomkin, Pilot Feasibility Study of Training in Business and Industry. Madison, Wisconsin: Industrial Relations Research Institute, 1970.

_____, and S. Fernbach. An Analysis of the Economic Benefits of Vocational Education at the Secondary, Post-Secondary, and Junior College Levels—A Preliminary Report on an Evaluation of the Effectiveness of Vocational and Technical Education in the U.S. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Madison, Wisconsin: University of Wisconsin, Center for Studies in Vocational and Technical Education, 1970.

Starr, H., A System for State Evaluation of Vocational Education. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1970.

State of Virginia, Department of Education, Division of Vocational Education, Distributive Education Service, Five Year Follow-up Survey of Distributive Education Part-Time Cooperative Training Students, 1957-1961. Richmond, Virginia, 1964.

State of Washington Employment Security Department, Research and Statistics Section, Youth in the Labor Market. Olympia, Washington, 1965.

Stromsdorfer, E.W., "Determinants of Economic Success in Retraining the Unemployed." Journal of Human Resources, Vol. 3, No. 2, Spring, 1968.

_____, Hu Teh-Wei, and Maw Lin Lee. A Cost-Effectiveness Study of Vocational Education. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. University Park, Pennsylvania: Pennsylvania State University, Institute for Research on Human Resources, 1968.

_____, A Cost-Effectiveness Study of Vocational Education: A Comparison of Vocational and Nonvocational Education in Secondary Schools. University Park, Pennsylvania: Pennsylvania State University, Institute for Research on Human Resources, 1969.

_____, "Economic Returns to Vocational and Comprehensive High School Graduates." Part of an unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Washington, D.C., 1969.

System Development Corporation, "Evaluation of the Concentrated Employment Program in Six Selected Areas—Final Report." Unpublished technical memorandum prepared for U.S. Department of Labor, Manpower Administration. Falls Church, Virginia, 1969.

_____, "Evaluation of Concentrated Employment Projects in Region V—Final Report." Unpublished technical memorandum prepared for U.S. Department of Labor, Manpower Administration. Falls Church, Virginia, 1969.

_____, "Evaluation of the JOBS Program in Nine Cities—Final Report." Unpublished technical memorandum prepared for U.S. Department of Labor, Manpower Administration. Falls Church, Virginia, 1969.

Taussig, M., "An Economic Analysis of Vocational Education in New York City." Journal of Human Resources, Supplement: Vocational Education. Vol. III, 1968.

United Business Schools Association, Part I and Part II of the Final Report Covering the Period from February 15, 1967 to June 30, 1968. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, N.D.

U.S. Department of Defense, DOD Instruction: 7220.25. August 1, 1968.

_____, DOD Instruction: 7730.31. September 30, 1965.

U.S. Department of Commerce, Bureau of the Census, Current Population Reports: Consumer Income. Washington, D.C.: U.S. Government Printing Office, December 1969.

_____, Current Population Reports: Educational Attainment. Washington, D.C.: U.S. Government Printing Office, March 1970.

_____, Statistical Abstract of the United States. Washington, D.C.: U.S. Government Printing Office, 1970.

_____, "Projections of the Population of the United States, by Age, Sex, and Color to 1990, with Extensions of Population by Age and Sex to 2015." Population Estimates, Series P-25, No. 381. Washington, D.C.: U.S. Government Printing Office, 1967.

U.S. Department of Health, Education and Welfare, Division of Manpower Development and Training, Preliminary Report: The MDTA Pilot Cooperative Occupational Training Program. Unpublished report prepared for the Subcommittee on Training of the National Manpower Advisory Committee. Washington, D.C., 1969.

U.S. Department of Health, Education and Welfare, Office of Education, Digest of Annual Reports of State Boards for Vocational Education to the Office of Education, Division of Vocational Education, 1960-1962. Washington, D.C., 1960-1962

_____, Digest of Educational Statistics 1962-1969. Washington, D.C.: U.S. Government Printing Office, 1962-1969.

_____, "Enrollment by Instructional Area in Distributive Occupations (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollment by Instructional Area in Health Occupations (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollment by Instructional Area in Home Economics Occupations (gainful) (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollment by Instructional Area in Office Occupations (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollment by Instructional Area in Technical Education (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollment by Instructional Area in Trade and Industrial Occupations (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Program Planning-Development-Budgeting, Series No. 6." Washington, D.C., 1969.

_____, "Summary Data on Vocational Education, Fiscal Year 1969." Washington, D.C., 1970.

_____, Vocational and Technical Education Annual Report—Fiscal Year 1968. Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Vocational and Technical Education Annual Report—Fiscal Year 1967. Washington, D.C.: U.S. Government Printing Office, 1969.

_____, Vocational and Technical Education Annual Report—Fiscal Year 1966. Washington, D.C.: U.S. Government Printing Office, 1968.

_____, Vocational and Technical Education Annual Report—Fiscal Year 1965. Washington, D.C.: U.S. Government Printing Office, 1967.

_____, Vocational and Technical Education Annual Report—Fiscal Year 1964. Washington, D.C.: U.S. Government Printing Office, 1966.

_____, Vocational and Technical Education Annual Report—Fiscal Year 1963. Washington, D.C.: U.S. Government Printing Office, 1965.

_____, Vocational Education—The Bridge between Man and His Work. Publication 1, Highlights and Recommendations from the General Report of the Advisory Council on Vocational Education. Washington, D.C., 1968.

_____, Vocational Education—The Bridge between Man and His Work—Summary and Recommendations. Adapted from the General Report of the Advisory Council on Vocational Education. Washington, D.C., 1968.

U.S. Department of Health, Education and Welfare, Office of Education, Bureau of Adult, Vocational and Library Programs, Division of Manpower Development and Training. Cooperative Occupational Training, Can It Serve the Disadvantaged? Unpublished report prepared for North Central Regional Manpower Advisory Committee. Washington, D.C., 1968.

U.S. Department of Health, Education and Welfare, Office of Education, Bureau of Research. "A Survey of Existing Cooperative Job-Oriented Education Programs." Prep. No. 9-A. Washington, D.C., 1970.

U.S. Department of Health, Education and Welfare, Office of Education, Division of Vocational and Technical Education, Development Branch, Resource Manual 71 for the Development of Cooperative Vocational Education Programs under the Vocational Education Amendments of 1968, P.L. 90-576. Unpublished report, Washington, D.C. 1970.

U.S. Department of Health, Education and Welfare, Office of Education. National Center for Educational Statistics. Advance Statistics Management, Bulletin No. 1, Washington, D.C., 1969.

_____, Projections of Educational Statistics to 1977-78. Washington, D.C.: U.S. Government Printing Office, 1969.

U.S. Department of Health, Education and Welfare, Social and Rehabilitation Service. Statistical History Federal-State Program of Vocational Rehabilitation 1920-1969. Washington, D.C., 1970.

U.S. Department of Health, Education and Welfare, Vocational Rehabilitation Administration, Division of Statistics and Studies, An Exploratory Cost-Benefits Analysis of Vocational Rehabilitation. Unpublished report. Washington, D.C., 1967.

U.S. Department of the Interior, Bureau of Indian Affairs, Art and Indian Children, Curriculum Bulletin No. 7. Washington, D.C., N.D.

U.S. Department of Labor. Manpower Report of the President--A Report on Manpower Requirements, Resources, Utilization, and Training. Washington, D.C.: U.S. Government Printing Office, 1970.

U.S. Department of Labor, Manpower Administration, Cooperative Area Manpower Planning System--Concentrating Manpower Services Against Poverty. Washington, D.C.: U.S. Government Printing Office, 1969.

_____, A Profile of 500 Negro Males Arrested in the Detroit Riot: Supplement. Washington, D.C., 1967.

_____, "Cumulative Total Number of Youths Newly Enrolled in Neighborhood Youth Corps Projects, by Sex of Enrollee, by Month, July 1965-June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollee Activity, by State, in Neighborhood Youth Corps Projects Active at the End of June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollee Activity, by State, in Operation Mainstream and New Careers Projects Active at the End of June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollee Activity in Neighborhood Youth Corps Projects Active as of End of Month, by Month, July 1965-June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollee Activity in Senior Citizens Programs Active at the End of June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Enrollment by Instructional Area in Agricultural Occupations (Fiscal Years 1966-1969)." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Number of Persons Enrolled at End of Month in Selected Manpower Programs, January 1970-June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Number of Persons Newly Enrolled in Work-Experience Programs and Total Number Served, by Program Component and Fiscal Year, 1965-1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Number of Youths Newly Enrolled in Neighborhood Youth Corps Projects Each Month, by Sex of Enrollees, by Month, July 1965-June 1970." Xeroxed data sheet. Washington, D.C., 1970.

_____, "Selected Characteristics of Enrollees in Manpower Programs, Fiscal Year 1969." Xeroxed data sheet. Washington, D.C., 1970.

_____, "The Influence of MDTA Training on Earnings." Manpower Evaluation Report No. 8. Washington, D.C., 1968.

_____, The JOBS Program (Job Opportunities in the Business Sector)—Background Information. Prepared for Subcommittee on Employment, Manpower and Poverty of the Committee on Labor and Public Welfare, U.S. Senate, Washington, D.C.: U.S. Government Printing Office, 1970.

_____, Unemployment and Retraining—An Annotated Bibliography of Research. Washington, D.C., 1965.

_____, Work Force Adjustments in Private Industry—Their Implications for Policy. Manpower Automation Research Monograph No. 7. Washington, D.C.: U.S. Government Printing Office, 1968.

U.S. Department of Labor, Wage and Hour and Public Contracts Divisions, "Employment of Minors Between 14 and 16 Years of Age" (Child Labor Regulation 3). WHPC Publication 1276. Washington, D.C., N.D.

_____, Cost-Benefit Analysis of High School Vocational Education Programs. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, Office of Program Planning and Evaluation. Washington, D.C., 1969.

_____, Exemplary Vocational Programs for the Disadvantaged—An Experimental Program with Federal Funds. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, Office of Program Planning and Evaluation. Washington, D.C., 1969.

U.S. House of Representatives, Vocational Education Amendments of 1968—Conference Report. Report No. 1938. Washington, D.C.: U.S. Government Printing Office, 1968.

U.S. Senate, Committee on Labor and Public Welfare, Vocational Education Amendments of 1968. Report on S.3770 to Amend the Vocational Education Act of 1963, and for Other Purposes Together with Supplemental Views. Washington, D.C.: U.S. Government Printing Office, 1968.

University of Iowa, Division of Counselor Education, Transition from School to Work. Unpublished report prepared at the request of Arnold Nemore, Executive Director, National Manpower Policy Task Force. Iowa City, Iowa, 1968.

University of Michigan, Institute for Social Research, Survey Research Center, Inner City Negro Youth in a Job Training Project. Ann Arbor, Michigan, 1968.

University of Minnesota, Notes and Working Papers from the National Conference on Cooperative Vocational Education—Implications of the 1968 Amendments. Proceedings of conference conducted for U.S. Department of Health, Education and Welfare, Office of Education. Minneapolis, Minnesota, 1969.

_____, Division of Vocational and Technical Education, Guide for Cooperative Vocational Education. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Minneapolis, Minnesota, 1969.

University of North Dakota, "Vocational and Technical Education." The College of Education Record. June, 1966. Grand Forks, North Dakota, pp. 140-142.

University of Tennessee, College of Education, Occupational Research and Development Coordinating Unit, Interpretive Study of Cooperative Efforts of Private Industry and the Schools to Provide Job-Oriented Education Programs for the Disadvantaged. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education. Knoxville, Tennessee, 1969.

University of the State of New York, State Education Department, Bureau of Guidance, Developing Work-Study Programs for Potential Dropouts. Albany, New York, 1965.

Vincent, H.L., An Analysis of Vocational Education in Our Secondary Schools. Unpublished report prepared for U.S. Department of Health, Education and Welfare, Office of Education, Office of Program Planning and Evaluation. Washington, D.C., 1969.

Wallace, H.R., Review and Synthesis of Research on Cooperative Vocational Education. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1970.

Warmbrod, J.R., Review and Synthesis of Research on the Economics of Vocational-Technical Education. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1968.

Washington, D.C. Board of Education, A Plan for Career Development in the Public Schools of the District of Columbia—Task Force Report on Vocational Education, May 1969.

Wholey, J.S. et al., "Federal Evaluation Policy." Washington, D.C.: Urban Institute, 1970.

Wilson, J.W. and E.H. Lyons, Work-Study College Programs—Appraisal and Report of the Study of Cooperative Education. New York, New York: Harper and Brothers Publishers, 1961.

Winter, E.L., The Businessman's Role in Closing the Gap between Education and the Job. Unpublished report. Milwaukee, Wisconsin: Manpower, Inc., 1968.

Young, S., Manpower Training—Some Cost Dimensions. Prepared for U.S. Department of Health, Education and Welfare, Office of Education. Amherst, Massachusetts: University of Massachusetts, N.D.

Zeisel, J.S., Unemployment of Youth in Great Britain and the United States. Unpublished report prepared for the Conference on the Transition from School to Work, Princeton, New Jersey, May 9-10, 1968. Washington, D.C., Federal Reserve System. 1968.