DOCUMENT RESUME

ED 065 699 VT 016 156

AUTHOR Oliver, J. Dale; And Others
TITLE Vocational Education Evaluation Project.
INSTITUTION Virginia Polytechnic Inst. and State Univ., Blacksburg. Div. of Vocational-Technical Education.; Virginia State Dept. of Education, Richmond. Div. of Vocational Education.
PUB DATE Apr 72
NOTE 30p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Computer Oriented Programs; Cost Effectiveness; *Evaluation; *Information Systems; *Management Systems; Program Planning; State Programs; *Vocational Education
IDENTIFIERS Virginia

ABSTRACT

Designed to aid decision-makers at the state and local levels, the Vocational Education Evaluation Project (VEEP) will: (1) develop a planning system which will include a computer-assisted system for gathering data on vocational education in Virginia, (2) develop a system to upgrade planning and evaluation in the classroom, (3) identify process and product variables and collect and analyze information on the effect of process variables on the product variables, and (4) develop a cost-effectiveness index which would supply information on the effectiveness of a vocational program for the resources expended on the program. At the state level, the management system will supply base data for planning and budgeting through a systematic procedure to collect, process, and reduce data. Information for local administrators will be made available by means of a program effectiveness component, a process-product component, and a cost effectiveness component. This project is scheduled to run through 1975. (JS)

Vocational Education Evaluation Project

Research Project No. 808361-2
Division of Vocational-Technical Education
College of Education
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061
and
Division of Vocational Education
State Department of Education
Richmond, Virginia 23216

April, 1972

VOCATIONAL EDUCATION EVALUATION PROJECT

Prepared by

J. Dale Oliver
Project Director

Donald E. Elson
Administrative Specialist

Richard K. Hill
Test and Measurement Specialist

P. S. Vivekananthan
Systems Analyst

Research Project No. 808361-2
Division of Vocational-Technical Education
College of Education
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061
and
Division of Vocational Education
State Department of Education
Richmond, Virginia 23216

April, 1972

TABLE OF CONTENTS

ADVISORY GROUPS

Recognized individuals both at the state and national levels serve as advisors to the Vocational Education Evaluation Project.

Participants in a recent National Advisory Committee meeting were: (seated left to right) Jimmy C. Fortune, professor of education, University of Massachusetts, Amherst; David Berliner, Far West Lab for Educational Research and Development, Berkeley, California; Mrs. Maude Goldston, assistant supervisor for vocational education, Virginia State Department of Education, Richmond; Ferman B. Moody, director, Research Coordinating Unit for Vocational Education, Harrisburg, Pennsylvania; Pathe Vivekananthan, systems analyst, project staff; (standing left to right) Milton Phillips, professor of education, Memphis State University, Memphis, Tennessee; Jerome Moss, Jr., director, Research Coordinating Unit in Occupational Education, University of Minnesota, Minneapolis; Donald Elson, administrative specialist, project staff; J. Dale Oliver, director, project staff; Leonard S. Cahen, research psychologist, Educational Testing Service, Princeton, New Jersey; and Julian Campbell, supervisor of agricultural education, Virginia State Department of Education, Richmond. Absent from the picture is Richard Hill, test and measurement specialist, project staff.

PURPOSE, OBJECTIVES, AND BENEFITS OF THE VOCATIONAL EDUCATION EVALUATION PROJECT

Purpose

The purpose of the Vocational Education Evaluation Project, VEEP, is to develop and implement a management information system in Virginia that will provide the data needed in meeting local, State, and Federal accountability requirements; in evaluating the effectiveness of secondary vocational education programs, services, and activities; and in determining the adjustments needed to meet changing conditions. Emphasis will be given to the aspects of process and product evaluation and cost-effectiveness of local secondary vocational and technical education programs in Virginia.

Procedures developed and data generated by VEEP will assist the Division of Vocational Education, State Department of Education, in fulfilling its duties as the principal agent responsible for the operation of the State plan. Local school districts and their staffs will derive assistance from the project in developing new programs or improving existing programs through emphasis on program objectives and cost-effectiveness. A third agency within the State which can make use of the work of VEEP will be the State Advisory Council.

Objectives

The primary objective of the Vocational Education Evaluation Project is to develop a management information system for planning and programming of vocational education. Four contributory objectives are:

1. To develop a planning system which will include a computer-assisted system for gathering data on vocational education in Virginia.
2. To develop a system to upgrade planning and evaluation in the classroom.
3. To identify process and product variables and collect and analyze information on the effect of process variables on the product variables.
4. To develop a cost-effectiveness index which would supply information on the effectiveness of a vocational program for the resources expended on the program.

Benefits to Vocational Education

The management information system to be developed and implemented by this project contains two subsystems, the macro-subsystem concerned with information at the State level and the micro-subsystem designed to provide information to local decisionmakers.

The macro-subsystem will be designed to provide for collecting data required by the State Department of Education, Division of Vocational Education. The 1963 Vocational Education Act and its 1968 Amendments require that the State plan provide, ". . . for making such reports in such form and containing such information as the Commissioner may reasonably require . . . and for keeping such records and for affording access thereto . . . to assure correctness and verification of such reports." Also, the macro-subsystem will provide information for assessing, planning, and programming; thus a management information system for program evaluation at the State level.

The micro-subsystem is to provide information to local decision-makers for assessing, planning, and programming individual vocational education programs in local schools. Emphasis will be on behavioral objectives, process-product relationships, and cost-effectiveness. Evaluation at the State level or at the local level are not mutually exclusive; therefore, the macro- and micro-subsystems are not considered mutually exclusive in this evaluation project

MACRO-SUBSYSTEM

A major objective of the development of the macro-subsystem is to facilitate decisionmaking functions at the State level. More specifically, the macro-subsystem will be designed to supply necessary base-data for planning and budgeting vocational education programs in the Commonwealth of Virginia. This can be accomplished by developing a systematic procedure to collect, process, and reduce data to a desirable form.

Justification

Currently, the five vocational education areas (agricultural education, business education, distributive education, home economics education, and trade and industrial education) are independently collecting information using different forms. Current practice levies major responsibility on teachers to supply the information. The teachers compile information from various sources to complete the forms; thus, taking valuable time which could have been spent preparing for teaching. To reduce the tasks of teachers, to have a uniform information collection procedure across all five vocational areas, and to obtain more accurate information, the Vocational Education Evaluation Project proposes development of a Vocational Education Management Information System for Virginia (VEMIS-V).

Vocational Education Reporting System

One way to increase the reliability of information on students and to reduce the work of teachers is to involve students in the supplying of information. Forms can be designed to collect student characteristics such as sex, age, and other data from the individual

student. The use of high speed electronic data processing devices can facilitate information processing and storing for future reference. To this effect, the Vocational Education Reporting System, VERS, is being developed. VERS is the initial phase of the Vocational Education Management Information System for Virginia.

VERS is comprised of five phases. The first phase deals with the collection of information about enrollees in vocational education programs. Student characteristics, social security numbers, addresses and program information are obtained from the students and instructors, using optical scanning forms. An optical scanning device will be used in processing the forms and storing the information on a computer tape.

In step 2, the data processing routines draw from the computer tape the information needed to develop lists of students with their names and identification numbers (social security or an assigned number) for the vocational courses in each school in Virginia. The lists are to be used in the third phase to check the status of each student.

The student lists, made from the computer tape, are mailed to the teachers in step 3. The teachers examine the lists and note the enrollment status of each student twice during the school year and at the end of the year. The teachers use termination forms to supply information about students who have terminated their courses. The termination form includes the name, identification number, reason for termination, and present status of the former student. This information is punched on data cards. The computer tape is updated by adding this information to the students' records. Thus, at the end

of the school year, the computer tape contains the names, addresses, characteristics, and statuses of all the students who were enrolled in each program.

Step 4 of VERS includes preparing a list of students who will participate in the follow-up study. Also the Vocational Education Reporting System will conduct the follow-up study. The follow-up study provides information about the job statuses of former students. Follow-up questionnaires are mailed directly to these students using addresses obtained from the computer tape. Participants complete the follow-up questionnaires and return them for analysis.

The computer tape is used to determine those students who terminate schooling between school years. That is, by comparing the information on the computer tape with that of the following year, it is possible to determine the students who fail to re-enroll the following year. These students also become eligible to be included in the follow-up study.

Step 5 is an analysis of the follow-up survey. The completed follow-up questionnaires are key punched on data cards and the necessary information compiled. Follow-up data, along with the other information on the computer tape, become available for further data analysis.

Planning Component

A major aspect of the macro-subsystem is the development of a planning system for vocational education programs in Virginia. Planning is an activity or a function of selecting appropriate policies, programs, and procedures to achieve the desired goals. The first step is the clear delineation of goals for the five vocational education areas, agricultural education, business education, distributive education,

home economics education, and trade and industrial education, in Virginia. Representatives from business, education, and government will be involved in the goal definition process. Once the goals are properly defined, a method will be developed to derive objective statements from the goal statements. An objective statement, containing quantitative information such as the number of students to be trained in a given year or projection for years to come in a vocational service, is a necessary part of the evaluation procedure. The quantitative information in the objective statements serves as a criterion measure to help assess actual program accomplishments, thus providing evaluative information for making plans for future programs.

Objective statements can be made for localities as well as for the state. Evaluative information obtained from the comparison of the objective statements and actual program accomplishments will aid the local decisionmakers in improving present programs and planning for future programs.

Two data gathering systems will be designed to gather, analyze, and disseminate information needed for evaluation and planning of vocational education programs. The Vocational Education Reporting System, VERS, discussed in a previous section, will be designed to collect information needed for evaluation as well as reporting.

The second system will be designed to gather basic data to determine needs. Procedures will be developed to extract appropriate data available from State government agencies for need determination purposes. Information, such as labor market data (e.g., number of projected job openings) and labor force data (e.g., number of persons who enter the labor market), disseminated to the decisionmakers in vocational education at the State

and local levels will assist them in determining State and local needs in vocational education.

The main constituent of a planning system is a planning model. A model is an aid in representing a system. In this project, a planning model is a descriptive tool in attempting to determine the ingredients necessary for planning. Types of planning being done in vocational education will be identified from planners at the State level. Information on planning systems that are available in the literature will be surveyed. From these, a suitable planning model for Virginia will be designed.

Variables and parameters of the planning model dictate types of information required for planning. The total package of collecting, analyzing, and using the data for planning purposes is commonly called a Management Information System. As indicated earlier, the final product will be a Vocational Education Management Information System for Virginia.

Hopefully, VEMIS-V will reduce the work required of teachers and supervisors in preparing annual reports about students, while increasing the reliability and validity of information. Theoretically, by supplying a planning model and adequate, reliable, and valid data, VEMIS-V will enhance the decisionmaking capabilities for better vocational education programs in Virginia.

MACRO-SUBSYSTEM--1975 AND BEYOND

The Vocational Education Management Information System for Virginia, VEMIS-V, will be developed and available for implementation in 1975. VEMIS-V will systematize collection of data needed for evaluation and

planning vocational education programs. The three major components of VEMIS-V are:

I. Goal and Objective Statements

Goal statements, developed in consultation with the Division of Vocational Education, State Department of Education, will be available for the five vocational services. Objective statements, derived from the goal statements, are a necessary part of the evaluation procedure. The objective statements, containing quantitative information, will be used to evaluate program accomplishments.

II. Information Gathering Systems

Information for evaluation and planning of vocational education programs will be gathered, analyzed, and disseminated through two data systems. The Vocational Education Reporting System will provide "accountability" or program accomplishment information. Appropriate data necessary to determine needs in vocational education will be made available through the second data system. The data from these systems provide the bases upon which decisionmakers at the State and local levels evaluate and plan vocational programs.

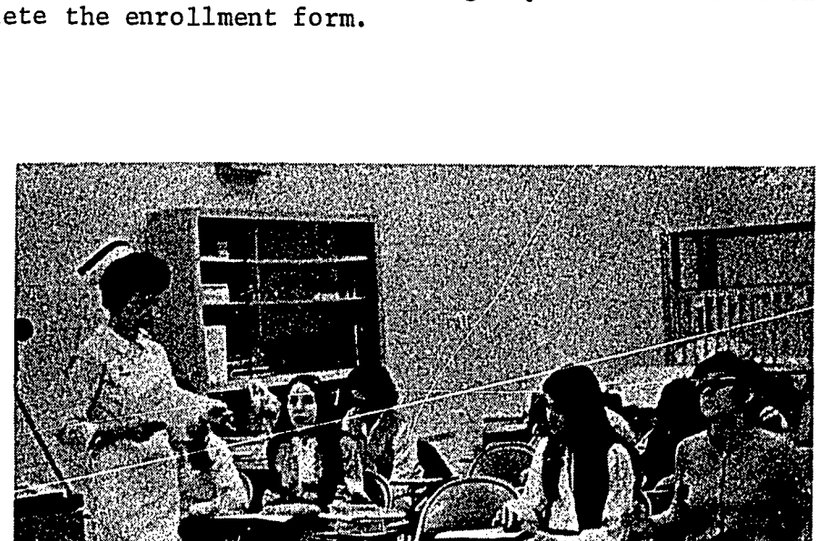
Supervision of such data systems will require highly qualified personnel. Responsibilities such as collection of data, storage of data on the computer, extraction and reduction of data, and dissemination of data to the decisionmakers will require professional educators supported by computer programmers and system analysts.

III. Planning Model

The information collected through the information systems will be integrated into a form which can be used in making decisions by means of a planning model. The planning model is a valuable tool used by decisionmakers to evaluate and plan vocational education programs.

VEMIS-V, when implemented, should not be considered as an end in itself. Rather it is the beginning of a management information system to continually evaluate, improve, and expand vocational education.

The project staff visited many of the vocational classes in the schools included in the pilot study. Richard Hill, test and measurement specialist, observes a group of students as they complete the enrollment form.



Teachers request and receive BOOST units that relate to the material they want to teach, and then select the objectives that they feel are most appropriate for their classes and situation.

MICRO-SUBSYSTEM

Program Effectiveness Component

The concern of this component is the measurement of student achievement and its relationship to future job success. To accomplish this goal, research will be conducted on attitudinal indices that will predict job success and the relationship between the attainment of teacher goals and employer satisfaction. The teacher goals are being formalized as behavioral objectives which will be used to develop a series of achievement tests for each of the vocational areas. A by-product of this work will be BOOST, Behavioral Objectives Organized in a System for Teachers.

Selected teachers from the five vocational service areas in Virginia are writing behavioral objectives. These objectives are being organized into units of approximately 2-4 weeks of class time each. Each unit has an outline of unit content, statement of goals, unit justification, general and specific objectives, a suggested table of specifications, and an end-of-unit test constructed from the specific objectives and the table of specifications. General distribution of these units to all vocational teachers of Virginia will not be feasible until 1975.

Once BOOST units are available to teachers, planning and evaluation in the classroom should be facilitated and upgraded in quality. The advantage of using behavioral objectives to form a blueprint for successful teaching has been widely documented; even now, many school districts require that teachers write them for their classes. With the BOOST units available, teachers will be spared this time-consuming task. Instead, they will receive the units that relate to the material they want to teach, and then select the objectives that they feel are most

appropriate for their class and situation.

Several test items are being written for each objective in the BOOST units. These will be set up in a computer item bank. Each of the items will be widely tested, both to assure quality and to provide norms by which teachers may compare the progress of their classes. Teachers will be able to request custom-made end-of-unit tests for their classes, based upon the objectives toward which they have taught. The end-of-unit tests will be composed from the items in the computer bank, and sufficient copies will be sent to the teachers to test their classes. These tests can be returned to the testing center after administration to be machine-scored, and then returned, along with norming information, to the teachers.

The bank of behavioral objectives will not only be used to develop end-of-unit tests, but a common core of the behavioral objectives will be used to develop vocational program achievement tests. These achievement tests, when used on a pre-test, post-test basis, will be a major step toward the goal of measuring program effectiveness.

Additional research will be conducted to investigate the relationship between teacher objectives, employer objectives, and employer satisfaction with former students of vocational programs. It is believed that the three are not congruent, and research is necessary to discover the relationship between them.

The teacher-stated objectives will be obtained from the lists of common objectives selected by the teachers working with the project. The employer-stated objectives will be obtained through interviews with employers. It is expected that the product that teachers are graduating from school will be very similar to the product that employers claim

they want to hire. A large discrepancy is expected, however, between the stated objectives of the employer and his operational goals. This will be investigated by obtaining ratings of workers from their employers and observing their on-the-job performance. From this data, it will be possible to report the relationship between what an employer says he wants and what he actually wants. The results of this work should help teachers reevaluate their teaching goals and assist them in achieving greater congruence with the expectations of area employers.

Process-Product Component

The concern of this component is the identification of both process variables and product outcomes, and the relationship between them. It is anticipated that the achievement tests generated by BOOST will, when used on a pre- and post-test basis, form one basis for determining product development. The identification of significant process variables, and their relationship to optimum product gains, should follow from the administration of these tests in a wide variety of program types. Job success is another measure of product development and can be determined in large part by conducting extensive follow-up studies of former students and their employers.

Cost-Effectiveness Component

This component will supply information on the effectiveness of a program as weighed against the resources expended for it. A major problem to be faced here is the determination of a viable cost-effectiveness index. Putting a dollar and cents label on the value to society of a training program is an issue which has been long ignored

in education. It is intended that a fair basis for this determination be an outgrowth of this component. Once this has been done, the combination of this work with that of the other two components in the micro-subsystem will give local educational administrators a fair basis for evaluating the quality of the students in their local school district.

MICRO-SUBSYSTEM--1975 AND BEYOND

Although the Vocational Education Evaluation Project (VEEP) is due for completion in 1975, several of its envisioned activities may be continued for as long as they meet the evaluation needs of the State. The following paragraphs are a presentation of many of the products of the micro-subsystem.

Program Effectiveness Component

The program effectiveness component, which is charged with the development of achievement tests, will have a wide variety of testing products available by 1975. These tests will not all be constructed, but will exist as an objective and item bank, stored in a computer.

It is anticipated that vocational education teachers from around the State will have written, and project staff will have revised, approximately 15,000 objectives and 50,000 test items by 1975. There will usually be three items written for each objective. In addition to writing these objectives, teams of teachers in each vocational area will select the objectives that they have in common. These selected objectives, comprising not more than 2 or 3 percent of the total, will be used to construct the achievement tests for the process-product and the cost-effectiveness components. The selected objectives will have

several items written for each one, and the tests will be randomly constructed by the computer.

Since it is important to field test and obtain norming information, the objectives are being written and organized into BOOST units (Behavioral Objectives Organized in a System for Teachers). This way teachers will be able to make use of them in their everyday teaching.

The final BOOST system will work as follows:

1. When a teacher is preparing to teach some topic, he will review the list of BOOST units, and select those with titles and descriptions that relate to his intended topic. He will write to a central agency for copies of the selected units and then receive the requested units, each having the following components:
    a. an outline of the content to be covered.
    b. a recommendation of the type of student to whom the unit should be taught.
    c. a table of specifications, which recommends the amount of class time to be spent on each part of the unit.
    d. a goals statement, outlining the expected accomplishments by the end of the unit.
    e. a complete list of general and specific objectives.
2. The teacher will review the materials and either teach it as it stands, or revise the material, combining two or more units to meet his requirements.

3. The teacher will request a test to measure the degree to which the material was learned by the end of the unit. If the standard unit has been followed, a standard test is requested, and the computer will randomly generate one from the test item bank, referring to the list of objectives for the unit and the table of specifications. However, if the unit has been revised, the teacher will list the objectives taught, prepare a new table of specifications which reflects the change in emphasis, and will receive a test custom made to the new specifications. Since the tests will be generated by the computer, they can be automatically printed in any quantity the teacher desires.
4. After administering the test, the teacher will return the answer sheets to the central agency, where they will be graded and an item analysis performed. The results will then be returned to the teacher. Also, the results will be used to update the item analysis and norming information in the computer item bank.

This system will facilitate the work the teacher must do in planning and evaluating. The system will also provide a continuous stream of information for use by the personnel at the central agency to evaluate the objectives and items.

It is clear that the central agency will be a large operation. It is envisioned that a staff of two or three measurement professionals, four graduate students, two general secretaries, a testing secretary and a computer specialist would be needed to accomplish the following activities:

1. running the system described above; i.e., receiving requests, printing and mailing out units, constructing, mailing and scoring tests.
2. training teachers in the use of the system.
3. continually revising units.
4. writing new units as new subject areas are developed.
5. constructing objective tests to be used in process-product and cost-effectiveness investigations.
6. disseminating test norms and coordinating testing programs with other States.

Efforts will be made to exchange materials with other States. The emphasis will be on securing individualized units of instruction to accompany the objectives.

Another area of research investigated by the program effectiveness component is the relationship between teacher-stated objectives, employer-stated objectives, and employer-operational objectives. The process-product component will use this data in its continual evaluation of student progress.

Process-Product Component

The process-product component will establish a system through which different methods of teaching can be compared. This information will allow administrators to select the best method to achieve their goals and to guide teachers toward more effective communication with their pupils.

An operational definition of the quality of the product that the schools are providing will be developed. This definition will be in terms of employer satisfaction, but there will be many checks along the way to facilitate change within the system.

As mentioned above, a series of standardized achievement tests written by the program effectiveness component will be used to get an initial reading on the quality of the students. These test results, when combined with the results of the employer objectives study, allow for prediction of job success, as well as employer re-education in areas where there is an especially great discrepancy between the stated and operational goals of the employers.

Once the evaluation system is complete, tests can routinely be constructed and administered on a statewide scale. These tests can be used to judge the effectiveness of local program goals and the goals of comparable school districts, predict the likelihood of employer satisfaction with the graduates in general, and predict the likelihood of job success of each graduate with categories of employers in the local area. This information will help teachers to evaluate their own teaching methods, as well as assisting them in placing students in jobs in which they are most likely to succeed.

Cost-Effectiveness Component

The purpose of the cost-effectiveness component is similar to the process-product component: to establish a system which will routinely bring in data to the local area which can be used to facilitate decisions about educational practice. Rather than looking at the quality of the products graduating from school, however, this component is concerned with how much it costs to develop the product.

A viable cost-effectiveness index will be developed by this component. This index, coupled with the results of the product-process component and survey results on the return in salary to the school graduates, will permit administrators to evaluate their programs on a monetary basis.

TIME SCHEDULE

1971-1975

General Activities Each Year

Conduct National Advisory Committee meetings.

Conduct planning meetings with officials in the State Department of Education.

Appear on program for vocational teacher's conferences and other meetings to discuss progress and plans of the project.

Evaluate the effectiveness of the project and prepare an annual progress report.

Activities for the Macro-subsystem

1. Reporting

1971-1972:	Design instruments for the Vocational Education Reporting System (VERS).
	Develop data processing system.
	Select a group of schools and conduct a pilot study on the implementation of VERS.
	Revise VERS as needed and develop plans for implementation on a statewide basis.
	Meet with groups of teachers to explain VERS.
1973:	Implement the Vocational Education Reporting System statewide in Virginia.
	Tabulate, analyze, and disseminate information from VERS.
	Evaluate VERS and revise as needed.
1974-1975:	Continue to evaluate VERS and expand the system to include additional information.

2. Planning

1972:	Survey literature on educational planning systems, identify the types of planning needed, and begin development of planning models.

1974-1975: Collect information needed for planning, analyze it, and distribute the results. Evaluate planning models and procedures: modify, improve, and expand as needed.

Activities for the Micro-subsystem

1. Evaluation of Instructional Programs

1971: Select teachers to participate in workshop on preparing behavioral objectives and conduct a two-week workshop.

1972: Visit teachers enrolled in 1971 workshop and assist them in developing a second unit of instruction.

Begin development of a test publication and scoring system for use by teachers participating in the project.

Select additional teachers to participate in the second workshop on preparing behavioral objectives and conduct the workshop.

1973: Visit teachers enrolled in the 1972 workshop and assist them in developing a second unit of instruction.

Work with teachers to select a common set of objectives for various options within programs and prepare tests that can be administered on a pre- and post-test basis to determine the success of programs in achieving the objectives.

Select additional teachers to participate in the third workshop on preparing behavioral objectives and conduct the workshop.

1974: Visit teachers enrolled in 1973 workshop and assist them in developing a second unit of instruction.

Administer and score pre-tests in a group of selected schools.

Select additional teachers to participate in fourth workshop on preparing behavioral objectives and conduct the workshop.

Administer post-tests in the group of schools and compute gain scores.

1975: Visit teachers enrolled in 1974 workshop and assist them in developing a second unit of instruction.

Expand the number of achievement tests to be administered on a pre- and post-test basis.

Publish the units of instruction prepared by participating teachers.

Develop plans for releasing units of instruction and tests to all vocational teachers in the State.

2. Evaluation of Process and Product

1972: Begin study to identify process and product variables.

1973: Identify process and product variables.

Design instruments to collect data.

Design statistical analysis procedures.

1974-1975: Collect data on process and product variables, analyze the data, and disseminate the results.

Evaluate procedures and revise as needed.

3. Evaluation of Cost and Effectiveness

1972: Review literature and begin development of cost-effectiveness model.

1973: Develop cost-effectiveness model.

Collect data, calculate cost-effectiveness index, and disseminate the results.

1974-1975: Evaluate cost-effectiveness model, revise and expand as needed. Continue cost-effectiveness studies.

PERSONNEL

Professional Staff

Each of the four project staff members hold the rank of assistant professor in the Division of Vocational Technical Education, College of Education, Virginia Polytechnic Institute and State University.

Project Director

J. DALE OLIVER, Ph.D., Virginia Polytechnic Institute and State University, previously held a position as a teacher educator in agricultural education at Virginia Polytechnic Institute and State University.

Administrative Specialist

DONALD E. ELSON, Ph.D., Michigan State University, has 12 years of teaching experience in secondary and post-secondary vocational-technical education in Kansas and Michigan. He has also held positions in the Kansas Research Coordinating Unit.

System Analyst

PATHE S. VIVEKANANTHAN, Ph.D., North Carolina State University, has previously held positions at the Center for Occupational Education at North Carolina State University and at Bell Telephone Laboratories.

Test and Measurement Specialist

RICHARD K. HILL, JR. Ph.D., Syracuse University, has held positions at the Eastern Regional Institute for Education, Syracuse, New York.

Graduate Research Assistants

These will be selected on the basis of previous experience in vocational education and a capability and interest in developing competency in evaluation of vocational education. They will assist with such activities as conducting seminars and workshops, preparing forms, preparing testing instruments, processing and handling information, and other activities selected by the director.

National Advisory Committee

Nationally recognized individuals have been selected on the basis of their qualifications, interests in the project, and the potential contribution which they can make in providing direction to the project.

Ad Hoc Advisory Groups

Members of the State Supervisory Staff in the Divisions of Vocational Education and Educational Research and Statistics, State Department of Education, will serve in an advisory role to the project staff. This group will assist in securing the cooperation of educational and other agencies involved, in preparing evaluation instruments, in analyzing the data, and in determining how well the proposed evaluation is meeting the project objectives.

A second group available to serve in an advisory capacity is the faculty of the College of Education at Virginia Polytechnic Institute and State University. Faculty members from the five vocational services in the Vocational-Technical division as well as in the other divisions of the College will be consulted concerning various aspects of the project.

Vocational Teachers

Teachers from each of the five vocational services will be invited to participate in the project. They will be responsible for the selection of appropriate behavioral objectives and the development of these objectives into organized units of instruction.

BIBLIOGRAPHY OF SELECTED LITERATURE

Alkin, Marvin C. The Use of Behavioral Objectives in Evaluation: Relevant or Irrelevant? A paper presented to the Annual Western Regional Conference on Testing Problems, San Francisco, California, May 9, 1969. Los Angeles: Center for the Study of Evaluation, University of California, 1969.

_____, and Woolley, Dale C. A Model for Educational Evaluation. A paper presented at the PLEDGE Conference, San Dimas, California, October 8-11, 1969. Los Angeles: Center for the Study of Evaluation, University of California, 1969.

Byram, Harold and Robertson, Marvin. "A Manual for Administrators, Teachers, and Citizens." Third edition. East Lansing: College of Education; Michigan State University, March 1970.

Conroy, William G., Jr., ed. A Guide to Evaluation: Massachusetts Information Feedback System for Vocational Education. Woburn, Massachusetts: The Massachusetts Vocational Education Research Coordinating Unit, Division of Research and Development, Department of Education, 1969.

Coster, John and Ihnen, Loren A. "Program Evaluation." Review of Educational Research, 38: 429-430, October 1968.

Kaufman, Jacob J. Cost-Effectiveness Analysis as a Method for the Evaluation of Vocational and Technical Education. A paper presented at the annual meeting of the American Vocational Association, Dallas, Texas, December 10, 1968. Washington, D.C.: U. S. Office of Education, 1968a.

_____. A Cost-Effectiveness Study of Vocational Education: A Comparison of Vocational and Nonvocational Education in Secondary Schools. University Park, Pennsylvania: Institute for Research on Human Resources, The Pennsylvania State University, October, 1968b.

Krathwohl, David R. "Stating Objectives Appropriately for Program, for Curriculum, and for Instructional Materials Development." The Journal of Teacher Education, XVI, Number 1 (March, 1965).

Lee, Arthur. "Will 50 Years of Federal Support for Vocational Education End?" President's Report to the Membership of AVERA. March 1, 1971, p. 6.

Miller, Donald R. A System Approach for Solving Educational Problems. California: Operation PEP, 1967.

National Advisory Council on Vocational Education. Annual Report. July 15, 1969. Washington, D. C. Office of Education, U. S. Department of Health, Education, and Welfare, 1969.

Norton, Robert E. "Guides to Improving Vocational Education Evaluation." Fayetteville: College of Education, University of Arkansas, December 1970.

Starr, Harold, and Others. A System for State Evaluation of Vocational Education. Research Series No. 58. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1970.

Stufflebeam, Daniel L. The Use and Abuse of Evaluation in Title III. Columbus, Ohio: Evaluation Center, College of Education, The Ohio State University, 1967.

Sutherland, Sid S. "Objectives and Evaluation in Vocational Agriculture." Evaluation and Program Planning in Agricultural Education, The Ohio State University, 1966.

Warmbrod, J. Robert. Review and Synthesis of Research on the Economics of Vocational Education. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1968.