

DOCUMENT RESUME

ED 099 687

CE 003 449

**AUTHOR** Miller, Robert; Miller, LaRue W.  
**TITLE** Impact of Vocational Education Research at the Federal and State Levels. Project Baseline Supplemental Report.  
**INSTITUTION** Northern Arizona Univ., Flagstaff.  
**PUB DATE** 25 Oct 74  
**NOTE** 140p.; For related Project Baseline documents, see CE 003 446-455 and ED 095 309 and 310

**EDRS PRICE** MF-\$0.75 HC-\$6.60 PLUS POSTAGE  
**DESCRIPTORS** Cost Effectiveness; Developmental Programs; Educational Assessment; \*Educational Development; \*Educational Finance; Educational Legislation; \*Educational Research; Expenditures; Federal Legislation; Manpower Development; National Programs; \*Program Evaluation; State Programs; Tables (Data); \*Vocational Education  
**IDENTIFIERS** \*Project Baseline

**ABSTRACT**

The report describes the impact on the nation of a nine-year effort in research and development in vocational-technical education. Major impact projects are described: (1) developing and restructuring vocational curriculum, (2) developing prevocational curricula, (3) vocational information and guidance systems, (4) management information systems, (5) development of career education, and (6) statewide commitment. Distribution of Federal funds to the States under the Vocational Education Amendments of 1968 are tabulated, collected information described, and the impact evaluated to provide an interpretation of the overall nine-year effort. Future needs are discussed and suggestions offered. It is concluded that research and development funding has begun to make significant inroads into vital areas of knowledge in vocational education and manpower needs. A 66-page appendix provides: (1) tabulation of research and development funds by State, (2) expenditure profiles, and (3) current status and summary analysis from the U. S. Office of Education Curriculum Branch. (MW)

ED 099687

IMPACT OF VOCATIONAL EDUCATION RESEARCH  
AT THE FEDERAL AND STATE LEVELS

Project Baseline Supplemental Report

Prepared by

Robert Miller, Ed.D.  
Associate Professor of Industrial Education  
Northern Arizona University

LaRue W. Miller, M.A.  
Research Associate, Project Baseline  
Northern Arizona University  
Flagstaff, Arizona

U.S. DEPARTMENT OF HEALTH  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-  
DUCED EXACTLY AS RECEIVED FROM  
THE PERSON OR ORGANIZATION ORIGIN-  
ATING IT. POINTS OF VIEW OR OPINIONS  
STATED DO NOT NECESSARILY REPRESENT  
OFFICIAL NATIONAL INSTITUTE OF  
EDUCATION POSITION OR POLICY.

For

Project Baseline  
Northern Arizona University  
Flagstaff, Arizona  
October 25, 1974

CF 003 449

2/3

The points of view and opinions stated herein are those of the authors and do not necessarily represent the views and opinions of Project Baseline or Northern Arizona University.

## ABSTRACT

In 1965 the first funding for research and development in Vocational and Technical Education was provided under the Vocational Education Act of 1963 (VEA). Since that time nearly \$250 million has been spent in an effort to implement research projects, exemplary projects, and curriculum development in order to meet the expanding role of formal Vocational Education.

This report has made a first effort to present information that will demonstrate the impact on the Nation of this nine-year effort. Outstanding programs have been described. Some of these have grown from small projects into a fund of knowledge that has altered the structure of Vocational Education in many States. Some have affected not only our States but many foreign Nations as well. Information systems have been instituted, some providing analysis for State planners and some intended for use by students and teachers. Behavioral objectives and ways of measuring their achievement have been written for training programs in nearly two hundred job categories. Nationwide networks for curriculum coordination and for cooperative planning and sharing have been instituted. A higher level of community involvement has begun to appear.

In order to present an overall picture of the target areas affected by the VEA funding, a taxonomy of intended impact has been suggested. The State-administered projects under Parts C and D have been categorized and the resulting patterns analyzed. The majority of the funding has been directed into instructional implementation, with a strong emphasis on career development, particularly at the secondary and post-secondary levels.

The report has been summarized with a descriptive interpretation of the overall nine-year effort. In addition, several suggestions have been made based on overall integration of the information studied and analyzed in compiling the report. Additional emphasis on the cooperation between education and manpower, and the resulting effects on the very successful methodology of cooperative education should be encouraged. More work needs to be done in the area of training programs for young people who are out of school and facing socio-economic hardships due to unemployment.

The primary conclusion of this paper is that the research and development funding has begun to make significant inroads into vital areas of knowledge both about Vocational Education and about manpower needs. It will be of great importance to have these efforts continued and expanded.

**TABLE OF CONTENTS**

	<b>Page</b>
<b>ABSTRACT . . . . .</b>	<b>1</b>
<b>CHAPTER I: MAJOR IMPACT PROJECTS. . . . .</b>	<b>1</b>
Introduction. . . . .	1
Developing and Restructuring Vocational Curriculum . . . . .	2
Developing Pre-Vocational Curricula . . . . .	3
Vocational Information and Guidance Systems . . . . .	8
Management Information Systems. . . . .	10
The Development of Career Education . . . . .	12
Total Family Career Development . . . . .	15
Statewide Commitment - A Result and a Beginning . . . . .	15
Tracing Growth, an Example. . . . .	17
Summary . . . . .	18
<b>CHAPTER II: NATURE OF IMPACT. . . . .</b>	<b>24</b>
Introduction. . . . .	24
The Impact: Description of Information Collected . . . . .	24
Part G: Description of Information Collected . . . . .	25
Part C: Nature of Impact . . . . .	33
Part D: Description of Information Collected . . . . .	40
Part D: Nature of Impact . . . . .	40
Part I: Description of Information Collected . . . . .	46
Part I: Nature of Impact . . . . .	48
Summary . . . . .	52
<b>CHAPTER III: CONCLUSIONS AND SUGGESTIONS. . . . .</b>	<b>54</b>
Introduction. . . . .	54
How Impact Works. . . . .	54
Appropriate Use of Funds. . . . .	57
Suggestions . . . . .	59
<b>APPENDIX . . . . .</b>	<b>60</b>
A. Tabulation of Research and Development Funds by State . . . . .	61
B. Part C Expenditures Profile . . . . .	78
C. Part D Expenditures Profile . . . . .	97
D. Part I Current Status and Summary Analysis from USOE Curriculum Branch . . . . .	113
<b>BIBLIOGRAPHY . . . . .</b>	<b>126</b>
<b>BIOGRAPHICAL SKETCH OF THE AUTHORS . . . . .</b>	<b>132</b>

## FIGURES AND TABLES

	Page
Figure 1. Growth of School Usage of TERC Program Materials for Electromechanical, Biomedical Equipment, Nuclear Medicine, and Laser and Electro-Optical Technologies . . . . .	4
Figure 2. Annual Expenditures by Fiscal Year for Projects and Programs in Biomedical Equipment Technology (BMET), Nuclear Medicine Technology (NMT), Laser and Electro-Optical Technology (LEOT), and Electro-Mechanical Technology (EMT) . . . . .	5
Figure 3. Growth of the World of Construction-World of Manufacturing Series. . . . .	7
Figure 4. Growth of VIEW Projects, 1965 - 1974 . . . . .	9
Figure 5. Representation of Categories for Classification of Industrial Impact of State-Administered Part C funds, VEA. . . . .	34
Figure 6. Matrix Classification of Programs Related to the Impact of Funds Spent Under Part C, State-Administered Research and Development Projects, VEA, as Amended in 1968 . . . . .	35
Figure 7. A Plot of the Percent of Total State-Administered Portion of Part C, VEA, Funds Expended Versus Fiscal Year at: (A) The System Level, and (B) The Scope Level. . . . .	37
Figure 8. A Plot of the Percent of Total State-Administered Portion of Part C, VEA, Funds Expended Versus Fiscal Year at the Problem Level. . . . .	38
Figure 9. A Plot of the Percent of Total State-Administered Portion of Part C, VEA Funds Expended by Problem Level Versus System Level over Total Governmental Scope for each of the Three Fiscal Years 1971-1973 . . . . .	39
Figure 10. Representation of Categories for Classification of Intended Impact of State-Administered Part D funds, VEA. . . . .	41
Figure 11. Matrix Classification of Programs Related to the Impact of Funds Spent Under Part D, State-Administered Exemplary Projects, VEA, as Amended in 1968. . . . .	42
Figure 12. A Plot of the Percent of Total State-Administered Portion of Part D, VEA, Funds Expended Versus Fiscal Year at the System Level . . . . .	44



	Page
Figure 13. A Plot of the Percent of Total State-Administered Portion of Part D, VEA, Funds Expended Versus Fiscal Year at the Program Level. . . . .	45
Figure 14. Numbers of Projects from the 1974 RCU Conference "The Score After Nine" In each Category, Classified According to the Part D Method . . . . .	47
Figure 15. Summary of the March 1974 Report of the United States Office of Education Curriculum Development Branch. . .	49
Figure 16. Representation of Categories Used for Classification of Intended Impact for all of Part I Funds, VEA, Curriculum Development . . . . .	51
Table 1. Sampling of Projects Funded under VEA, Parts C, D, and I. . . . .	19-23
Table 2. Numerical Data Collected by Interviews with Project Directors for Selected Projects, Funded under VEA of 1963 Section 4(c) and Amendments of 1968, Parts C, D, and I. . . . .	26-32



## Chapter I

### Major Impact Projects

#### Introduction

Vocational educators can trace their historical roots back to Fellenberg and Pestalozzi. For a long period the majority of the educational system remained unmindful of their work. The Smith-Hughes Act began to alter the national aloofness toward formal education for the nonprofessional occupations, but even with the funds granted under the 1917 Smith-Hughes Act and the George Barden Act in 1946 little heed was given to one of the most important elements in the continued revitalization of Vocational Education. It was only with the complete restructuring of the Vocational Education legislation occurring in 1963 that any noticeable attention was given to the organization of a research and development component for Vocational Education. Now, some eleven years later, the continued research and development effort appears to have been indispensable to the development of the current Vocational Education system. The Research Coordinating Units (RCUs) established by the 1963 Act have developed into an educational catalyst causing major changes within Vocational Education and reaching deeply into the very roots of the entire educational system.

This chapter has been written with the intent to share with the reader the extent and significance of the impact of the research and development portions of the Vocational Education Act of 1963 (VEA) and the Vocational Education Amendments of 1968 by describing the historical development of some of the projects that have emerged as having a considerable influence on the educational system when compared to the little money invested by the Federal government in their initial formation. Since 1965, when funds requested under the VEA began to be available, the Federal government has allocated less than 250 million dollars for research and development for Vocational Education. This nine-year total amounts to approximately three percent of the amount spent by the Federal government last year alone for food stamps and public assistance. If, each year, Congress were to obligate to the States for vocational research and development only one percent of the funds spent for food stamps and public assistance, the funding for research and development would be tripled.

The writers of this report did not intend to present a complete exposition of all the major projects occurring around the United States as a result of Federal research grants. It would not be possible within any reasonable time and cost allowance. Thus if projects the reader considers essential and widespread have been omitted this does not mean they are of less worth than the ones described.

Several distinct lines of research and development can be seen now as having influenced changes in both Vocational Education and the total educational scene whose significance may equal or even exceed those documented as a result of major Federal efforts where billions have been spent. The quest for accountability, an emotion-charged and controversial



subject in any group of educators, has led to research in several directions. Management information systems to enable speedy retrieval of specific kinds of information by means of computerized data banks have been developed in many States. Behavioral and performance objectives and ways of measuring their achievement are other essential areas of advancement being pursued both by single States and by groups of States.

Nationwide networks for curriculum development and research coordination are attempting to provide means of sharing an information access from one group to another. The research and development programs funded under VEA, Part C have begun to show the way toward an educational system able to provide for all the children the kind of background they need to choose their life goals in keeping with their own interests and abilities and relevant to the opportunities available where they wish to live. The exemplary programs funded under Part D are beginning to demonstrate an increase in percentage of students choosing to complete school, attaining employable skills, and going on to further education. They are also beginning to show a higher level of community involvement.

#### Developing and Restructuring Vocational Curricula

For the first several years after the passage of the Vocational Education Act of 1963, many workshops, meetings, and surveys were conducted on a nationwide scale. Two examples of the results of early nationwide surveys may be seen in the Aviation Mechanics Project and Technical Education Research Centers (TERC).

Based on the findings of the survey of aviation mechanics programs throughout the U.S., the FAA altered the licensing requirements. With the impetus given by this change on the part of the FAA, and using the results of the survey, some decisions were made about ways to improve instruction and directions to be taken in developing the new curriculum. After a year of working to completely revise the curriculum and methodology the results were ready for use by the schools.

A followup survey in 1970 showed 150 schools certified by the FAA teaching the new program, with nearly 16,000 graduates. The program was also being used by eighteen other countries: Norway, South Korea, Thailand, Sweden, Chile, Laos, Japan, Israel, Saudi Arabia, Ethiopia, Britain, France, Italy, Trinidad, Canada, Russia, Australia, New Zealand and Switzerland.

The nationwide survey, also in 1965, which was done for the area of Biomedical Equipment Technology (BMET) was responsible not only for a program to train people to use the new biomedical equipment but also for the establishment of an entire new organization, Technical Education Research Centers (TERC). The original survey indicated a need for 1,000 employees at that time, and an increasing need for the future with no source of trained personnel other than the military. In the years since that first survey TERC has developed new programs in Nuclear Medicine Technology (NMT), Electro-Mechanical Technology (EMT) and Laser and Electro-Optical Technology (LEOT). It has grown into an organization able to provide technical assistance and advice to States

throughout the Nation who wish to contract for services ranging from consultation to complete program development. Figure 1 shows the growth and spread of four major TERC programs from the original project headquarters in Massachusetts to programs in thirty-five States at the present time. The map format should also be credited to TERC. Figure 2 shows the proportion of funds for the four technologies provided by Federal sources compared to those provided by State and local sources.

Fiscal year 1975 was not included in Figure 2 because the graph was not long enough to show the projected State and local funding for the four projects combined. It should be noted that no Federal funds were to be expended--the local areas will have taken over the entire responsibility for operating the programs.

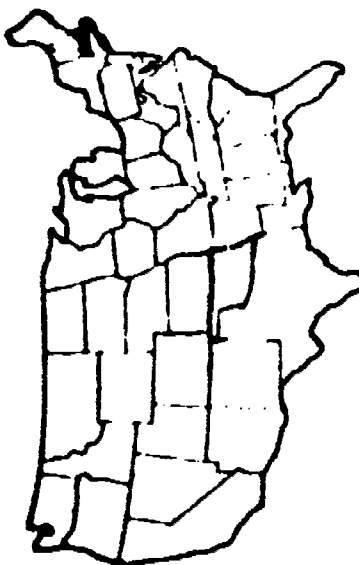
### Developing Pre-Vocational Curricula

Whatever State a person may visit, there are educators in the school systems who know of and use the texts in the "World of Construction-World of Manufacturing" series to acquaint children of middle school age with the adult world of work. They are being used this year by over 420,000 children in every State in the union, in three provinces of Canada, and in the American Dependent Schools in Germany, Italy and France.

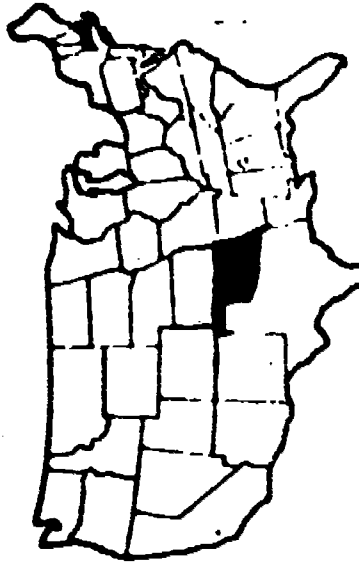
Some of the ideas behind this method of presenting world of work concepts to young people had been used by individual teachers in various places, and occasionally a teacher or administrator would write up and present a particular program in a professional journal or to an organization but the materials necessary to make these concepts transportable and available to the schools on a widespread basis were not on the market. Therefore, only the children who happened to be in an industrial arts classroom taught by a teacher who was especially interested in all of the steps involved in the total process of construction or manufacturing or who may have had some experiences he considered outstanding and wished to share, were fortunate enough to be exposed to these concepts.

Then in 1965, when it became known that the Vocational Education Act of 1963 included a provision for funding for research and development of curriculum in industrial arts for secondary students, a group of educators at Ohio State University and the University of Illinois joined together to plan a series. This series would provide not only the information about a program, but also the instructional materials for the teachers and students. The materials would enable teachers to conduct a program for a whole school year without originating major segments of curriculum. Without the Federal funding it would not have been possible to plan a project on a major scale such as they envisioned.

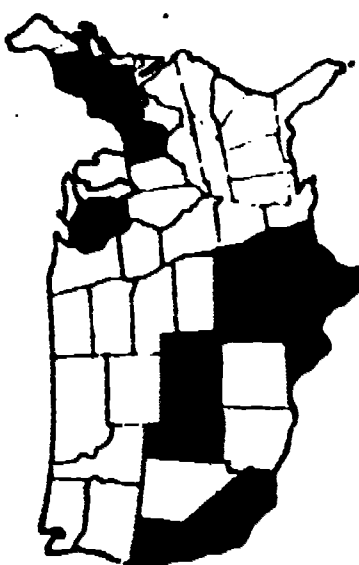
The first eighteen months were required to develop a rationale for and a structure of industrial arts subject matter. Once the philosophy was devised and the framework of the series had been written, the next step was to plan a system for developing, field testing, disseminating and evaluating a comprehensive curriculum package. The project directors searched for, but could not find, a comparable curriculum evaluation effort to serve as a model, so the evaluation had to be developed from



TERC originated in 1965, first project to survey hospitals and other medical facilities nationwide; based in Massachusetts.



First school use of TERC electromechanical technology program materials, 1968, one school involved, in Oklahoma.



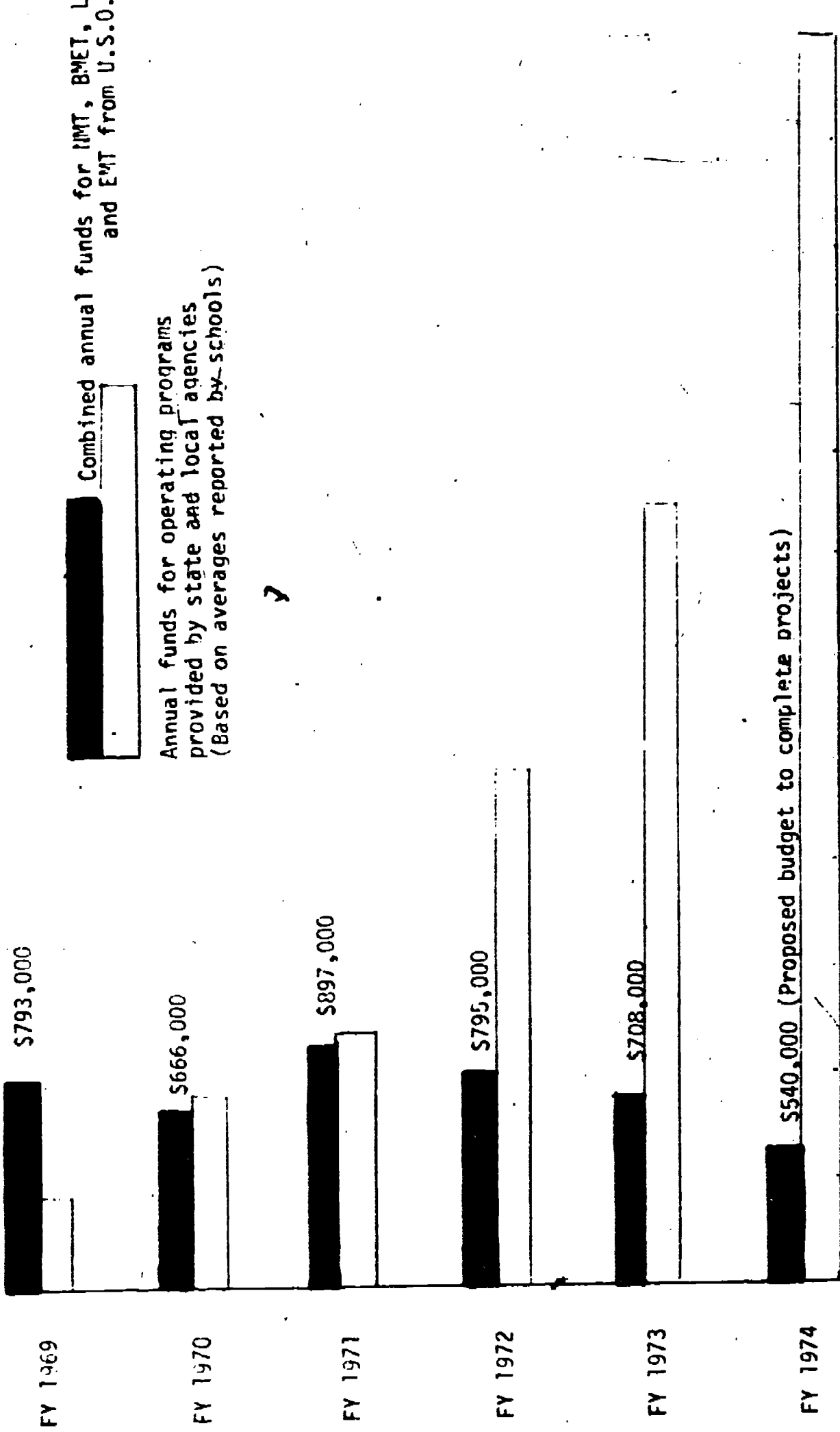
By 1970, program materials were available in one or more of the areas of electromechanical technology, biomedical equipment technology, and nuclear medicine technology in schools in 11 states. EMT: 3 schools; NMT: 3 schools; BMET: 8 schools.



In 1973, many of the States had programs in all three areas, some were developing program materials for a fourth, laser and electro-optical technology. Schools in thirty-five States had at least one of the four programs. EMT: 70 schools; NMT: 16 schools; BMET: 28 schools.

Figure 1. Growth of School Usage of TERC Program Materials for Electromechanical, Biomedical Equipment, Nuclear Medicine, and Laser and Electro-Optical Technologies.

Source: January 1974 draft of Technical Education Research Center brochures.



c Amounts in Thousands

Figure 2. Annual Expenditures by Fiscal Year for Projects and Programs in Biomedical Equipment Technology (BMET), Nuclear Medicine Technology (NMT), Laser and Electro-Optical Technology (LEOT) and Electro-Mechanical Technology (EMT)

Source: January 1974 draft of Technical Education Research Center brochures.

scratch. The next four years were spent writing texts for a two-year instructional package and field testing the materials. Six schools were used as test sites, in the states of Ohio, Florida, New Jersey, Illinois, Texas and California (Figure 3). During the trial years of 1967-1970 the materials were presented to about 20,000 students. With the completion of field testing, acceptance of the series was rapid and widespread.

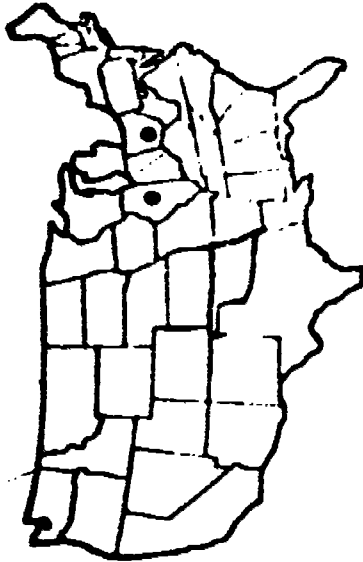
Over two million dollars in a period of six years might seem a major sum, but the result has been the development of a complete package which is now being produced by a publishing firm and made available for order by any school system. Royalties are being paid to the U.S. Treasury, the sponsoring institutions, and the authors. The package provides all the information necessary for the teacher to present the entire year's program, as well as help in devising any additions the teacher or administrator may wish to include to suit the particular needs of the community. In addition to the textbooks, laboratory manuals, and teacher's guide, the set includes for each day's work a list of course objectives and behavioral objectives, achievement tests for the course, time schedules, presentations, demonstrations, discussion questions, procedures for laboratory management and safety precautions. It also provides lists of equipment, tools, expendable materials, special materials and visual aids and devices.

At about the same time as the group in Ohio and Illinois were starting their project on the World of Construction-World of Manufacturing series, a group in New Jersey found, to their frustration, that the provisions of the Vocational Education Act of 1963 did not allow for curriculum development in the industrial arts area for children in the K-6 level. They felt that in order to provide experiences for the children that would enable them to be successful both in school and in life some changes in the elementary curriculum had to be made to reflect today's technological society. Working on a set of basic assumptions about children's needs, a curriculum called Technology for Children (T4C) was developed. T4C was intended to help children learn about themselves, gain a growing mastery of the learning situation, participate in personally rewarding hands-on activities which would help them develop a better understanding of technology and the world of work, and gain the basic educational skills at a more meaningful level.

The Division of Vocational Education made some State funds available, and these, combined with a grant from the Ford foundation, were used to develop both the curriculum and the auxiliary materials required for the teachers to be able to direct technological activities within the classroom. They did not wish to saddle the teachers with an additional subject to be squeezed into the already crowded day, but rather to enable the teachers to enhance the regular subjects and make the learning experience more effective.

The first year, twenty-one teachers used Technology for Children (T4C) concepts in classrooms. When the VEA amendments of 1968 allowed funding for curriculum development in industrial arts for elementary children, New Jersey was able to establish Technology for Children projects in many more of its school systems. It has developed into an integral part of the total elementary education effort. Within the State of New Jersey almost forty-three percent of the school districts have T4C available with 50,000

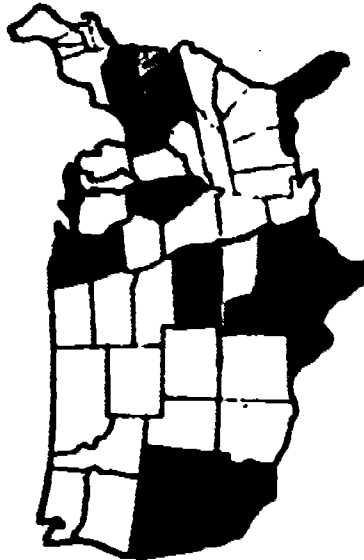




1965-66 Philosophy developed and framework written by personnel from Ohio State Univ. and Univ. of Illinois



1967-70 Field tested in California, Florida Illinois, New Jersey, Ohio and Texas.



1971 Demonstration centers added in Illinois, Kansas, Michigan, Minnesota, Nevada, New Jersey, Ohio, Pennsylvania, Virginia and West Virginia



1974 Used by all fifty States, three Canadian Provinces, and the American Dependent Schools in Germany, France and Italy

Figure 3. Growth of the World of Construction-World of Manufacturing Series

Source: Industrial Arts Curriculum Project Final Report, ERIC file; The Journal of Industrial Arts Education, November-December, 1969, "The Industrial Arts Curriculum Project."; data as supplied by telephone interviews with project directors.

children in directly funded T4C classrooms. The New Jersey Department of Education predicts that by 1980 every elementary student in the State will be involved in the program. Since the teachers directly funded for T4C provide information and supplies to other teachers in their buildings, it has been estimated that as many as 750,000 children may now be having T4C experiences in their classrooms. Several other States have had workshops to acquaint teachers with T4C concepts, and New York has recently begun a federally funded T4C program of its own.

One of the vital factors in the success of Technology for Children has been the organized commitment of the educational system. A program is not initiated in a school unless the teachers and the administrators are willing to work cooperatively and to allow flexibility within the curriculum to accommodate the new concepts and methods. In addition, the community at large must be willing to support and assist the school system by providing special services and recommendations. The State department assures itself of sufficient local commitment by demanding that the local district have available matching funds in at least the amount requested from the State and agree to use those funds for Technology for Children programs whether or not the State can provide the amount requested - or any assistance at all.

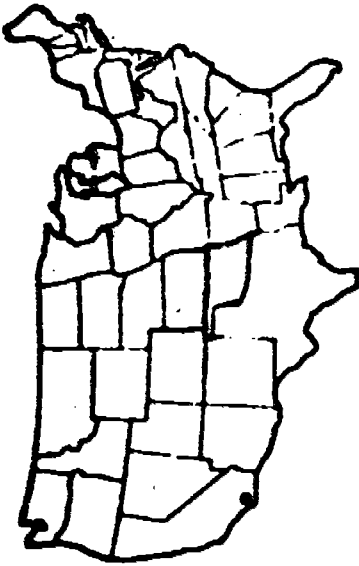
#### Vocational Information and Guidance Systems

Lack of information about the job market prompted other types of analyses and surveys in addition to the ones done by TERC and the Aviation Mechanics project. In San Diego, an information system called Vital Information for Education and Work (VIEW) was compiled to tell students about the kinds of courses offered that are compatible with their career choices and abilities and about the jobs available in the local and near-by areas. The information was much more than just a listing of courses and job openings. Kinds of attributes, training, and experiences necessary for job qualification, both in general and specific to the jobs available locally were also listed. The materials consisted of aperture cards with microfilmed inserts, and a dating code insured annual updating. Within two years after the original field tests were held in four California sites, four other States were trying VIEW projects in selected locations (Figure 4).

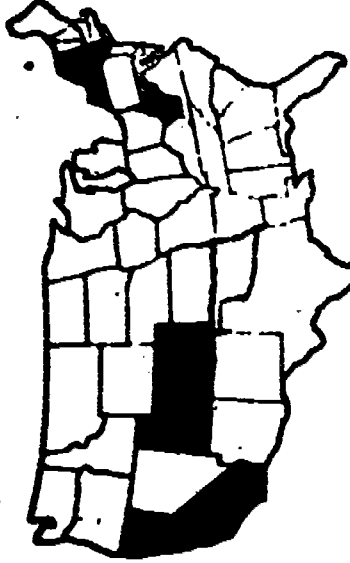
By 1967, Illinois was working on a system intended to convey the same types of information, but in a computer dialogue format called the Computerized Vocational Information System (CVIS). During a one-to-one interaction with the computer, the student would input his interests and abilities and the computer printed or displayed the relevant range of occupations. As other States began to join Illinois in a CVIS consortium, many of them revised and adapted the materials to their own formats.

At the present time CVIS has been adopted by a consortium of users in thirty-eight States and two other countries. VIEW has project directors and users in thirty-four States and Guam. Each of these systems finds it difficult to count the numbers of students affected since the spread of uses includes not only students, but counselors, teachers, parents, administrators, and other citizens of the community as well.

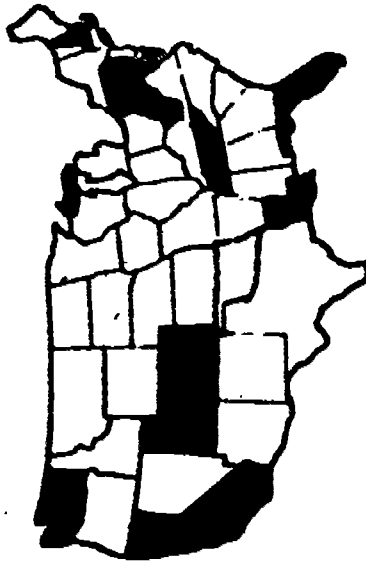




VIEW Originated in San Diego, California, 1965.



By 1967 VIEW projects were being tested in California, New York, Utah, Colorado and West Virginia.



Adaptions of VIEW projects funded under Parts C and D of the 1968 VEA amendments were conducted in 1970-72 by nine additional States.



VIEW projects or adaptations of VIEW, under various names, are currently being used in thirty-three States and in Guam (Alaska is included but does not appear on the map).

Figure 4. Growth of VIEW Projects, 1965 - 1974

Source: State-Administered Exemplary Projects in Vocational Education, June, 1973, USOE; State-Administered Research and Development Projects in Vocational Education, June, 1973, USOE; letter from National Consortium Career Information Services, Bloomington, Indiana; data as supplied in project reports from various States.

## Management Information Systems

Another area given high priority when research and development funds became available for Vocational Education was the design and establishment of systems to gather information intended to aid in planning for, managing and controlling Vocational Education.

According to a 1969 survey conducted by the Society for Management Information Systems, there is an almost 50-50 split among those surveyed regarding the definition of a management information system. The choice appears to be between an equipment configuration of fast response computers with a large data base and a concept relating to an organization's information processing equipment. Whatever the definition used, whether one of those two or some combination of both, a system to provide the information needed for State and local planning and management appears to be of high concern throughout the majority of State Vocational Education departments.

Thirty-seven States, D.C. and Puerto Rico currently have at least partially automated systems, and most of the rest of the States are moving in that direction. During the period from 1970 to 1972, sixty-five projects were conducted in at least twenty-three States using funds from Parts C and D. Several States have used their entire research allotment for the purpose of establishing a Statewide management information system. In Rhode Island, one of the most recent examples, the Vocational Education management information system has been designed to serve as a model for a Statewide system encompassing all of education.

One of the outstanding uses of the Washington State Vocational Education management information system has been to aid in making available an employment/enrollment forecasting guide. A decision model incorporating work force, employment and demand, enrollment, placement and other data was devised to provide employment forecasts in a form Vocational Education planners could use. Recommendations about program growth or reduction were made of actual enrollments, completions, and placements compared with demand. An analysis form and a decision guide allowed the recommendations to be based on objectively computed criteria. The analysis combined with a trend chart showing both historical and projected information were provided to State and local planners for use in making program decisions. Among the reports based on the Vocational Education forecast process are: a forecast of job opportunities in Washington State for 1975-81; a summary of projected demand, vocational program output, and output of other sectors used as part of the Washington State Plan for Vocational Education; and planning recommendations to the Superintendent of Public Instruction and to the State Board for Community College Education. Because of its careful structure and design, the forecast and decision model has proved to be a highly reliable information source for planning. It has therefore been used extensively by State and local education agencies in Washington.

The need for manpower supply and demand information in Oklahoma provided a major impetus for the initiation in 1968 of the Occupational Training Information System (OTIS) to aid administrators of vocational

and technical education. The use of data compiled by the system has been extensive and has continued to expand since its inception. Similar systems are being developed in several other States. The close continuous cooperation among State agencies responsible for manpower planning reflects an important characteristic of OTIS.

Following the establishment of a comprehensive data bank of manpower needs throughout the business, industry and government levels of Oklahoma, coordinated with public and private vocational-technical training programs, a student accounting system to provide current and followup data was added to OTIS. A subsystem to obtain information on vocational teacher supply and demand has also been developed. The coordination of data in such a variety of areas on a Statewide basis would not be feasible without the continuous, systematic and detailed information made possible by a system such as OTIS.

In Ohio, a computerized statistical reporting system is currently providing quick-access reports from documents provided by school systems operating Vocational Education programs. Four of the five subsystems provide tape storage information relating to current enrollment, student, and personnel data; priority criteria needs assessments to determine rate of reimbursement by district; number and type of schools offering Vocational Education; including number of teachers and closing enrollments; and a follow up of students completing vocational programs. The fifth subsystem provides a directory that tells which vocational courses are offered at each school and lists the name of the teacher for each course. Ohio has also piloted a cost analysis project categorizing expenditures for each Vocational Education class to determine per pupil and per class hour costs for over ten percent of the State's vocational offerings.

An extensive vocational follow up system has been reporting information on graduates of all the area vocational schools in Minnesota for the past several years. The data base was designed to contain the minimum amount of information sufficient to allow vocational educators to make decisions concerning programs and to evaluate program effectiveness. Setting up a centralized system has proven to be far less expensive than having each institution follow up its own graduates. An additional benefit has been the capability of consistent and frequent updating and refining of the system throughout the State. Over a five-year period, the return rate for student questionnaires has been eighty-five percent and for employer questionnaires ninety-six percent. This consistent high rate of return has been attributed to the personalized and persistent methods used in contacting people for information.

Several efforts have been made to establish a nationwide management information system. Each of these efforts has provided information and impetus to at least some of the State systems visited during the course of the project. A supplemental report prepared by Project Baseline in 1974 described a proposed nationwide data base and discussed in detail some of the problem areas and possible solutions. That report also provided a listing of the current availability of essential data elements for each of the States relevant to the proposed data base.

## The Development of Career Education

In 1966 a conference was conducted in Virginia involving fifty people from the areas of Vocational Education, curriculum, and theory of career development. During the conference on implementing career development theory and research, eight papers representing the culmination of several years of research were presented on implications for career development, counselor education and research. As a result, it was recommended that career development should be considered an integral part and goal of Vocational Education, and that Vocational Education should no longer concern itself solely with job training. The crises besetting education at the time indicated a vital need for the people responsible for managing the entire education system to recognize the personal growth process of career development and to redesign the curriculum from pre-school through post-secondary school.

Conferences at the University of Minnesota, in Oregon, and in other areas followed, and in 1967 the National Advisory Council on Vocational Education recommended the provision of funds and authority to the Commissioner of Education to establish exemplary projects based on research that would include the whole range of experiences now known as career education.

The 1968 Vocational Amendments provided the funding and the authority for the establishment of projects, and a policy paper was issued inviting school districts in each State to submit proposals for exemplary projects providing, in one operational setting, for: (1) occupational orientation at the elementary and secondary level, (2) work experience, cooperative education, and similar programs in a wide variety of occupations, (3) specific training in job entry skills just prior to leaving school, (4) intensive occupational guidance and counseling during the last few years of school, with initial placement of all students at the completion of their schooling, and (5) continued support from regular local sources following the three-year Federal funding period.

By the time U.S. Commissioner of Education, Sidney P. Marland, Jr., delivered his speech on career development in January 1971, each State and Territory of the Nation had had at least one project accepted, and by fall of 1971 all were in operation. The 1972-73 Part C commissioner's discretionary funds were also used for career education projects, frequently in other locations in the States but sometimes in coordination with the earlier Part D exemplary projects. Some of the projected outcomes are beginning to occur as hoped for.

The career education movement has had a profound and widespread effect on the education system in every State, in D.C. and in the Trust Territories. Another Project Baseline supplementary report deals with career education exclusively. This report will therefore only touch on it briefly, even though its impact at this time is probably greater than that of many other areas funded under the VEA research and development sections. Certainly a major share of the funds under Parts C, D, and I have been directed into career education since 1970.

Standing against the tide of increasing acceptance and commitment by States and school systems, by teachers and counselors, are still some



notable educators who fear the loss of certain vital facets of education. Some are asking whether stressing job skills will erase from the curriculum the learning of values. But examination of the objectives described in reports of career guidance programs currently being developed shows a strong positive value system approach.

Toward Accountability, a report of a career guidance, counseling and placement Part D exemplary project just completed in Mesa, Arizona, stresses the need for individual planning and development of all youth in addition to instruction and training. The rationale of the project states in part that only by accepting responsibility for the products of the schools, by becoming accountable, can educators hope to overcome the vandalism, drug abuse, and dropout rate among students, and the militancy and dissatisfaction among teachers.

Through systematic planning and evaluation an objectives-based set of instructional and counseling activities was developed to help the professional education team determine to what degree they were delivering what they planned to deliver. Top priorities in counseling in academic, educational-vocational, interpersonal and intrapersonal areas were derived from students, parents, teachers, counselors and administrators for each age group. This specific information enabled the Mesa guidance people to identify the top priority areas in the guidance programs they were developing. At each level, at least some of the high priority goals involved facets of value systems.

A career development package available now from the Agency for Instructional Television (AIT) called, "Bread and Butterflies", should also help to allay the fears of those who worry about loss of values. Headed by Tennyson of the University of Minnesota, educators from a consortium of thirty-four States developed learning packets designed to help students become aware of interpersonal skills and adjustments and personality and behavior characteristics that may be helpful or detrimental to success in the world of people as they leave school and enter a career. "Bread and Butterflies" encourages each student to become aware of his or her own personality and potential. The message of "Bread and Butterflies" is that "responsibility and beauty, stability and change can be fused, and that each is a necessary part of a rich, good, satisfying life".

While AIT derived the funds for the project directly from participating States, some of the States used portions of their State allotments of Part C and D monies to fund their share of "Bread and Butterflies". However, the direct influences of Federal research funding on its development are slight. A description of this project has been included as one example of diffusion to demonstrate that agencies and cooperative groups are currently continuing with research and development in Career and Vocational Education and Guidance on their own. Directions have been indicated by people working on federally funded research projects, and others are continuing to take up the major share of the task.

In Tennessee, an accelerated project for a Systems Program Approaching Non-unemployment of Vocational Education Students (SPAN) is an outstanding example of an exemplary program designed to take on responsibility for the

whole student population of the school. At the end of the 1971-72 school year, for two high schools involved in the pilot project, with a total of 518 graduates, seventy-three percent of the graduates were known to be placed in one of the categories: apprentice, area vocational or trade school, technical school, summer vocational school, college, military or full employment, with more than two-thirds of the remaining twenty-seven percent not followed, and less than nine percent of the total graduates unemployed and not continuing in school.

The following year (1972-73), while the total number of students graduating dropped slightly (to 510) the number going on to area vocational schools tripled, the number going to college nearly doubled, there were only one-fourth as many neither employed nor placed, and the number of students not followed dropped from ninety-six to thirteen. The number employed dropped somewhat (8.5 percent) as well, but there were fifty-six students in summer vocational programs, so another followup six months later would probably have shown a shift upward in employment.

In addition to the commitment to attain 100 percent placement of all seniors as they leave the public schools, SPAN has several other significant features. A cooperative education program was provided for students in grades seven through nine who were sixteen years old, to acquaint them with job attitudes and occupational responsibility. The industrial arts and home economics programs in the target schools have been redirected to an occupational orientation. A computer systems approach to job placement has been developed, and the information is currently available to more than 80,000 students in the Memphis City Schools. Ten films have been made to provide vocational orientation information by means of instructional television. These films, covering nine of the fifteen identified occupational clusters, have been shown throughout Memphis and are also available for use by teachers in the classroom. The Memphis Board of Education plans to implement SPAN throughout the city, and the State plan now directs that at least fifty percent of all students in Tennessee's high schools be reached through vocational programs by 1975. Inquiries about SPAN have been received and information sent to educators in all fifty States and four other countries.

In Bismarck, the center for North Dakota's exemplary program in career education, there has been a noticeable upsurge in Vocational Education enrollments and interest. Two years after the program started, the local citizens voted to approve a bond issue to build a Vocational Education building at the Bismarck Junior College. This decision came none too soon. Vocational students, expecting to be able to use the new building by August, were being taught for several months in rented classrooms, because the completion date was moved to November. When the federally funded exemplary project began, there were only two Vocational Education programs at the junior college. Five programs were added when the junior college took over the responsibility for the MDTA center the next year. Now, when students who were influenced by the career education movement are beginning to enter the junior college, the vocational offerings have been expanded into a wide variety of programs enrolling half of the student body. The high school vocational program has also experienced the same kind of rapid growth. There are seven new Vocational Education courses this year, and the student enrollment in Vocational Education programs has reached two

and a half times what it was three years ago. In fact, it has nearly doubled since last year.

### Total Family Career Development

The Mountain Plains Project, a six State cooperative effort based at Glasgow AFB, Montana, furnishes an example of a training program designed to enable an entire family to grow together as the head of the family is trained in a job skill that will enable him or her to move from a disadvantaged level to a lower middle class income. Wives are encouraged to use a part of their time learning a job skill as well as learning about upkeep of a house, nutrition, and child development; while husbands, in addition to their major task of occupational preparedness, are encouraged to learn some of the home and nutritional skills their wives are gaining.

Legal rights and responsibilities, community development and consumer education are other important steps in family development. The program also incorporates head start and other educational experiences for the children as well as exposure to normal leisure group activities such as sports and theater. During the three years of its operation, Mountain Plains has graduated 683 families, 111 were from Idaho, 108 from Montana, 114 from Nebraska, 110 from North Dakota, 115 from South Dakota and 125 from Wyoming. A final replication design to aid other communities in setting up similar projects for disadvantaged families in their areas should be ready for publication and dissemination in the next few months.

Converting several hundred families from welfare recipients or low income citizens to taxpayers has not been the only, perhaps not even the major, outcome of the Mountain Plains project. Since, on an average, six families enter and six families leave the project each week, a logistical system for tracking and projection had to be devised.

In a class of forty, no two students are likely to be at the same point, even if they are in the same program, so the courses are completely individualized. Four thousand learning activity packages have been constructed in twenty different areas such as family care curriculum, foundation education and the seven occupational areas of office occupations, building trades and services, marketing, mobility and transportation, lodging and food services, distribution and mid-management. The procedures for managing an open entry-open exit system on a large scale are ready for field testing this fall and by next year will be available for distribution.

### Statewide Commitment - A Result and a Beginning

One of the most notable features resulting from many of the federally funded projects since 1968 has been the administrative commitment within a city or State to the implementation of the resulting concepts and curricula throughout the education system. In 1971, State education agencies in Georgia, New Jersey, Oregon, Utah, and Wisconsin participated in three integrally connected projects funded by the Bureau of Occupational and Adult Education, Elementary and Secondary Education, and Education for the Handicapped. Titled "Interstate Project: Planning in State and Local Education Agencies, the Next Step;" the project concentrated on testing



the effectiveness of systematic planning and evaluation by educational leaders.

Information gathered during a nationwide needs assessment conducted under the \$50,000 Part I segment of the combined projects led to a decision to commit Utah's education system to systematic planning and implementation of career education. A task force was created to devise a complete set of objectives and an occupational philosophy to help teachers throughout the State learn how to carry out this charge.

Workshops were held first in the five project States, then in other States as well. Thousands of educators in many areas of the Nation were trained in the methods of needs assessments and systematic planning. While Project Next Step only gave local education agencies (LEAs) in Wisconsin \$200 - 300, extensive additional support provided by the Wisconsin State Department of Education enabled hundreds of LEAs throughout the State to adopt the planning procedures.

In vocational training programs as well as career education State legislatures have responded to the charges set forth and the opportunities made available by the 1963 and 1968 vocational legislation. Wisconsin's 1965 law states, in part, that the State board of vocational, technical and adult education "shall establish a program of instruction at institutions throughout this State which will equip all of this State's people to find their place in the competitive labor market of today."

As one of the leaders in establishing a Statewide commitment to provide a comprehensive range of vocational programs in all high schools, Ohio was one of the first States to pass legislation not only requiring high schools to offer vocational programs but also providing funds on a Statewide basis for the implementation of those programs.

In order to insure systematic, functional and useful procedures, a program was planned to provide a review of six basic components: administrative, process variable, product, cost-analysis, availability and impact and acceptance and congruence. Given the title PRIDE in Vocational Education, the Program for Improvement, Development and Expansion in Vocational Education has been designed to improve the quality of Vocational Education throughout Ohio. Some statistics from the latest report may indicate the impact of this program. Of the secondary students available for employment, 74.9 percent are placed, compared to a National average of 62.1 percent. The unemployment rate for graduates of vocational programs is 5.3 percent, close to one-fourth the National average for people in that age group.

Some of the midwest States such as Minnesota, Wisconsin, and Iowa made a commitment to Vocational Education early in this century. This has led to a Statewide system of area post-secondary vocational schools intended to make available vocational training within driving distance for everyone in the State. Already one-third to one-half of Minnesota's work force is a product of the area schools. One emphasis there since the research funds became available through the VEA has been in the area of developing better evaluation and assessment methods. The career education programs have led to commitments to secondary Vocational

Education as well. Minnesota is currently involved in legislation that will require LEAs to provide all high school students with an opportunity for vocational training in at least fifteen occupations taken from at least twelve of the occupational clusters described by the USOE. The legislation will also provide for funding at the State level. The Tennessee legislature has passed a bill mandating the availability of vocational training for at least fifty percent of students, grades nine through twelve, by 1975.

These are but samples of Statewide commitments to an educational system designed to provide each student with an occupational direction and entry-level skills as he or she leaves the high school. As publications from various States have indicated, that is by no means all the education system should provide, but it is rapidly becoming a vital segment of the minimum each student should be able to expect.

### Tracing Growth, and Example

On July 1, 1973, the Vocational-Technical Education Consortium of States (V-TECS) was formed by seven States: Alabama, Florida, Georgia, Kentucky, Mississippi, Texas, and Virginia. Educational leaders in those States had been invited to gather together in order to develop catalogs of performance-based objectives and criterion-referenced measures in occupational education. The roots of the consortium trace back to several research studies done in California, one of which was aimed directly at occupational teaching and learning performance.

In the California study, the question raised was whether a class of students taught by a trained and experienced teacher using a specified set of performance-based objectives would score higher on a test based on those objectives than a similar class taught by a worker in the field with no teaching experience who was given the same set of performance objectives to teach to. In the process of conducting the study, it was necessary to write a definitive set of performance objectives so that both the trained teachers and the non-teachers could use them for a two-week planning period prior to teaching the class. The results showed no significant difference in performance on completion between students taught by teachers and students taught by the experienced workers who had no teaching background. One of the conclusions drawn was that not enough attention had been paid to training teachers to use performance-based objectives and criterion-referenced measures.

The RCU in Florida had been concerned about evaluation of students in Vocational Education courses, and evaluation of the vocational programs themselves. When the results of the California study became available, the Florida educators decided to investigate methods of using performance or behavioral objectives as evaluation criteria rather than elapsed time in class. Previously, the problem of using any criteria other than elapsed time had been rejected at least in part because there had been no way to determine, from one State to another, which objectives were considered important. In addition, the problems of standardization had seemed almost insurmountable. Over a period of three and one-half years, using \$250,000 of State funds, Florida set out to develop specific objectives which were measurable and to establish a method of determining

the achievement of those objectives using criterion-referenced measures. These two phrases have been explained as meaning "what you need to know to do the job, and how the man will know whether or not you know what you need to know."

When the people in Florida became aware of the monumental nature of the task they had undertaken, they approached several other States requesting that they share in the work and the expense. In return, the other States would have the privilege of sharing the results accomplished by Florida originally and by each of the States who were willing to join in the task. Thus the Vocational-Technical Education Consortium of States (V-TECS) began. At the start, a nationally selected jury of experts in performance-based instruction met and devised a comprehensive model to be used as a basis for the catalogs each State would develop for the various job titles. In order to be sure that all of the States would be able to use the information gathered by each member State, a strenuous research approach was used. For each given job cluster an assessment was made of the tasks performed on the job, the time spent on each task and the relative difficulty of each task. In addition, the criticality of the task, meaning the consequences of poor performance, and the perishability, meaning the loss over a period of time of ability to do the tasks were also determined.

As a member responsibility, each member State agreed to do a specified number of projects, to complete a certain number of task analysis catalogs. In its opening year, the member States of V-TECS researched seventy-one job titles in nineteen projects. In the process, 39,000 workers were interviewed and worked with the project groups. This year thirty-two to thirty-five projects were planned and will include almost 140 job titles. In Florida, 246 industrial and sixty-four technical programs have been written based on the task analyses and objectives, and at least 200 programs are run each year in Florida schools.

At the present time the products of each State's projects are protected by copyrights and are available only to member States. The continual monitoring and control supplied by the central agency assures each member State that the products of the other States will be usable and the standards and quality will be commensurate with other work done by V-TECS. In this way, each State is assured that it will be able to use the work of all the other States. In addition, a sampling technique has been developed to determine whether a particular task analysis catalog is appropriate to a given area. Due to variations in the types of tasks performed for various climatic or other conditions, job elements may differ from area to area but the "complex purposive sample" used enables the educators involved to determine where the differences lie and how extensive they are.

### Summary

The projects described in this chapter have been summarized in Table 1, by date rather than by type in order to provide a historical perspective. These projects represent only a sample of what is occurring throughout the United States as a result of federally funded research in Vocational Education. But even this small selection of projects has begun to

cause a noticeable alteration of the National Vocational Education picture.

Nationwide surveys of existing opportunities and vocational programs have determined some of the areas of need in emerging occupations. A variety of curricula have been written in an attempt to answer those needs and programs training thousands of young people have been started in schools throughout the country. Programs to acquaint children in the elementary and secondary schools with the world of work have been established in every State and Territory. Systems designed to bring up-to-date information about manpower needs and related school programs have been introduced and are expanding throughout many States. Management information systems are being developed and tested, and in many States they are being used extensively for Statewide planning and coordination. The growing development and use of performance objectives and methods of measuring skill development are beginning to have an influence on school systems throughout many States. They have been sufficiently developed in some States to have been made a legal requirement.

In keeping with the growing body of knowledge about how to plan and run Vocational Education, an increasing number of States are committing their resources to providing a comprehensive education system designed for all of the students. But not all of the questions have even been asked yet, much less answered. The beginnings of assessment and evaluation systems need a great deal of additional work and encouragement. Social acceptability and prejudice and their relationship with employment satisfaction and the unemployment rates have only begun to be explored.

Table 1.

A Sampling of Projects Funded under VEA, Parts C, D, and I

<u>Project Title</u>	<u>First Funded</u>	<u>Original Impact</u>	<u>Current Impact</u>
Aviation Mechanics Project California	1965	Nationwide survey resulted in change of requirements for instruction by FAA.	150 certified aviation schools in U.S., 18 other countries using revised curriculum, 15,912 graduates.
World of Construction - World of Manufacturing Ohio	1965	Complete curriculum in each area including all materials, daily behavioral objectives, field tested in six States.	Programs taught in all 50 States, 3 provinces of Canada, America Dependent Schools in Germany, France, and Italy. 420,000 students, 2,200 schools.
VIEW: Vital Information for Education and Work California	1965	Provided information on microfiche about course offerings and jobs available to students in San Diego County, CA.	VIEW projects in 34 States and Guam, over 7,000,000 students receiving information.



Table 1 - Continued

<u>Project Title</u>	<u>First Funded</u>	<u>Original Impact</u>	<u>Current Impact</u>
TERC: Technical Education Research Centers Massachusetts	1965	Nationwide survey to determine availability of biomedical equipment technology programs. Development of curriculum.	Four major technical curricula being taught in a total of 33 States, also providing technical assistance and curriculum development in 20 other areas.
T4C: Technology for Children New Jersey	1965*	Hands-on experience and career awareness for 572 children in one school district.	50,000 children in 40% of the school districts in New Jersey. Also in New York. Workshops held in at least six other States.
Conference on Implementing Career Development Theory and Research through Curriculum Virginia	1966	Fifty participants from several States discussed career development as a personal growth process. This conference helped provide the background for Sidney Marland's 1971 statement supporting career development theory.	"Career Education" being presented to children in all 50 States. In pilot year, less than 1,500,000 children K-12 were involved Nationwide. Within two years, over 1,200,000 children in one State alone were in pre-secondary guidance and pre-vocational programs and in secondary Vocational Education.
CVIS: Computerized Vocational Information System Illinois	1967	Provided vocational guidance information to students on a 1-1 dialogue with computer basis.	Over 10,000 student <u>uses</u> at original site. 75+ schools adopting this program. Consortium members in 38 States, and 2 other countries.

\* Originally funded by State of New Jersey and Ford Foundation because no provisions were made in the Vocational Education Act of 1963 for pre-vocational elementary level programs. Funded under the 1968 Amendments in many areas of New Jersey by 1970.

Table 1 - Continued

Project Title	First Funded	Original Impact	Current Impact
<p>V-TECS: Vocational-Technical Education Consortium of States Georgia</p>	1968	<p>Performance objectives determined for occupational areas, task analysis procedure developed.</p>	<p>Task analysis catalogs developed for over 200 jobs titles. In Florida alone, 246 industrial and 65 technical programs. Expanded to include six other States, with three more expected to join this year.</p>
<p>Occupational Training Information System (OTIS) Oklahoma</p>	1968	<p>Provided manpower demand and supply information to Vocational and Technical Education administrators.</p>	<p>Information to several State agencies concerned with manpower planning, followup of vocational students after one, three, and five years. Personnel training information.</p>
<p>Program Review for Improvement, Development, and Expansion (PRIDE) in Vocational Education Ohio</p>	1970	<p>Initiated in eleven (11) of Ohio's 104 Vocational Education Planning Districts.</p>	<p>Completed program review for 90 planning districts, will have the rest complete within two years. Unemployment rate for vocational program graduates one-fourth the National average for that age group.</p>
<p>SPAN: Systems Program Approaching Non-unemployment of Vocational Students Tennessee</p>	1970	<p>Job Guidance and Placement center including co-op work experience, elementary instructional television series for career exploration.</p>	<p>SPAN being implemented throughout Memphis. Tennessee legislature has passed a bill requiring all high schools to provide Vocational Education opportunities for at least 50% of the students State-wide.</p>

Table 1 - Continued

<u>Project Title</u>	<u>First Funded</u>	<u>Original Impact</u>	<u>Current Impact</u>
Vocational Follow-up System Minnesota	1970	Data gathering instruments developed to provide information on student population, program termination, and student and employer follow-up.	Follow-up data on students from all thirty-three (33) area vocational schools in Minnesota provided to State agencies and area school directors, used in program planning and evaluation.
Mountain Plains Project Montana	1971	Twelve families in pilot project. Total family career education including home management and job training, for disadvantaged families.	Currently enrolling between 199 and 210 families, 480 families have completed the program.
Forecasting Guide: Employment/Enrollment; A Management Information System Project Washington	1971	Development of a method of analyzing and displaying employment and enrollment information.	Highly reliable planning information source used by major State and local educational agencies throughout Washington. Directly influences State Plan. Over 100 occupations analyzed.
Curriculum for Planning (Project Next Step) Utah	1971	Planning guide developed for local school districts. Combined with 5-State project on curriculum planning funded through two other USOE agencies.	Hundreds of workshops conducted in many States to train educators in methods of conducting needs assessments. State-wide commitment to career education in number of States.



Table 1 - Continued

<u>Project Title</u>	<u>First Funded</u>	<u>Original Impact</u>	<u>Current Impact</u>
Toward Accountability Arizona	1971	New guidance and counseling program piloted in 16 schools with 8,200 students.	Systematically planned and evaluated, objectives-based instructional and counseling activities. Methods for measuring outcomes in affective domain determined. Expanding throughout district.
Bread and Butterflies Agency for Instructional Television	1972	Personnel from 34 States wrote portions of career development program - some VEA funded, most using State funds.	Complete program available being used throughout many States and in selected locations in others of the 34.

Source: Data as compiled from telephone interviews with project directors and from final reports of projects.

## Chapter II

### Nature of Impact

#### Introduction

In this chapter the distribution of funds to the States under Part C, Part D, and Part I of the Vocational Education Amendments of 1968 (VEA) has been tabulated. Following the description of the tables, the nature of impact of those parts has been explained in separate sections. Each section has been divided into a description of how the information used to determine impact was compiled followed by an interpretation of the nature of the impact of that part. The chapter closes with a brief summary as to the nature of impact of all three parts.

Any attempt to report on the impact of funds expended for the purposes outlined in Parts C, D, and I of the 1968 Amendments has a tendency to run aground on the variety and number of programs being implemented in every State. In an effort to impose some order on the wide-ranging set of programs, classification schemes have been devised for each of the three parts.

There are at least two broad parameters of impact, the intended impact and the actual impact. The actual effects on the Nation, State, city, and individual citizen that may have been caused by every one of the more than 2,000 projects funded cannot be easily determined--it may even be impossible. However, while determination of actual impact may sometimes prove infeasible, a good deal of useful information may be obtained by determining the intended impact, for intention clearly describes the mood of the policy makers within the educational system, of those who wrote project proposals, and of those who have approved and funded the projects.

#### The Impact: Description of Information Collected

Prior to attempting a classification scheme of intended impact for the many programs conducted under Parts C, D, and I of the VEA, an effort was made to gain an overview of the magnitude of the results and the related funding. Calls were made to project directors and final reports were read. Lists of projects from the U.S. Office of Education (USOE) and from Research Coordinating Units (RCUs) were examined. Tabulations of the results of those early efforts have been listed in Table 2 and Appendix A. From 1965 through 1969, all research, development, and exemplary projects were conducted under section 4(c) of the VEA. The total funding for that section for the five-year period was \$61,850,850. When the funding under the 1968 Amendments of the VEA became available in 1970, three categories had been established. During the five-year period from FY 1970 through 1974, \$90,844,000 was provided for Part C, to be used for research and development; Part D was allotted \$77,000,000 for exemplary programs; and \$18,000,000 was provided under Part I, to be used for curriculum development.

When the three separate categories were established in 1968, provision was also made to divide the funds allocated under Part C and Part D into two sections. Half of each part was to be administered by the State, apportioned according to a formula. The other half was to be used by the Commissioner as discretionary funds to set up projects in each of the States.

The funding distribution by State for Fiscal years 1970-1972 has been listed in Appendix A, showing the amounts obligated to each State under Parts C and D, Commissioner's discretionary funds and State-administered funds, and Part I, which was all under the Commissioner's discretion. Most of the Part D Commissioner's projects have been funded for a three-year period beginning in 1970 or 1971. In eight States and two Territories, a second Part D Commissioner's project was begun before the end of Fiscal year 1972. California had two such projects for a total of three Part D Commissioner's projects shown in this table.

Table 2 lists, for each State, the total number of projects and the total funds shown in Appendix A. These totals include the projects done during FY 1970-1972 plus selected projects from the years 1965-1969.

The numerical data listed for projects in 1972 was almost exclusively gathered from the Commissioner's discretionary career education projects. In only a few States was information available in any convenient form for any of the State-administered projects. While it was possible to obtain lists of project directors, with their telephone numbers, the sheer number of projects made the time and costs required for any comprehensive follow-through prohibitive.

Several project directors who conducted projects during the 1965-1969 period were called and interviewed about the results of their projects. Where methods and materials had been published or where groups in other States had set up related projects, an impact was relatively easy to see. But many of the early projects were workshops or conferences for teachers from many States. Whether those made any noticeable changes in the schools and the lives of students was not consistently possible to determine. Table 2 only shows the numbers of teachers and the spread of States they came from.

### Part C: Description of Information Collected

Because the money appropriated for Part C of the Vocational Education Amendments of 1968 was to be spent for research-related activities, five categories indicating the five major steps in research have been used to classify the various programs funded: identification, clarification, solution, implementation, and evaluation. The programs were also classified as to which part of the educational system they were primarily aimed to impact. Those three categories were instructional, administrative, and policy. The resulting classification scheme was a 3 X 5 matrix as shown in the front layer of Figure 5. Thus, if a project was aimed primarily at affecting the instructional process, for example, through the development of a vocational curriculum, the project was classified as an instructional solution. An additional dimension was added to the matrix by including the administrative levels of local, State, and Federal government. For instance, if the program funded was a Statewide occupational survey for the State advisory board or department of Vocational Education, the project was classified as Statewide, policy, clarification, or category Q<sub>1212</sub>. Since the government dimension indicated at least to some degree the intended effect in terms of the governmental range of impact it has been referred to as the impact scope.

Table 2

Numerical Data Collected by Interviews with Project Directors for Selected Projects Funded under VEA of 1963 Section 4(c) and Amendments of 1968, Parts C, D, and I.

INFORMATION DETERMINED FOR

State	Total Number of Projects	Total Federal Funds 1970-72	Number of Projects	Date	Number of States	Number of Schools	Number of Participants*
Alabama	26	\$1,235,173	1	1966-67	18		39 Teachers
			1	1972	1	11	15,800
Alaska	24	678,461	10 Combined	1970-72	1	9 Districts	360+
			1	1972	1	1	500
Arizona	21	733,251	1	1965-66	Nationwide Survey	110	
			1	1972	1	16	8,200
Arkansas	37	1,096,069	1	1972	1		3,300**
California	120	7,650,759	1	1965	33		7,000,000*
			1	1966		34	224
			2	1967	50	Published by SRA and marketed worldwide	

\* Numbers of participants in most instances indicate numbers served during project year. Projects for which number of participants includes diffusion have been starred. Participants are students unless otherwise indicated.

\*\* The projects for which the numbers of schools and students are as listed in the Federal publication Abstracts of Research and Development Projects in Career Education Part C and have not been verified by baseline are double starred.

Table 2 - Continued

INFORMATION DETERMINED FOR

State	Total Number of Projects	Total Federal Funds 1970-72	Number of Projects	Date	Number of		Number of Participants
					States	Schools	
Colorado	70	\$1,176,392	1	1968	1		377
			1	1970-73	1	5	1,000
Colorado	70	\$1,176,392	1	1970	1	50	156 immigrants plus students
			1	1971	1	17	71,800
Connecticut	36	915,936	1	1970	1		120
			2	1971	1		24,700
Connecticut	36	915,936	2	1972	1	26	20,500
			1	1972	1	2	1,100
Delaware	25	691,820	1	1972	1		19,400
District of Columbia	7	971,791	2	1967	22	22	35 Teachers
			6	1971	1		5,000
Florida	36	2,209,977	1	1972	1	24	15,000
			1	1970-72	1	Statewide Career Education	
Georgia	32	1,785,930	3	1972	1	32	28,800
			1	1972	1	6	5,566**
Hawaii	26	597,309	1	1970	1		425
Idaho	20	741,403	1	1971	1		594
			2	1972	1		11,382*

Table 2 - Continued

INFORMATION DETERMINED FOR

State	Total Number of Projects	Total Federal Funds 1970-72	Number of Projects	Date	Number of States	Number of		Number of Participants
						Schools	Teachers	
Illinois	69	\$3,495,454	1	1976	1	20	20 Teachers	
			1	1966-68	1	1 District	320	
			1	1966	10 - 15	25	25 Teachers	
			1	1967	38	150		
			1	1972	9	64	183,600*	
Indiana	42	1,707,767	1	1965-67	8 plus	60	6,000	
					4 Countries			
Iowa	30	1,177,265	2	1972		8	7,300**	
			1	1972	1	22	18,800	
Kansas	29	1,143,643	1	1967	1	-11	Programs developed	
			1	1972	1	18	7,000	
Kentucky	39	1,314,209	1	1967	27	27	27 Teachers	
			1	1971	1	Statewide	734	
			1	1972	1	91	39,800	
Louisiana	28	1,534,719	1	1964-67	1		1,000 Adults	
			2	1972	1	15	52,500	
Maine	44	804,263	6	1970	3		3,000+	
			1	1972	1	11	3,300	
Maryland	43	1,297,808	1	1972	1	14	9,500	

(Comparative study of Vocational Program in British and U. S. schools.)



Table 2 - Continued

INFORMATION DETERMINED FOR

State	Total Number of Projects	Total Federal Funds 1970-72	Number of Projects	Date	Number of States	Number of Schools	Number of Participants
Massachusetts	33	\$4,246,326	1	1965			
			1	1972	1	64	34,600
			2	1972-73	36	71+	10,000+
Michigan	33	2,813,292	1	1965-68	1	1	
			1	1966-67	Development of National Teacher Educators		
			1	1970-73	1	7	2,200+
			1	1972	1	37	23,800**
Minnesota	51	1,828,909	1	1964-67	1		7,000*
			1	1971-72	1	268	20,000
			1	1972	1	50	21,000
Mississippi	29	1,333,004	1	1970-73	1	1 District	3,100
			1	1972	1	14	7,100
Missouri	99	1,706,179	1	1972	1	11	5,000
Montana	23	773,085	1	1970-73	1	16	All Helena students K-12
			1	1971-72	1	Statewide MIS	
Nebraska	29	828,482	1	1972	1	8	6,100
			1	1966-67	1	9 Child care centers established	28 Teachers
			1	1965-69	1		400+
			1	1972	1	3	758





Table 2 -- Continued

## I N F O R M A T I O N D E T E R M I N E D F O R

State	Total Number of Projects	Total Federal Funds 1970-72	Number of Projects	Date	Number of States	Number of Schools	Number of Participants	Total	
								Federal Funds 1970-72	Number of Participants
Nevada	22	\$1,017,202	1	1970-73 1972	1	54	29,600		
New Hampshire	35	943,144	1	1970-71	1	6	260		
			3	1972	1	15	7,100		
New Jersey	52	2,495,464	1	1970	1	2 Districts	6,700		
			2	1972	6	34+	50,000*		
New Mexico	58	735,486	3	1971-72	1	33	15,000		
			1	1965-68	1	12	27,800		
New York	78	4,390,019	1	1972	1	27	37,000*		
			1						
North Carolina	66	1,820,503	1	1972	1	24	14,800*		
			1	1970-73	1	Implemented Statewide*			
North Dakota	35	738,147	1	1972	1	4	2,300		
			1						
Ohio	78	3,705,388 <sup>1</sup>	1	1965-70	50	2,200	420,000*		
			1	1972	1	30	21,000		
			9	1973	1	466	49,000		
Oklahoma	61	1,322,953	1	1970	1		20		
			1	1971	1		550		
			2	1972	1	10	119,000*		
Oregon	58	1,243,567	2	1971-73	1		2,500		
			16	1972	1	38	32,200		

Table 2 - Continued

INFORMATION DETERMINED FOR

State	Total Number of Projects	Total Federal Funds 1970-72	Number of Projects	Date	Number of States	Number of Schools	Number of Participants
Pennsylvania	98	\$3,172,144	1	1970-72	1	PENN Scripts 35	20,600
Rhode Island	36	782,288	1	1971-72	1	Vocational Education MIS	
South Carolina	19	1,156,242	1	1972	1	5	900
South Dakota	18	773,740	1	1972	1	4	4,160
Tennessee	56	1,109,009	1	1966 1970-73	12 Inquiries documented from 50 States and 4 countries	40 Hospitals 21	40 80,000*
Texas	93	5,787,075	1	1972	1	256	255,600*
Utah	44	871,116	1	1967-69	42	300	
			1	1972	1	26	16,127*
			1	1972	5	Workshop Held For Teachers Nationwide	
Vermont	52	685,958	1	1972	1	9	890**
Virginia	40	1,548,654	1	1966	50	Spread Nationwide *	
			1	1972	1	8	5,200**

Table 2 - Continued

## INFORMATION DETERMINED FOR

State	Total Number of Projects	Total Federal Fund: 1970-72	Number of Projects	Date	Number of		Number of Participants
					States	Schools	
Washington	111	\$1,256,664	1	1967-68	3		800 contacts
			1	1972	1	7 Districts	2,000**
West Virginia	41	873,570	1	1972	1	22	9,213
Wisconsin	162	1,455,039	1	1971-74	1	21	
Wyoming	31	660,742	1	1972	1	7	3,500
American Samoa	1	9,029	1	1972		3	1,800**
Guam	2	28,028	2	1972		5	1,700**
Puerto Rico	2	775,866	1	1972	1	10	7,325**
Trust Territory of the Pacific	2	9,944	1	1972		30	teacher trainees
Virgin Islands	2	13,602	2	1972		5	2,600

Source: Abstracts of Research and Development Projects in Vocational Education, June, 1973, USOE; Abstracts of Exemplary Projects in Vocational Education, June, 1973, USOE; State-Administered Research and Development Projects in Vocational Education, June, 1973, USOE; State-Administered Exemplary Projects, June, 1973, USOE; Data as compiled from telephone interviews with project directors and from final reports of projects.

Figure 5 shows the three-dimensional nature of the classification scheme presented. Such a figure lends itself to a numbering scheme which has been illustrated in Figure 6.

If a project was funded so as to impact a question concerning the solution to a Statewide policy problem, its identity would be Statewide, policy, solution, or more simply identified as Q1213.

The data gathered for this part were taken from two annual reports published by the United States Office of Education entitled, "State-Administered Research and Development Projects in Vocational Education", and "Abstracts of Research and Development Projects in Career Education". Each of the projects funded with the Commissioner's Part C funds as reported in "Abstracts" was clearly designated as a project to implement a career education program within one or more cities in each of the fifty States and each Territory, following a strict formula. They were, therefore, not included in the matrix used to categorize the more than 700 projects funded under the State portion of Part C.

#### Part C: Nature of Impact

##### Commissioner's Part C Research and Development Projects:

Well over fifty percent of the money appropriated under Part C since 1971 has been spent for the development of career education programs. Projects approved by the USOE for career education all followed a fixed formula which essentially established the nature of the intended impact on the local educational system. The result of the enthusiastic support and implementation of the concept of career education has been documented in another Project Baseline supplementary report, "Career Education in the United States Today". The following information is given in addition to that report. The eighty-seven projects that were funded by the Commissioner's half of the Part C monies for 1972-73 had a guidance and counseling component as well as at least one of the following components:

- (a) development of self-awareness and attitudes about work at the elementary level
- (b) development of elementary career awareness
- (c) junior high or middle school orientation and exploration
- (d) senior high job preparation, work experience, and/or cooperative education
- (e) placement

The types of activities described in the project abstracts have been tallied below:

- |          |   |
|----------|---|
| 94% (84) | described a guidance and counseling segment                 |
| 75% (65) | included elementary career awareness                        |
| 71% (62) | included junior high exploratory and orientation activities |
| 60% (52) | included a placement emphasis                               |
| 44% (38) | planned senior high occupational preparation courses        |
| 28% (24) | described an elementary self-awareness component            |

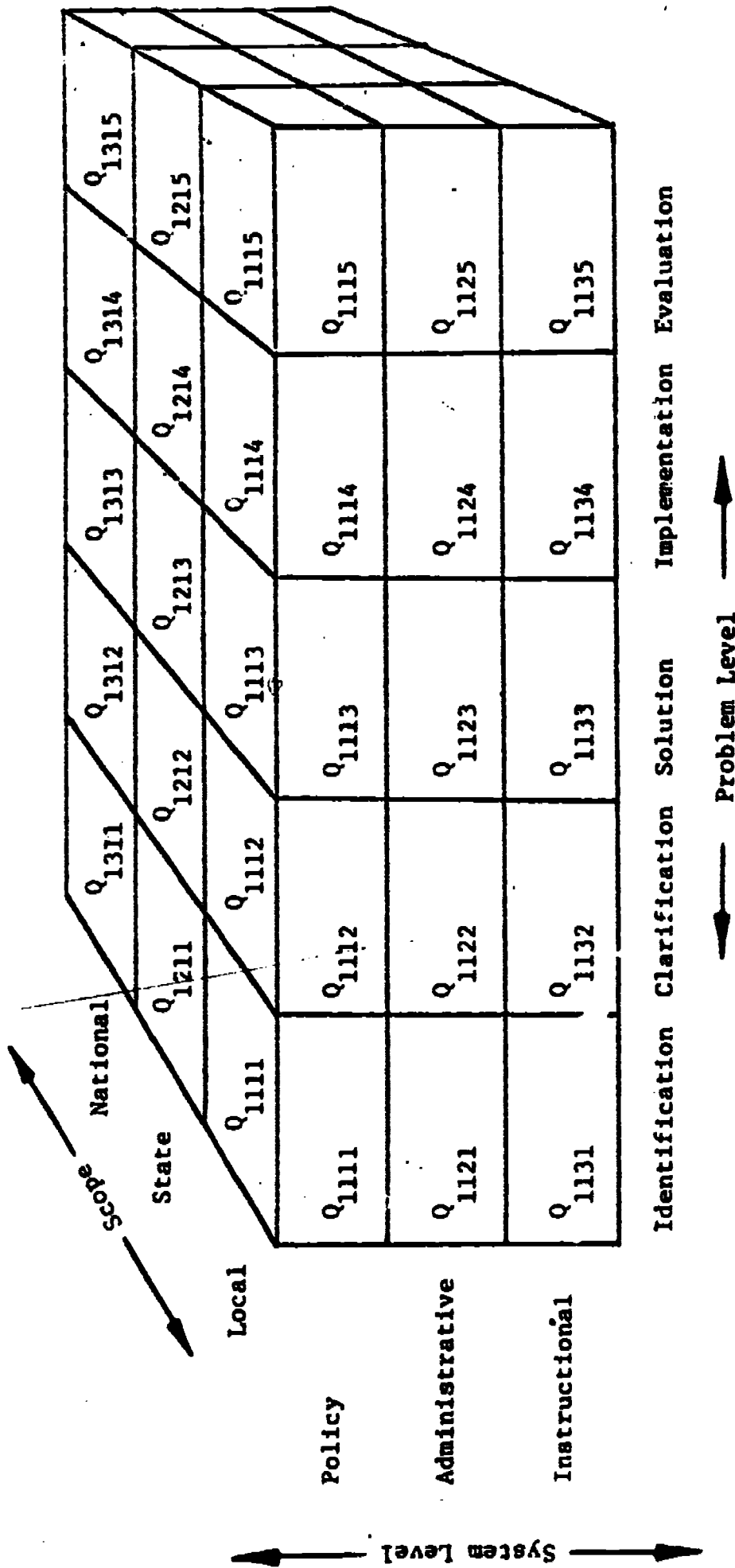


Figure 5. Representation of Categories for Classification of Intended Impact of State Administered Part C funds, VEA.

Q Stands for Question

Q ABCD

A: Type of Impact	B: Scope of Impact	C: System Level	D: Problem Level
1 = Intended	1 = Local	1 = Policy	1 = Identification
2 = Actual	2 = State	2 = Administrative	2 = Clarification
	3 = National	3 = Instructional	3 = Solution
			4 = Implementation
			5 = Evaluation

Figure 6. Matrix Classification of Programs Related to the Impact of Funds Spent Under Part C, State-Administered Research and Development Projects, VEA, as amended in 1968.  
 Example: Q1225 means the intended (1) impact of a project designed to provide at the state (2) level an administrative (2) evaluation (5).



In addition to the required statements some interesting components seemed worth mentioning:

- 15% (13) provided for post-secondary occupational programs
- 9% (8) were combined with Part D programs
- 7% (6) planned vocational information systems with manpower needs information
- 6% (5) included the establishment and use of behavioral or performance objectives
- 1% (1) planned to include a management information system

It was obvious from the project abstracts that the activities described were not necessarily the only activities being provided the students at the project sites. The elements described were those the Part C funds were to be used for, and other elements were being provided by State or local agencies or from other forms of Federal funding. According to the classification scheme, all of the projects under the Commissioner's Discretionary Funds fit into at least one of the four categories Q1123, Q1124, Q1133, Q1134. Also each project was required to submit an evaluation, Q1135.

#### State-Administered Research and Development Projects:

While the USOE Commissioner's discretionary money over the past several years has been spent on the development of career education, no such direct control was placed on the State-administered Part C money. It has been through the analysis of how the State-administered money was spent that a better understanding of the probable nature of the impact of the Part C funds was acquired, since the funding and approving policies of each State were relatively free to reflect the essential mood of the research personnel throughout the Nation.

Over 700 projects were funded in Fiscal years 1971, 1972 and 1973, at the State level. Each of these projects was categorized and entered into the appropriate block for its funding year. The data generated have been included in Appendix B. Summary graphs for the three years analyzed were made in terms of percent of total money spent for that year and included in Figures 7 through 9. From Figure 7 the following observations were made.

During the three years studied, over fifty-six percent of the money spent was proposed to affect instructional questions, thirty-two percent of the money spent was designed to affect administrative questions, and twelve percent was directed at policy questions. For Fiscal years 1971 and 1972, the amount of money used by the States was distributed about half and half between projects at the local level and those affecting all or a major portion of the State. A little less than one percent was spent on projects designed to affect more than one State, those projects being classified as National in scope.

An apparent shift in funding policy, National in its effect, changed the distribution of funds for Fiscal year 1973. The money was moved from supporting instructional questions (down four percent) equally at the

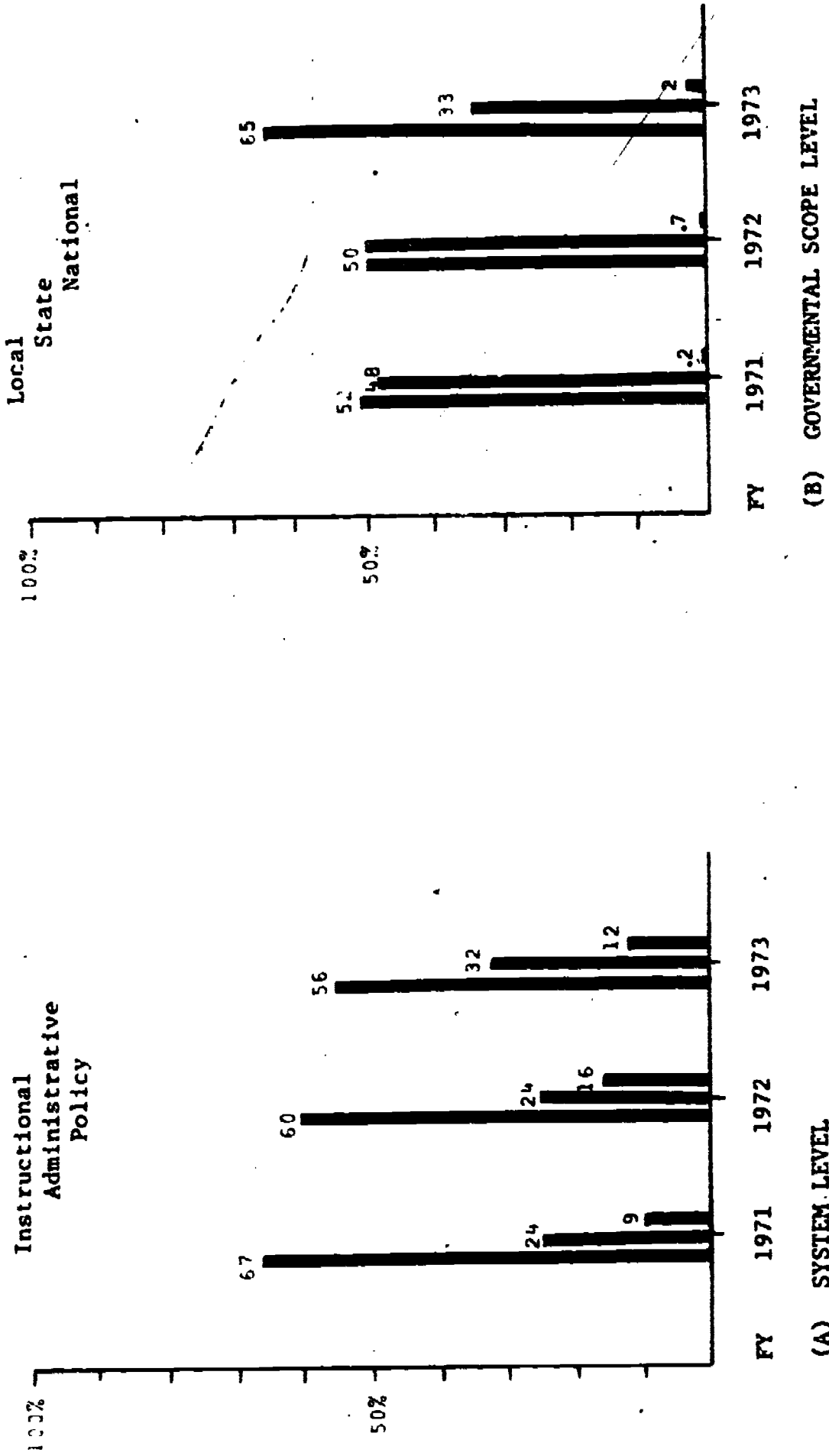


Figure 7. A Plot of the Percent of Total State-Administered Portion of Part C, VEA, Funds Expended Versus Fiscal Year at: (A) The System Level, and (B) The Scope Level

Source: Analysis of data in Appendix B.



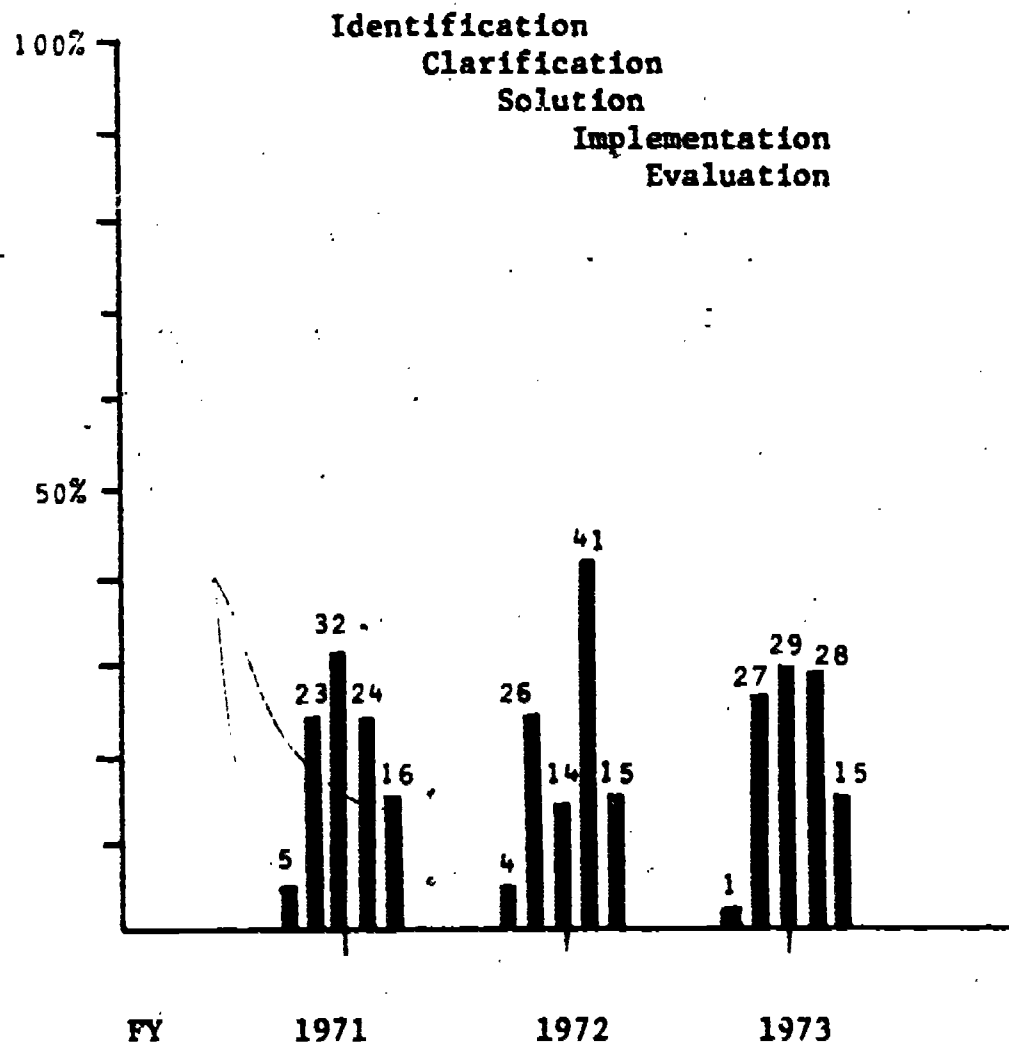
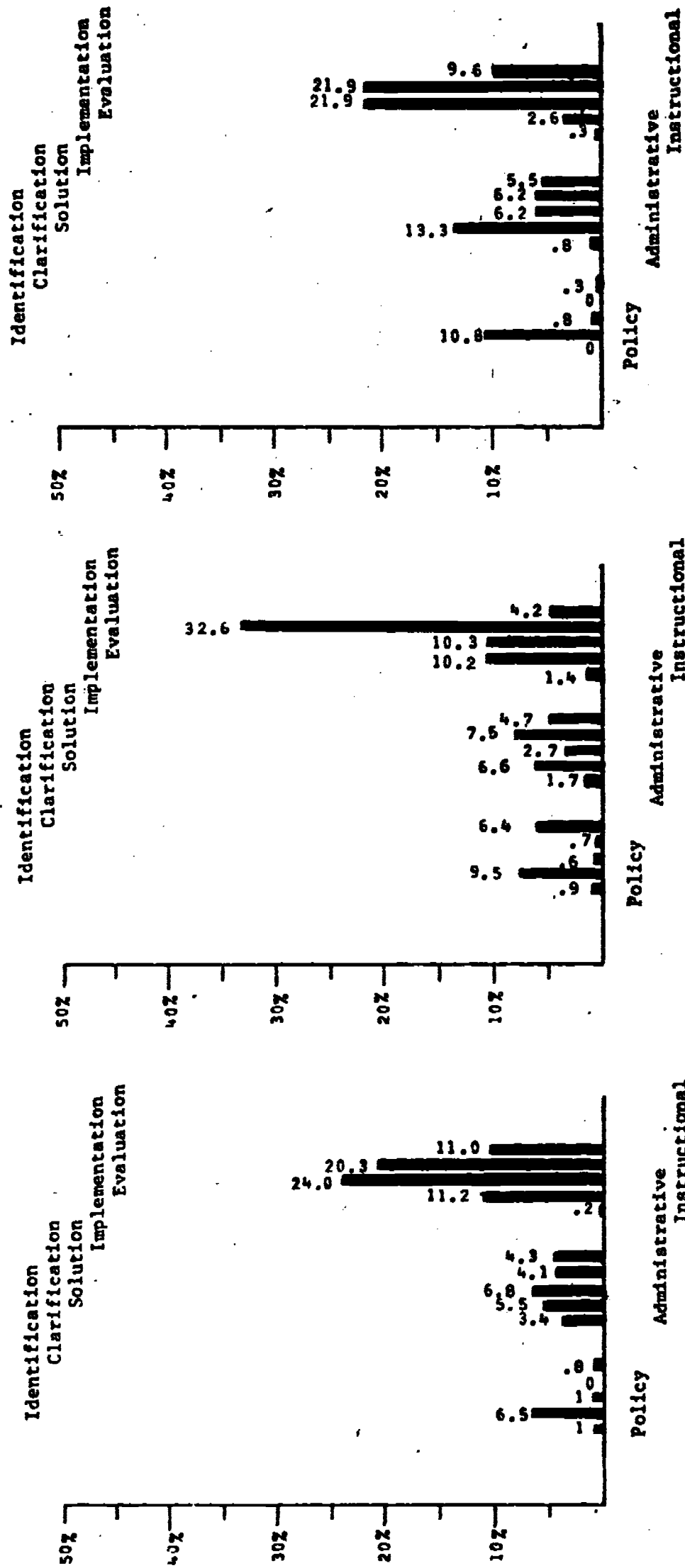


Figure 8. A Plot of the Percent of Total State-Administered Portion of Part C, VEA, Funds Expended Versus Fiscal Year at the Problem Level

Source: Analysis of data in Appendix B.



FY 1973

FY 1972

FY 1971

Figure 9. A Plot of the Percent of Total State-Administered Portion of Part C, VEA, Funds Expended by Problem Level Versus System Level over Total Governmental Scope for each of the Three Fiscal Years 1971-1973

Source: Analysis of data in Appendix B.



State and local levels and from policy questions (down four percent) to questions dealing with the local administrative systems (up eight percent). The only clear trend from the data synthesized from Figure 7 was that the funding effort for questions concerning the instructional process has been decreasing at about five percent per year, giving the impression that this trend will continue through Fiscal 1974.

Figure 8 has been developed as a summary for the problem level of the data compiled in Appendix B. Projects concerned with questions about problem identification such as, "A Review of Literature to Identify Innovative Curricular Materials in Vocational Education", have received less than five percent of the total money spent over the last three years, and evaluation projects have steadily received about 15.5 percent of those funds.

The bulk of the money, slightly less than eighty percent, has been distributed about equally between problem clarification, solution, and implementation.

Figure 9 illustrates the total funds for the fifteen categories during Fiscal years 1971, 1972, and 1973. Instructional solution and implementation have received the bulk of the funds, while the support for clarification was moved from instructional questions in Fiscal years 1971 and 1972 to administrative and policy questions.

Figure 9 also indicates that very little money from Part C has been expended over those years on the study of questions referring to policy solution or implementation. The major National impact of the money spent under Part C has been at the local level in clarifying, solving, and implementing instructional questions. Each State has, of course, its own impact characteristics that can be determined by developing charts similar to those present in this chapter from the information provided in the appendix.

#### Part D: Description of Information Collected

The classification scheme or taxonomy that was developed for Part C did not apply to Part D so another scheme was devised. The classification of projects aimed at impacting the development of "new ways to create a bridge between school and earning a living for young people" was taken directly from the categories established in Part D of the 1968 Amendments, and a three-dimensional matrix was developed as illustrated in Figure 10. While Figure 10 may not represent the best taxonomic scheme that could be developed, it has served the purpose of a taxonomy in that it has provided a systematic approach to the classification of projects as well as a method of illustrating areas of project effort. As in Part C, subscripts have been used to aid in listing the categories. The classifications for each number in the subscript have been shown in Figure 11.

#### Part D: Nature of Impact

Commissioner's Part D Exemplary Programs:

The total Commissioner's Part D money spent for programs funded

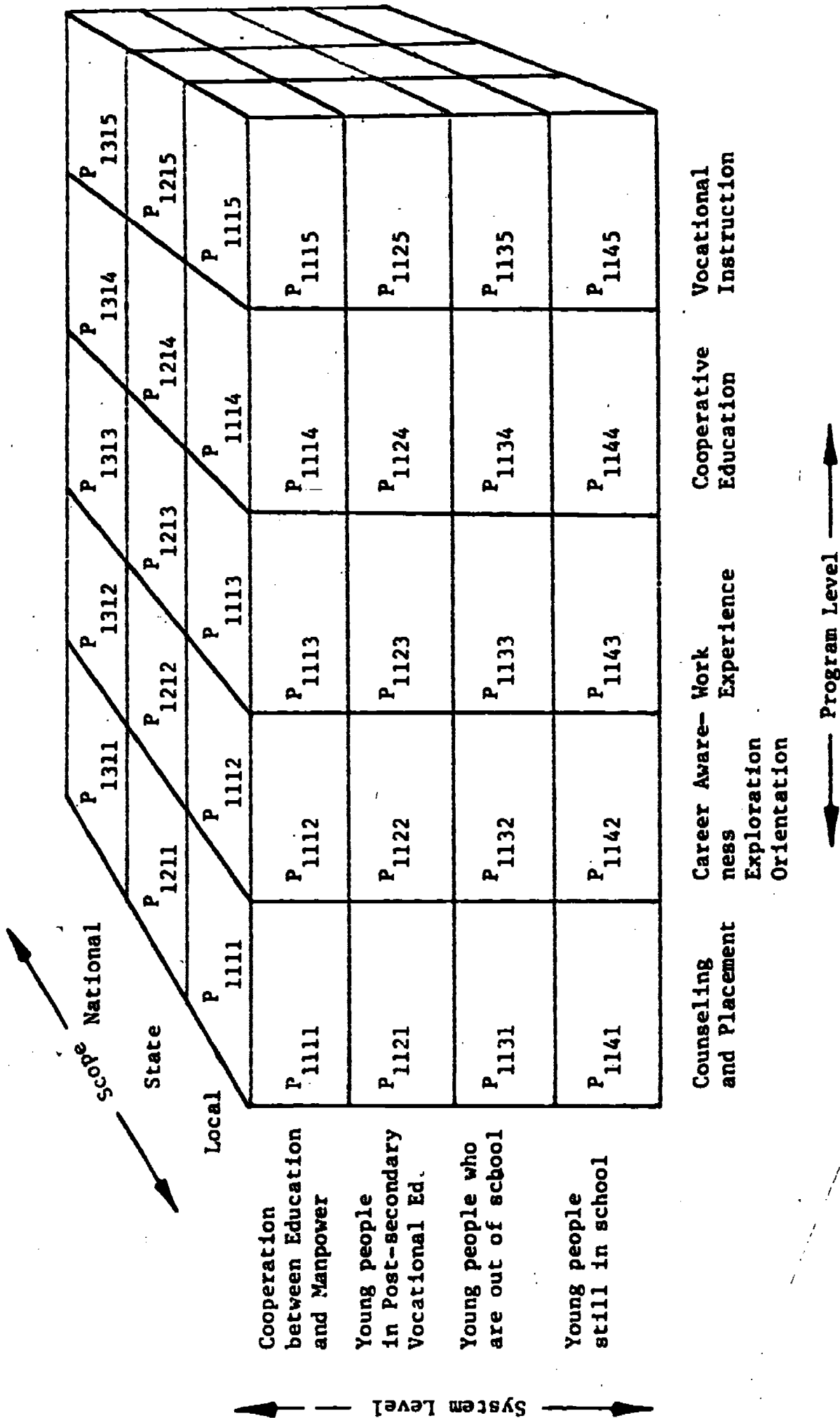


Figure 10. Representation of Categories for Classification of Intended Impact of State-Administered Part D Funds, VEA.



P Stands for Program

P ABCD

A: Type of Impact	B: Scope of Impact	C: System Level	D: Program Level
1 = Intended	1 = Local	1 = Cooperation Between Education and Manpower	1 = Counseling and Placement
2 = Actual	2 = State	2 = Post-secondary	2 = Career Awareness Exploration and Orientation
	3 = National	3 = Programs for Out-Of-School Youth	3 = Work Experience
		4 = Programs for Young People in School	4 = Cooperative Education
			5 = Vocational Instruction

Figure 11. Matrix Classification of Programs Related to the Impact of Funds Spent Under Part D, State-Administered Exemplary Projects, VEA, as Amended in 1968.

beginning in the Fiscal years 1970-72 and ending during Fiscal years 1973-1975 was \$22,820,721. Out of the sixty-seven projects funded, eight States, Guam, and Puerto Rico were funded for two projects each, and California had three projects. Each of the other States and Trust Territories was allotted one project under the Commissioner's Discretionary Funds.

Out of the sixty-seven projects funded:

- 88% (59) had cooperative education portions at the high school level (P1144).
- 54% (36) were primarily career education in the more limited sense (P1142).
- 18% (12) were coordinated with the model cities program and nine directly mentioned out of school youth (P1131, P1135).
- 16% (11) included statements directed toward cooperation between industry and education (P1112, P1114).
- 15% (10) had strong occupational segments (P1125, P1145).
- 4% (3) had cooperative education at the college level (two of those were among the States with similar programs for high school students) (P1124).

#### State-Administered Exemplary Programs:

Of the State's portion of Part D money spent, the greater share went to programs for students who were still in school, a surprisingly constant seventy-four percent over the three years classified (Figure 12). About twenty-three percent of the funds were spent for post-secondary Vocational Education. The stability of the levels in both of these areas indicates a strong National tendency that may be expected to continue unless a major shift in the funding emphasis is introduced.

A small percentage of the total funds was used to fund projects for cooperation between education and labor (one percent) and for out-of-school youth (two percent). It would have been interesting to compare the amounts spent from the Commissioner's Discretionary Funds from above to the amounts spent by the States for those two categories, but the Commissioner's funds could not be broken down in terms of the actual dollars spent for the various parts of each project.

Figure 13 summarizes the information in Appendix C in terms of the money spent in the areas of program development stipulated in the 1968 Amendments. The bulk of the money, forty-two percent to fifty-five percent, was spent for career awareness programs. Vocational instruction received around thirty-four percent over the three-year period, while counseling diminished from twenty percent to 8.7 percent. Cooperative education and work experience received less than three percent during each of the three years studied.

During March 1974, the National RCU Personnel Conference "The Score After Nine" was held in Arizona. Each State was invited to submit three resumes of outstanding research and curriculum projects recently completed

Young People Still in School  
 Post-secondary Vocational Education  
 Young People Out of School  
 Cooperation Between Education and Manpower

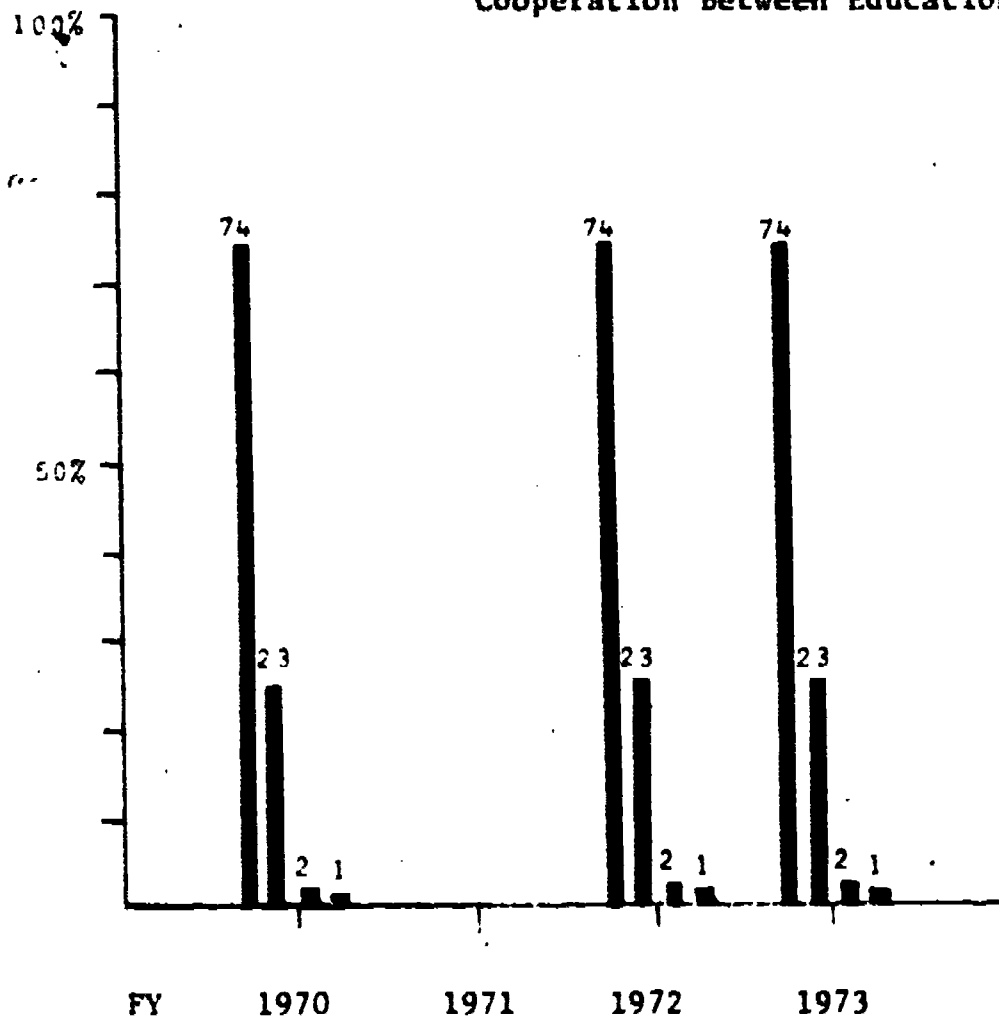
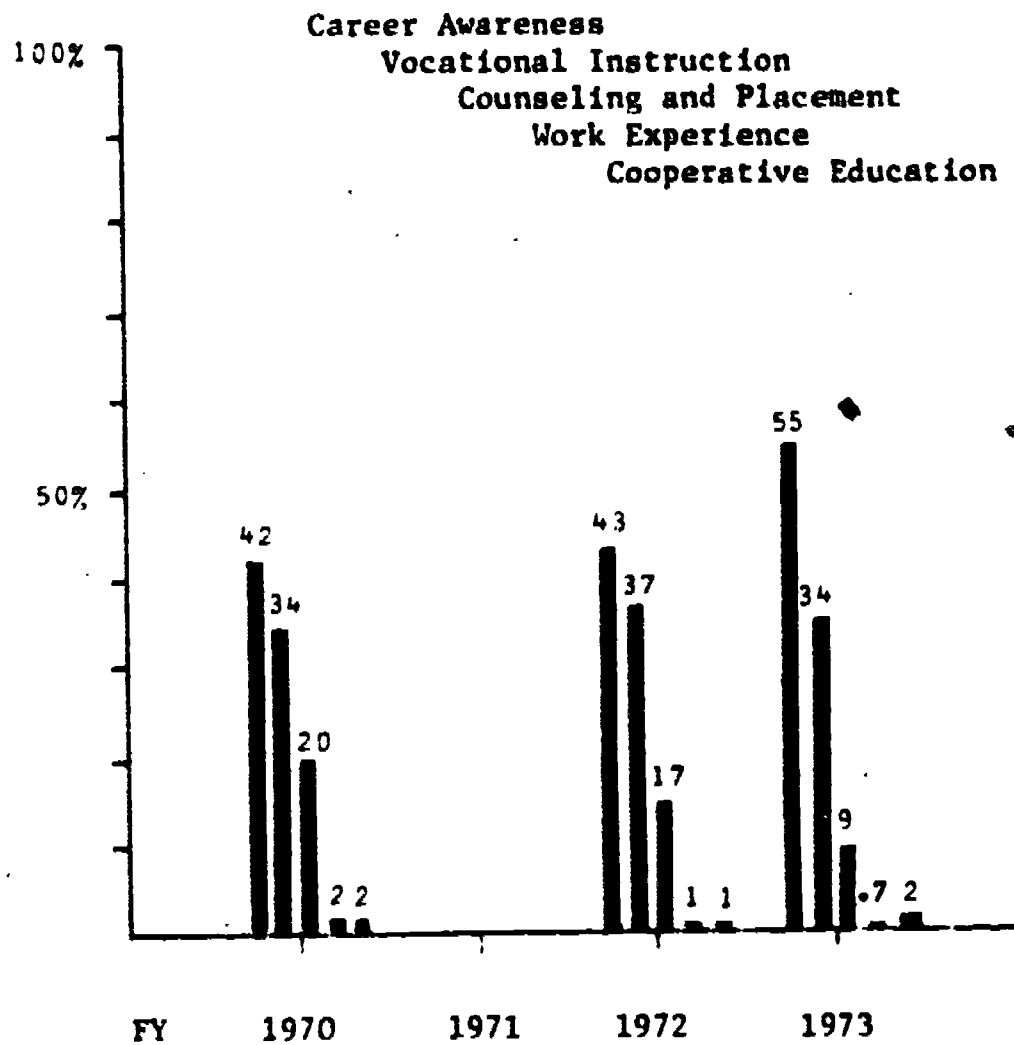


Figure 12. A Plot of the Percent of Total State-Administered Portion of Part D, VEA, Funds Expended Versus Fiscal Year at the System Level

Source: Analysis of data in Appendix C.



**Figure 13. A Plot of the Percent of Total State-Administered Portion of Part D, VEA, Funds Expended Versus Fiscal Year at the Program Level**

**Source: Analysis of data in Appendix C.**

or being conducted by the RCU. Formal presentations at the conference were chosen from among the forty-eight resumes submitted. The projects described in the resumes have been classified using the scheme described for Part D, even though the information available did not tell what part of the VEA the projects were funded under. In fact, some of the projects were wholly State funded through the RCUs. Two projects were divided between two categories, while a third, a research-development product dissemination system, could affect all categories.

This set of projects does not represent a complete, nor even a good random sample. Only thirteen States submitted three projects, and less than half the States submitted any at all. No conclusions can be drawn about the relative merit of projects done by States not submitting resumes. In any such State where the writers were able to talk with RCU directors, projects were being conducted which appeared equally outstanding. The pattern exhibited by this small set of projects differed from that of the total set of Part D projects in some noticeable ways. Whether this was because of the small sample, or because the projects were chosen by RCU people was not known.

Of the programs described by the resumes submitted, all but the dissemination system fit into only six of the twenty categories described for the problem-system level of Part D. The major emphasis of twenty-nine of the forty-eight projects (sixty percent) was in vocational instruction, with two-fifths of those at the secondary level, two-fifths at the post-secondary level, and one-fifth relating to cooperation between education and manpower. The other eighteen projects were primarily aimed at career development, with one-fourth of those in guidance and counseling, one project emphasizing cooperation between education and manpower in career education, and nearly three-fourths of the eighteen in career awareness and exploration.

Almost a fourth of the career development projects and nearly a third of the vocational projects were mainly devoted to evaluation or assessment, whether of programs or of manpower needs. More than a fourth of the vocational programs involved the development of self-paced instructional units. The remaining programs, over a third, were aimed at the development of curricula for programs in an assortment of occupational areas (Figure 14).

#### Part I: Description of Information Collected

In March of 1974 the Curriculum Development Branch of the Division of Research and Demonstration released two reports that refer to the National impact of Part I. The reports are titled, "Curriculum Development for Vocational-Technical and Career Education Under Part I, Vocational Education Amendments of 1968", and "Part I, Curriculum Development, Vocational Education Amendments of 1968", respectively.

The first report is quite lengthy and has been summarized in Table 2. The second report, which is much shorter, has been included in Appendix D.

These two reports suggest three sets of categories. The first set refers to agencies that the USOE can contract with. These agencies are:

	Guidance and Counseling	Career Awareness and Exploration	Cooperative Education	Work Experience	Vocational Instruction
Cooperation Between Education and Manpower	P 1111	P 1112 Curriculum: 1	P 1113	P 1114	P 1115 Curriculum: 2 Assessment: 2
Young People in Post-secondary Education	P 1121	P 1122	P 1123	P 1124	P 1125 Curriculum: 2.5 Self-Paced: 6 Assessment: 2
Young People Out of School	P 1131	P 1132	P 1133	P 1134	P 1135
Young People Still in School	P 1141 4.5	P 1142 Curriculum: 8.5 Assessment: 4	P 1143	P 1144	P 1145 Curriculum: 5.5 Self-Paced: 2 Assessment: 5

Figure 14. Numbers of Projects From the 1974 RCU Conference "The Score After Nine" In Each Category, Classified According to the Part D Method



- (a) colleges or universities
- (b) state boards or other public nonprofit agencies
- (c) public or private agencies, organizations, or institutions

The second set of categories was taken from the 1968 VEA Amendments which refers to the various tasks of curriculum development:

- (a) development and dissemination of Vocational Education curriculum materials
- (b) development of standards for curriculum development
- (c) coordination of the preparation of curriculum materials
- (d) survey of curriculum materials produced by other agencies
- (e) evaluation of Vocational-Technical Education curriculum materials
- (f) training of personnel in curriculum materials

A third set of categories was suggested in the report, "Curriculum Development for Vocational-Technical and Career Education under Part I, Vocational Education Amendments of 1968", and adds another dimension to the impact of Part I funds as shown in Figure 15. This set refers more to target groups that curriculum materials have been designed to impact. These categories as listed on page two of the "Curriculum Development Report", are:

- (a) development of vocational curricula, with emphasis on
  - i. occupational clusters
  - ii. basis for curriculum decisions
- (b) general career education curricula
- (c) emerging and expanding occupations at the post-secondary level
- (d) groups with special needs
- (e) training personnel and familiarization of teachers with learning packages
- (f) National network for curriculum coordination
- (g) distribution of government curriculum materials

The seven categories just mentioned above appear in the summary of the Part I impact in Figure 15.

Since the agencies to which the government can contract did not appear in either report referred to earlier, an additional figure has been developed with categories showing the amount of money that has been granted to various agencies compared to the various curriculum tasks as stipulated by the 1968 amendments. These data appear in Figure 16.

#### Part I: Nature of Impact

Care must be exercised in the use of information as provided in Figure 15. The number of students, teachers, universities or colleges, members of business and industry, and students cannot be added from category to category. That is, those 3,012,100 students touched by the career education curriculum efforts could also be in large part those students who have been tallied in special needs or personnel training.

CATEGORY	DEVELOPMENT					TESTING					DISSEMINATION		
	Teachers	States	Univ. or Colleges	Ind. or Business	Students	Teachers	Schools	Cities	States	To States	To LEAs	Copies Distributed	
VOCATIONAL CURRICULA	225	48	117	138	22,592	545	149	145	50	50	4,290	41,730	
CAREER EDUCATION CURRICULA	97	18	313	77	3,012,100	774	17	15	50	50		30,950	
EMERGING OCCUPATIONS CURRICULA POST-SECONDARY	1,802	50	269	1,369	15,965	1,787	263	1,184	50	50	444	3,900	
SPECIAL NEEDS CURRICULA	38	10	19	72	5,375	70	0	10	7	-	-	-	
PERSONNEL TRAINING	500	50	101	15	70,006	2,000	400	200	42	50	200	-	
NATIONAL CURRICULUM NETWORK	Impact on some 5 million students, 780 thousand teachers, 75,000 State staff, 17 thousand members of business and industry, and over 50 thousand speeches and articles												
DISTRIBUTION OF MATERIALS	Eighty thousand copies of curriculum materials reaching the field in seven vocational areas												

Figure 15. Summary of the March 1974 Report of the United States Office of Education Curriculum Development Branch

Source: Report from the USOE Curriculum Branch, March, 1974.

While the statement, "... the impact is self-evident," concerning the extensive efforts as reported and summarized in Figure 15 may be true, the data do not at all make clear what the kind of impact, the scope of impact, or the long-term effects of the impact are. Thus, while the information from Table 2 may be used to report activity it cannot be easily used to get at the nature of impact.

The expenditure of \$1,279,180 from late spring of 1972 through the winter of 1973 to develop a National curriculum network appears to have touched the lives of over five million people. The money most likely has also had a profound impact on the location at which the centers have been established. Thus, five State Divisions of Vocational Education--California, Illinois, New Jersey, Oklahoma, Washington--and two universities--University of Kentucky and Mississippi State--have been impacted by being chosen as one of the seven National curriculum distribution centers. The effects of that impact have not been determined in this study.

While continuing the investigation along the lines of the impact of Federal funds and how the selective use of those funds may affect the nature of Part I impact, Figure 16 was developed. In terms of the broad scope of the way money has been used to affect the two sets of basic parameters stipulated within the 1968 Amendments with regard to Part I, Figure 16 makes clear that the money was not evenly dispersed across all possible categories. Upon examination of Figure 16, the question as to the nature of the funding policy used to determine the areas of funding comes to mind. Of the total money, which requires no matching funds, 1.5 percent went to the independent school districts, often the agencies that have the most difficulty in coming up with "in kind" matching. State departments and State boards received twenty-two percent of the funds while 34.3 percent was granted to universities and 39.6 percent was used to subsidize private concerns. Over thirty-five percent (\$4,822,619) compared to the 34.3 percent total grants to universities, was used to fund the Technical Education Research Centers (TERC) for their development and dissemination of Biomedical Equipment Technology (BMET), Electro-Mechanical Technology (EMT), Nuclear Medicine Technology (NMT), and Laser and Electro-Optical Technology (LEOT) curricula.

If money can be used as a measure of impact, and Figure 15 suggests that it can, the most profound impact of Part I money has been on curriculum development, with 82.7 percent of the money granted spent for that effort. Coordination, primarily the money to operate the seven centers in the National Curriculum Coordination Network, got about 6.8 percent of the money. The other: personnel training (2.6 percent), basis (2.5 percent), dissemination (2.2 percent), and surveys and inventories (0.4 percent) follow with less than eight percent of the total combined.

While each curriculum development project has a dissemination component, the impact of Part I has still been primarily one of development. The seven curriculum coordinating centers, since being established, have received less than seven percent of the funds expended for Part I and less than twenty percent of the amount spent on private agencies or the

	BASIS	SURVEYS AND INVENTORIES	COORDINATION	DEVELOPMENT	TRAINING OF PERSONNEL	DISSEMINATION	TOTALS
UNIVERSITIES	\$177,989 1.3% (5)	\$25,000 .2% (1)	\$ 360,000 2.7% (2)	\$ 3,674,594 27.4% (14)	\$349,678 2.6% (2)	\$ 20,000 .1% (2)	\$ 4,607,261 34.3% (26)
STATE DEPARTMENTS AND STATE BOARDS	-0-	25,000 .2% (1)	919,180 6.8% (5)	2,014,323 15.0% (11)	-0-	30,000 .2% (3)	2,988,503 22.2% (20)
INDEPENDENT SCHOOL DISTRICTS	-0-	-0-	-0-	200,000 1.5% (1)	-0-	-0-	200,000 1.5% (1)
PRIVATE COMPANIES	96,697 .7% (1)	-0-	-0-	5,226,472 38.9% (13)	-0-	-0-	5,323,169 39.6% (14)
OTHER	59,729 .4% (2)	-0-	-0-	-0-	-0-	249,230 1.9% (1)	308,959 2.3% (3)
TOTALS	334,415 2.5% (8)	50,000 .4% (2)	1,279,180 9.5% (7)	11,115,389 82.7% (39)	349,678 2.6% (2)	299,230 2.2% (6)	13,427,892 100% (64)

Figure 16. Representation of Categories Used for Classification of Intended Impact for all of Part I Funds, VEA, Curriculum Development

Source: Curriculum Development for Vocational-Technical and Career Education under Part I, Vocational Education Amendments of 1968, USOE, Curriculum Development Branch, March 27, 1974.

universities. No significant amount has been spent on establishment of a basis for curriculum development, or surveying the current curriculum development effort throughout the Nation. Hopefully, these are known or cost very little to do. The questions answered by establishing a basis and surveying are essential for sound curriculum development.

### Summary

When the study of the nature of impact was begun the number and variety of projects seemed to be chaotic. The classification schemes developed were completed in an effort to lend some order to the sorting process. They have been successfully used to reduce an enormous quantity of information into a reasonable amount. No doubt there are a few projects that have been misclassified. A question may also be raised as to the validity of the classification scheme in tabulating the projects by project title. Words do communicate and funding officers are sensitive to the titles of projects and the intent and procedures outlined in those projects. The several thousand people involved from the conception of the projects through their final approval have been trusted to have made certain that the major intent of the projects has been reflected in their titles. The numerous conversations and interviews with project directors held during the course of this investigation seemed to bear out that trust. Because of the nature of impact and data currently available, other methods of attack have proved unrealistic in terms of the time, money, and material available.

The nature of impact deduced from the descriptive information made available is encouraging. For given the amount of money available, the progress that has been made in such areas as management information systems, curriculum coordination, task analysis procedures, performance objectives, guidance systems, and other areas seems to be very significant. In addition, there are a number of project efforts that are simultaneously developing and look like they may emerge into a National network of research and development groups that will work collectively with the state RCUs. They will share information and reduce duplication of effort while retaining the confidentiality of the private citizen.

The nature of the impact developed from the statistical data available has not been too startling, and this may be its most serious criticism. The theme of career education has been implemented throughout the States and Trust Territories. This theme has been imposed through the use of a strict program approval policy, a bold and courageous move on the part of the USOE. It has not been carried out without some criticism. Most States, following the leadership of the USOE have also freely implemented career education programs using their portion of the research funds in addition to other Federal revenues as well as their own State money.

In reviewing the data generated from Parts C, D, and I of the VEA, the programs funded seem to reinforce much that has been done and much that has been omitted in the past. This may or may not have been the deliberate intent of those involved. Little research money has been directed into questions concerning the problems of the acceptability of



Vocational Education at the administrative and policy level of the educational system, an area well known to have a considerable reserve in providing vocational programs either for students in or out of school, normal or with special needs. The data available raise suspicions that there is a bias to support the universities rather than developing other agencies that may be more accepting of the problems and concerns of the vocational, non-college student. Few resources seem to have been directed to the most significant intent of Part D, helping those out of school who are facing socio-economic hardship through unsuccessful job hunting.

Those currently enrolled in school need help and can possibly be helped through career education programs. However, more emphasis on the cooperation between education and manpower and the resulting effect upon the very successful methodology of cooperative education should, even must, be encouraged. It is just not possible to direct a system without priorities, and while the priorities have been established in broad terms by law they cannot all be attained. In such a situation, when objectives requiring more resources than are available are established, priorities are developed as to which objectives will be favored. This choosing process becomes very sensitive to the basic beliefs of those in positions of authority to whom the money has been trusted.

In effect, the administration of Parts C, D, and I monies is very similar to that which has existed in the comprehensive public school system, as illustrated in this chapter. Most of the funds went to the general education program in order to redirect it toward a stronger emphasis on careers. The next highest category was funding for in-school vocational students, with the least amounts directed to out-of-school youth and the development of improved relations with business, industry, and labor.



## Chapter III

### Conclusions and Suggestions

#### Introduction

Statistical evidence about the impact of programs funded under the research and development portions of the Vocational Education Act of 1963 and the Amendments of 1968 (VEA) was sparse at best. In many of the more recent programs the impact has barely begun to emerge, and in the earlier programs it was very difficult to determine. Even though not all of the impact could be traced, Congress should be strongly reinforced by the evidence of the disproportionately great impact that has occurred through the development of research in each of the States of the union. The State Departments of Vocational Education working in partnership with the RCUs have provided the means by which significant changes have been made in the educational system of the Nation. Today this partnership continues its leadership in all forms of educational research and provides ready groups under State control that can quickly impact the local educational process.

This much has been readily apparent while reading some of the descriptive materials that have been written in final reports in an effort to convey to readers what the impact of the projects has been. But there has been so little standardization of the meaning of impact that it was almost impossible to form any comparisons from one project to another. The chief problem encountered in compiling the information for this report has been the development of some methods by which the enormous amount of descriptive information and financial data could be synthesized into some manageable amount.

There were times when it almost seemed as though specific results were not wanted, as if the results might not be what the people who were conducting the projects wished to believe. But part of the problem lay in not having definite information available at the beginning of a project relating to precisely what kinds of data were desired in the reports. Another deterrent has been the time and cost involved in attempting to get evidence of impact. Only recently have valid instruments, in which project directors can have confidence, begun to be developed. To the degree that either the lack of any valid impact measurement techniques or the possibility of negative results has hampered impact research in educational projects, there has been a loss of vital data to educational program management. Hopefully, the questions raised and the problems faced in compiling this report will lead to the development of better control of contract administration procedures, so that in the future impact can be more easily determined.

#### How Impact Works

There is an obvious impact that takes relatively little research to determine. Money is spent on projects directed to various forms of research. Programs are created, resources are released into the economy of various cities or States and consumed in the purchase of professional

time, services, or materials. Workshops are conducted, offices are established, RCUs are created in each State, Statewide consortiums are organized, hundreds of thousands of pages of curriculum materials, letters, inquiries, thank-you notes and job offers are generated, consuming reams of paper. All of these can be considered as representative of the impact of funds. This kind of activity is primarily economic, a way to fuel the economy of the Nation. The reporting of such economic activities is obvious in its intent in saying "look what has been done with the money", but such reporting gives little information upon which to base a decision for the next appropriation, unless one establishes the criteria of impact as the greatest number of pages typed, the most curriculum guides distributed, the most speeches presented, or the most students enrolled.

The tacit assumption seems to have been that the act of distributing money which is used to employ people to generate information will impact some educational system, will provide a service, will, through its consumption, affect some aspect of the economic, social or political system. Of course it will! But simplistic representations of impact should be strenuously avoided. Perhaps the term "impact" should not even be allowed to refer to this kind of activity. Output would perhaps be a more accurate term.

To report the impact of any intended activity requires more than a report on the activity or even the results of the activity. Before an activity is engaged in, the existing conditions intended to be changed by that activity must be determined. Somehow, the amount of resources required to effect the kind of change intended must be established, the duration of the activity must be approximated, and the general outcome of the impact projected. If the task attempted is too complex or expansive for the limited resources available, then purposeful directions must be determined and implemented into policy statements before any activity is engaged in. And even though the establishment of clear criterion measures before the funding of Nationwide educational efforts may be politically hazardous, they must be made before the efforts reflected in those criteria can be measured.

The best single example of stated purposeful activity, full speed ahead, torpedos be damned, has been the recent efforts of the USOE in career education. Even though criterion measures for the determination, as far as possible, of impact were not established, the impact of career education in the National Education system seems obviously significant compared against any measure used. The impact of career education may be an example of the effect that can be achieved by introducing an idea into a system when the time is just right for it. But even if that is the case, a great deal of information has still been lost because of the lack of deliberate intentions in finding out just what the condition of career education was before the National commitment to invest all funds available in its development. In a few areas, where needs assessments methods were developed and have begun to be used in the planning process, determination of changes should be possible in the near future. Those projects could serve as a model for future planning.

Social system research has proven to be very difficult. The number of variables that affects most problems is staggering. Establishing

criterion measures, and then developing valid and reliable methods of determining whether a change has occurred and the direction of that change often confound the most talented. But the fact is, impact information must be gathered, for without it no one can be sure the funds expended have had any effect at all. Impact is continually being assumed, conclusions as to the goodness or badness and the extent of the impact are made based only on descriptive information. The silence of the researcher does not stop impact determination.

The major conclusion of the impact study reported herein is that few people have engaged themselves in impact research. Projects have been reporting impact by reporting the resulting "output" from the project in terms of students contacted, curricula generated, etc., and not by any deliberate purposeful intent to report the actual changes caused in people. A typical example is a report of the development of the information storage and retrieval system.

This system consists of access to the entire collection of ERIC documents and 2,000 local hard copy materials. The unit has a Kalver microfiche reproducer for duplicating ERIC and NTIS microfiche to vocational educators by request. (Portion of an impact report from the California State Department of Education.)

Most efforts to measure impact after the fact result in the inability to measure any of the changes that have occurred, as typified by the following statement:

Little hard data were available from which to adequately assess the real impact of R and D in meeting the needs of the State. One would have to concede that the expenditure of over \$5 million on research and development projects in the past seven years has had some over-all benefit on the State in meeting educational needs. However, this concession does little to help quantify the impact beyond the actual dollars spent. Nor do dollar expenditures themselves allow an accurate comparison with benefits that could have been derived from R and D had the funds been devoted to other projects or research activities.

(Tadlock Associates, P. 61)

In the search that has been undertaken the suspicion has arisen that no one has taken time to determine what the educational system was like before 1963 and to quantify this information. Perhaps the statistical records that have been accumulated within the USOE could be used to establish some kind of baseline data upon which to base a comparison in an effort to measure impact.

Project Baseline has been trying to gather impact data from the RCU directors almost since its inception, even to the point of annoyance. Project directors in a few areas have begun reporting the development of methods to determine the state of the system prior to the beginning of a project, and of reliable evaluation techniques to assess changes. They require a fairly high degree of commitment and work on the part of system

personnel, but they are essential to provide any reasonable amount of accountability. As these methods become more widely known and used, the availability of background information from year to year should give impact data more validity.

Some of the reasons for the inability to obtain statistical impact data have been due to the high mobility of those who staff the RCUs. Many times the RCU has been a way-station in the development of someone's professional career. A historical perspective, so necessary in interpreting an impact, has therefore been lacking. Many times impact data have been unavailable because the persons asked to provide it had no clear idea of how the system was before the project began. They simply had not been around that long. In other cases, once a project was funded and the machinery had been set into motion to expend the money, the attention of those originally responsible for impact was directed to other projects. The project director's worth has often been more easily evaluated by the number of projects he got funded rather than by the impact of any particular project already begun.

In any case, if any kind of feel for the impact of Part C, D, and I funds was to be gained, it was necessary to accept the descriptive and financial information and the meager statistical data available. To this information the classification scheme developed in Chapter II was applied. This was done in an attempt to describe at least the intended impact, in addition to showing the funding pattern related to that intent.

#### Appropriate Use of Funds

If a taxonomy for impact could be developed and if it were to be used to establish areas of priority of impact, perhaps it would be easier to use funds allocated for the implementation of various purposes of the law appropriately. Since the funds available in Vocational Education are limited, and even the amounts authorized by Congress to support Vocational Education have never been fully allocated, it should not be surprising that vocational educators would be particularly jealous as to how the funds available are used. Accurately reporting the impact of past projects could be of great importance in the policy decisions that are to be made each year, both at the State and at the Federal levels. As is clearly obvious from the practice of block granting at the Federal level, just to impact the population is not the major purpose of a Federal grant. The law intends to impact a certain segment of the population, a segment that has gone wanting because of a lack of local or State support.

It therefore seems appropriate that impact research should become involved in the comparison of the stated legislative intent of the VEA and how the money was used. Many vocational educators, particularly those familiar with the reasons for the initial development of categorical Federal funding for Vocational Education, are well aware of the real danger to the continued development of Vocational Education when appropriations under the VEA can be used to support a significant redirection of the entire comprehensive education system as career education has successfully begun to do.

There is no doubt that the funds appropriated under Parts C, D, and I



are properly accounted for in the legal fiscal sense in developing career education. But what has the impact been on Vocational Education from not spending that same money on research, exemplary program development, and curriculum development in Vocational Education? All of the Commissioner's Discretionary and a good deal of the State's portion has been spent for the National launching of career education programs.

To ask about the use of Part C, D, and I funds for career education should not be interpreted to mean that the development of career education is not worthwhile or that Vocational Education may not be the segment of education that may ultimately benefit the most from career education. But Dr. Marland established a priority of intended impact when he decided to spend vocational monies for career education, rather than a more strict interpretation of the legislative purpose set forth in the 1968 Amendments. This interpretation has, in fact, redirected money that could have been used to fund program categories that, while specifically implied in the law, received little or no funds. Some examples are local policy identification of problems that affect the continued development of Vocational Education (Q1111, Part C) or work experience for young people who are out of school and need work (P1133, Part D) rather than career exploration for young people who are still in school (P1142, Part D). Maybe funds could have been used to train more Vocational Education personnel to develop vocational curriculum materials for the independent school districts rather than so extensively funding universities for that purpose (Part I).

While the amount of money expended under Part D, or for that matter Parts C and I as well, has not been all that much, it seems that the way the money has been spent, when many of the controls as to how it was to be spent were removed, has been significant. Since the intended impact of the money consumed under Part I has been directed primarily at improved career awareness and career guidance, it seems logical to assume that if more money were unencumbered from regulations as to how it must be allocated, that additional money would be used to fund those same activities. There has always been a debate between the vocational counselor and the vocational educator as to what the term Vocational Education meant, and the resulting education programs that were to be developed from such understandings. Since an idea gains most of its meaning from how that idea has been used, it becomes reasonably obvious that the term "Vocational Education" means to many an orientation toward all life's occupations and not just those that require less than a college education for successful employment. One question must be asked, a question the impact study points out. What direction did the U.S. Congress intend the USOE to take in its funding program? That is, does one literally interpret the legislation and only implement programs that fit within that literal interpretation, or has the legislation been written to provide only very broad general guidelines?

Thus, how should an exemplary program in Vocational Education designed for young people be implemented? Should it impact the entire educational process establishing counseling services that are aimed to acquaint every person about all job possibilities including professional, semiprofessional, and nonprofessional occupations? Or should it be more narrowly targeted to impact those programs that can more directly help young people obtain skills that will solve more immediate problems such as alleviating the

"long and bitter months of job hunting or marginal work after leaving school."

Without the controls placed on the educational system that impact studies and reports can give, it will not be the intent of the legislators that is carried out in the implementation of the statutes, but the private intentions of the stronger personalities in the funding agencies.

### Suggestions

1. For the purposes of writing a report such as this one, a one- or two-page abstract of each program, listing in brief, concise form the objectives of the project and a measure of how well those objectives were reached, the numbers of schools, staff, and students involved, and the proportion those were of the total students in the district or State would have been most useful. A few States had some of this information available in a clearly defined format requested by the RCU and maintained on files in the RCU offices. Nebraska and Oregon were some very good examples.
2. A brief listing, either in the appendix or the abstract, of previous research specifically used as a resource would also have been helpful.
3. Impact--actual measurement of change--should be a required part of all projects, with teeth built in and funding provided. That is, if the impossibility of measuring impact is not agreed upon at the outset of the project, those who proposed the project should be held accountable for impact. They should be penalized when they do not take the time to measure it, or when they were wrong in saying the impact could be measured.
4. In almost every State where educational personnel were interviewed, one of the major statements was that, while the research and development projects were showing themselves to be beneficial, they could expand and proceed at a much more rapid rate if more funds could be made available.
5. A clear priority of intended project impact should be established each year for funds made available under such general areas of appropriation as research and development. Perhaps the emphasis of priorities could be established in the USOE in close consultation with the State Directors of Vocational Education, the National Advisory Council on Vocational Education, and the American Vocational Association. These priorities should be made available to all RCUs and other agencies and interested personnel through the Government Printing Office. Perhaps the announcement could even include general information with regard to writing proposals, the number to be funded, contract award procedures, etc.



APPENDIX A

Tabulation of Research  
and Development Funds  
by State

APPENDIX A - Distribution of Research and Development Funds

Vocational Education Amendments of 1968

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
ALABAMA	1967 <sup>1</sup>	4(c)	1		
	1970	D Commissioner <sup>2</sup>	1	\$ 357,502 (70-73)	
		D State	3	123,138	
	1971	D State	5	145,751	
		C State	7	232,092	
	1972	D State	6	150,207	
		C Commissioner	1	197,115	
		C State	<u>2</u>	<u>29,368</u>	
	TOTALS			26	1,235,173
	ALASKA	1970	D State	10	101,868
1971		C State	4	22,662	
		D State	5	104,123	
		D Commissioner	1	324,000 (71-74)	
1972		C State	1	9,296	
		C Commissioner	1	12,039	
		D State	<u>2</u>	<u>104,473</u>	
TOTALS			24	678,461	
ARIZONA	1965	4(c)	1		
	1970	D State	4	77,738	

1. The few projects traced from prior to 1970 were funded under Part 4(c) of the Vocational Education Act of 1963. All other projects came under Amendments of 1968.

2. Funds appropriated under Parts C and D, VEA were divided, half administered by the States and half under the discretion of the U.S. Commissioner of Education.

Source: Abstracts of Exemplary Projects in Vocational Education, supported under Section 142 (c) of Part D of the Vocational Education Amendments of 1968, June, 1973, and Abstracts of Research and Development Projects in Career Education supported under Section 131 (a) of Part C of the Vocational Education Amendments of 1968, June, 1972.

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
ARIZONA - continued -	1971	D Commissioner	1	\$ 325,777	
		D State	4	98,980	
		C State	5	10,356	
	1972	D State	3	89,040	
		C State	2	45,939	
		C Commissioner	<u>1</u>	<u>85,421</u>	
			TOTALS	21	733,251
	ARKANSAS	1970	D Commissioner	1	387,503 (70-73)
			D State	1	112,276
1971		C State	11	154,768	
		D State	8	123,303	
1972		C Commissioner	1	106,580	
		C State	5	77,167	
		D State	<u>10</u>	<u>134,472</u>	
		TOTALS	37	1,096,069	
CALIFORNIA		1964	4(c)	1	
		1965	4(c)	2	
	1965-69	4(c)	1		
	1966	4(c)	5	22,000 (1 Project)	
	1967	4(c)	3		
		4(c)	1		
	1968	4(c)	1		
	1970	D Commissioner	1	575,944 (70-73)	
		D State	16	185,324	
	1971	C State	32	1,264,473	
		D State	20	349,893	
	1972	C State	14	270,980	
		C Commissioner	1	705,586	
		D State	13	365,982	
		D Commissioner	2	981,570 (72-75)	
I		3	2,375,300		
1973	I	<u>4</u>	<u>553,707</u>		
		TOTALS	120	7,650,759	

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
COLORADO	1970	D State	6	\$ 86,256	
	1971	C State	19	78,594	
		D Commissioner	1	332,056 (71-73)	
		D State	9	102,011	
	1972	C Commissioner	1	98,979	
		C State	21	32,124	
		D State	10	96,706	
		I	2	109,679	
	1973	I	<u>1</u>	<u>239,987</u>	
			TOTALS	70	1,176,392
CONNECTICUT	1970	D Commissioner	1	340,648 (70-73)	
		D State	3	85,982	
	1971	D State	4	80,581	
		C State	20	129,514	
	1972	D State	4	135,652	
		C State	3	44,332	
		C Commissioner	<u>1</u>	<u>99,227</u>	
			TOTALS	36	915,936
	DELAWARE	1970	D State	4	103,136
			D Commissioner	1	307,767 (70-73)
1971		D State	6	106,921	
		C State	5	37,972	
1972		C State	1	8,956	
		C Commissioner	1	20,143	
		D State	<u>7</u>	<u>106,925</u>	
		TOTALS	25	691,820	
DISTRICT OF COLUMBIA		1970	D State	1	321,137 (70-72)
			D Commissioner	1	309,749 (70-73)
	1971	C State	1	34,594	
	1972	C State	1	23,700	
		C Commissioner	1	23,700	

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
DISTRICT OF COLUMBIA - continued -	1972-73	I	<u>2</u>	\$ <u>258,911</u>
		TOTALS	7	971,791
FLORIDA	1967	4(c)	2	
	1970	D State	1	439,978 (70-72)
		D Commissioner	1	116,318 (70-71)
	1971	D Commissioner	1	544,433 (71-74)
		C State	22	516,119
		D State	1	38,375
	1972	C State	7	274,308
		C Commissioner	<u>1</u>	<u>280,556</u>
		TOTALS	36	2,209,977
	GEORGIA	1970	D State	1
D Commissioner			1	372,869 (70-73)
1971		C State	14	255,831
1972		C State	11	243,333
		C Commissioner	3	255,831
1971-72		I	<u>2</u>	<u>264,740</u>
		TOTALS	32	1,785,930
HAWAII	1970	D State	6	91,000
		D Commissioner	1	216,477 (70-72)
	1971	C State	2	9,870
		D State	7	101,637
	1972	C Commissioner	1	37,058
		C State	2	20,832
		D State	<u>7</u>	<u>120,435</u>
	TOTALS	26	597,309	
IDAHO	1970	D State	5	104,804
	1971	D State	6	110,603
		D Commissioner	1	362,500 (71-74)
		C State	1	8,666

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
IDAHO - continued -	1972	D State	4	\$ 99,935
		C State	2	14,091
		C Commissioner	<u>1</u>	<u>40,804</u>
		TOTALS	20	741,403
ILLINOIS	1965	4(c)	1	
	1966-68	4(c)	1	
	1966	4(c)	1	
	1967	4(c)	1	
	1970	D State	7	161,487
	1971	C State	22	730,814
		D Commissioner	1	455,983 (71-74)
		D State	6	242,214
	1972	C Commissioner	3	382,790
		C State	9	730,814
		D State	13	212,743
		D Commissioner	1	361,500 (72-75)
		I	1	181,000
1973	I	<u>2</u>	<u>36,109</u>	
	TOTALS	69	3,495,454	
INDIANA	1965-67	4(c)	1	
	1970	D State	4	115,589
	1971	C State	8	431,978
		D State	4	168,628
		D Commissioner	1	377,000 (71-74)
	1972	C State	17	223,021
		D State	5	168,530
C Commissioner		<u>2</u>	<u>223,021</u>	
	TOTALS	42	1,707,767	
IOWA	1970	D State	2	107,479
		D Commissioner	1	343,292 (70-73)
	1971	D State	4	123,585
		C State	12	234,003



STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
IOWA - continued -	1972	D State	4	\$ 123,954
		C State	6	116,014
		C Commissioner	<u>1</u>	<u>128,938</u>
		TOTALS	30	1,177,265
KANSAS	1967	4(c)	1	
	1970	D Commissioner	1	331,030 (70-73)
		D State	5	114,143
	1971	C State	1	209,208
		D State	5	139,500
	1972	C Commissioner	1	109,014
		D State	7	131,734
		C State	<u>8</u>	<u>109,014</u>
		TOTALS	29	1,143,643
KENTUCKY	1967	4(c)	1	
	1970	D State	2	120,748
	1971	D State	3	145,820
		C State	10	265,158
	1972	D State	4	145,014
		C State	15	165,717
		C Commissioner	1	178,740
		I	2	283,012
	1973	I	<u>1</u>	<u>10,000</u>
		TOTALS	39	1,314,209
LOUISIANA	1964-67	4(c)	1	
	1970	D State	1	124,484
		D Commissioner	1	360,641
	1971	D State	3	152,755
		C State	12	382,356
	1972	D State	3	153,959
		C State	5	152,482
		C Commissioner	<u>2</u>	<u>208,042</u>
	TOTALS	28	1,534,719	

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
MAINE	1970	D State	6	\$ 106,005	
		D Commissioner	1	314,872 (70-73)	
	1971	D State	15	113,254	
		C State	7	92,232	
	1972	D State	9	88,689	
		C State	5	39,585	
		C Commissioner	<u>1</u>	<u>49,626</u>	
	TOTALS			44	804,263
	MARYLAND	1970	D State	8	122,094
			D Commissioner	1	355,685 (70-73)
1971		D State	10	124,700	
		C State	8	250,533	
1972		D State	8	149,750	
		C State	6	108,261	
		C Commissioner	1	151,322	
		I	<u>1</u>	<u>35,463</u>	
TOTALS			43	1,297,808	
MASSACHUSETTS		1965	4(c)	1	
	1970	D State	5	128,299	
		D Commissioner	1	375,182 (70-73)	
	1971	D State	5	153,155	
		C State	4	320,269	
	1972	D State	5	123,688	
		C State	4	119,786	
		C Commissioner	1	194,120	
		D Commissioner	1	421,408 (72-74)	
		I	3	1,821,266	
1973	I	<u>3</u>	<u>589,153</u>		
TOTALS			33	4,246,326	
MICHIGAN	1957-68	HEW, 4(c)	1		
	1965-68	4(c)	1		
	1966-67	4(c)	1		

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
MICHIGAN - continued -	1970	D State	7	\$ 154,773
		D Commissioner	1	435,658 (70-73)
	1971	D State	6	171,121
		C State	6	589,000
	1972	D State	6	141,588
		C State	1	359,043
		C Commissioner	1	359,043
		D Commissioner	1	439,825
		I	<u>1</u>	<u>163,241</u>
	TOTALS			33
MINNESOTA	1964-67	4(c)	1	
	1966-68	4(c)	3	
	1967	4(c)	1	
	1970	D State	1	122,537
		D Commissioner	1	122,537
	1971	D State	21	165,714
		C State	8	212,844
		D Commissioner	1	463,581 (71-74)
	1972	D State	7	132,836
		C State	4	78,484
C Commissioner		1	167,391	
1973	I	<u>2</u>	<u>362,985</u>	
TOTALS			51	1,828,909
MISSISSIPPI	1970	D State	1	324,874 (70-72)
		D Commissioner	1	340,317 (70-73)
	1971	C State	11	240,631
	1972	C State	10	101,091
		C Commissioner	4	136,091
		I	1	180,000
	1973	I	<u>1</u>	<u>10,000</u>
	TOTALS			29

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
MISSOURI	1964-67	4(c)	1	
	1966	4(c)	1	
	1970	D State	3	\$ 126,619
	1971	D Commissioner	1	379,857 (71-74)
		D State	3	158,761
		C State	69	350,195
	1972	D State	3	159,153
		C Commissioner	2	207,297
		C State	15	74,297
		I	<u>1</u>	<u>250,000</u>
	TOTALS	99	1,706,179	
MONTANA	1966	4(c)	1	
	1970	D State	3	104,670
		D Commissioner	1	311,567 (70-73)
	1971	D State	10	110,309
		C State	3	64,460
	1972	D State	3	110,100
		C State	1	35,540
		C Commissioner	<u>1</u>	<u>36,439</u>
		TOTALS	23	773,085
	NEBRASKA	1966-67	4(c)	1
1965-69		4(c)	1	
1970		D State	4	103,940
1971		D State	4	102,907
		C State	9	117,743
		D Commissioner	1	328,500 (71-74)
1972		D State	4	78,841
		C State	4	31,252
		C Commissioner	<u>1</u>	<u>65,299</u>
		TOTALS	29	828,482

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
NEVADA	1970	D State	3	\$ 43,730	
		D Commissioner	1	305,783 (70-73)	
	1971	D State	7	107,660	
		C State	1	46,626	
	1972	C State			
		D State	8	94,253	
		C Commissioner	1	15,850	
		I	<u>1</u>	<u>403,300</u>	
	TOTALS			22	1,017,202
	NEW HAMPSHIRE	1970	D State	10	98,958
D Commissioner			1	309,914 (70-73)	
1971		D State	8	94,013	
		C State	4	53,916	
1972		D State	9	98,561	
		C State	1	9,737	
		D Commissioner	1	246,802 (72-75)	
		C Commissioner	<u>1</u>	<u>31,243</u>	
TOTALS			35	943,144	
NEW JERSEY		1970	D State	7	139,228
	D Commissioner		1	397,159 (70-73)	
	1971	D State	10	186,595	
		C State	4	132,269	
	1972	D State	6	125,242	
		C State	17	132,269	
		D Commissioner	1	476,888 (72-75)	
		C Commissioner	2	254,114	
		I	1	150,000	
	1973	I	<u>3</u>	<u>501,700</u>	
TOTALS			52	2,495,464	
NEW MEXICO	1970	D State	11	57,005	
	1971	D State	3	84,594	
		C State	7	52,391	
		D Commissioner	1	317,350	

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
NEW MEXICO - continued -	1972	D State	34	\$ 108,442
		C State	1	57,852
		C Commissioner	<u>1</u>	<u>57,852</u>
		TOTALS	58	735,486
NEW YORK	1965-68	4(c)	1	
	1970	D State	4	233,597
	1971	D State	6	363,661
		C State	28	644,617
		D Commissioner	1	544,055 (71-74)
	1972	D State	7	321,470
		C State	26	285,749
		C Commissioner	1	591,380
		D Commissioner	1	903,790 (72-75)
		I	<u>3</u>	<u>501,700</u>
	TOTALS	78	4,390,019	
NORTH CAROLINA	1970	D State	14	128,014
		D Commissioner	1	382,949
	1971	D State	13	157,036
		C State	21	518,615
	1972	D State	8	133,378
		C State	8	205,808
		C Commissioner	<u>1</u>	<u>294,703</u>
		TOTALS	66	1,820,503
	NORTH DAKOTA	1970	D State	7
D Commissioner			1	310,575 (70-73)
1971		D State	7	104,539
		C State	9	63,079
1972		D State	9	93,826
		C State	1	26,629
		C Commissioner	<u>1</u>	<u>35,229</u>
		TOTALS	35	738,147



STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
OHIO	1965-71	4(c)	1	
	1970	D State	5	\$ 159,276
		D Commissioner	4	461,436 (70-73)
	1971	D State	13	238,344
		C State	22	795,504
	1972	D State	4	162,817
		C State	14	314,127
		C Commissioner	4	459,697
	1973	C State	9	714,187
	1972	I	1	150,000
1973	I	<u>1</u>	<u>250,000</u>	
	TOTALS		78	3,705,388
OKLAHOMA	1970	D State	14	115,220
		D Commissioner	1	337,674 (70-73)
	1971	D State	14	101,682
		C State	20	168,765
	1972	D State	7	101,682
		C State	1	132,525
		C Commissioner	1	132,525
		I	1	197,880
	1973	I	<u>2</u>	<u>35,000</u>
		TOTALS		61
OREGON	1970	D State	10	85,472
		D Commissioner	1	330,900 (70-73)
	1971	D State	10	94,349
		C State	11	127,712
	1972	D State	8	70,701
		C State	15	48,112
		C Commissioner	1	94,491
		I	1	150,000
	1973	I	<u>1</u>	<u>241,830</u>
		TOTALS		58

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
PENNSYLVANIA	1970	D State	8	\$ 168,049	
	1971	D State	9	226,600	
		D Commissioner	1	468,451 (71-74)	
		C State	56	923,316	
	1972	D State	9	248,457	
		C State	10	298,766	
		C Commissioner	1	498,124	
		I	<u>4</u>	<u>340,381</u>	
	TOTALS			98	3,172,144
	RHODE ISLAND	1970	D State	7	105,137
1971		D State	10	111,252	
		C State	2	70,577	
		D Commissioner	1	312,705	
1972		D State	13	111,254	
		C State	2	34,780	
		C Commissioner	<u>1</u>	<u>36,583</u>	
TOTALS			36	782,288	
SOUTH CAROLINA		1970	D State	1	400,892 (70-72)
			D Commissioner	1	346,226 (70-73)
	1971	C State	14	200,873	
	1972	C State	2	46,638	
		C Commissioner	<u>1</u>	<u>161,613</u>	
	TOTALS			19	1,156,242
	SOUTH DAKOTA	1970	D State	5	104,007
D Commissioner			1	311,071	
1971		D State	3	107,135	
		C State	4	71,410	
1972		C State	1	35,594	
		C Commissioner	1	35,594	
		D State	<u>3</u>	<u>108,929</u>	
TOTALS			18	773,740	

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
TENNESSEE	1966	4(c)	1	
	1970	D State	1	\$ 378,769 (70-72)
		D Commissioner	1	391,353
	1971	C State	13	6,018
		D State	1	52,265 (71-72)
1972	C State	38	67,373	
	C Commissioner	<u>1</u>	<u>213,211</u>	
		TOTALS	56	1,109,009
TEXAS	1970	D State	4	57,675
		D Commissioner	1	472,011 (70-73)
	1971	D State	4	175,174
		C State	47	881,912
	1972	D State	6	232,323
		C State	21	558,178
		C Commissioner	1	578,266 (72-73)
		I	5	2,220,900
	1973	I	<u>4</u>	<u>610,636</u>
			TOTALS	93
UTAH	1967-69	4(c)	1	
	1970	D State	13	116,514
		D Commissioner	1	317,350
	1971	D State	11	108,541
		C State	7	27,306
	1971-72	D State	1	58,300
	1972	D State	4	115,582
		C State	4	19,896
C Commissioner		1	57,627	
I		<u>1</u>	<u>50,000</u>	
		TOTALS	44	871,116

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
VERMONT	1970	D State	14	\$ 101,903
	1971	D State	16	104,130
		C State	5	35,244
		D Commissioner	1	303,720 (71-74)
	1972	D State	13	107,130
		C State	2	13,050
		C Commissioner	<u>1</u>	<u>20,781</u>
		TOTALS	52	685,958
	VIRGINIA	1966	4(c)	1
1970		D State	5	116,754
		C Commissioner	1	371,217 (70-73)
1971		D State	8	130,760
		C State	9	479,374
1972		D State	9	169,965
		C State	5	38,807
		C Commissioner	<u>2</u>	<u>241,777</u>
		TOTALS	40	1,548,654
WASHINGTON		1967-68	4(c)	1
	1970	D State	10	126,643
		D Commissioner	1	351,223
	1971	D State	19	133,179
		C State	43	277,093
	1972	D State	13	141,738
		C State	23	81,108
		C Commissioner	<u>1</u>	<u>145,680</u>
		TOTALS	111	1,256,664
	WEST VIRGINIA	1970	D State	3
1971		D State	10	
		C State	10	115,401
		D Commissioner	1	330,238 (71-73)
1972		D State	10	
		C State	4	37,499
	C Commissioner	1	100,304	
	I	1	110,128	

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS	
WEST VIRGINIA - continued -	1973	I	<u>1</u>	\$ <u>180,000</u>	
		TOTALS	41	873,570	
WISCONSIN	1970	D State	27	95,579	
		D State	18	126,294	
		C State	42	226,983	
	1971	D Commissioner	1	364,773 (71-74)	
		D State	23	155,589	
		C State	49	289,047	
	1972	C Commissioner	1	186,774	
		I	<u>1</u>	<u>10,000</u>	
		TOTALS	162	1,455,039	
	WYOMING	1970	D State	3	102,155
D Commissioner			1	311,823 (70-73)	
1971		D State	6	104,860	
		C State	4	9,478	
1972		D State	14	104,761	
		C State	2	11,225	
		C Commissioner	<u>1</u>	<u>16,440</u>	
TOTALS		31	660,742		
AMERICAN SAMOA		1972	D	1	7,089
			C	<u>1</u>	<u>1,940</u>
	TOTALS	1	9,029		
GUAM	1972	C Commissioner	1	2,245	
		D Commissioner	<u>1</u>	<u>20,783</u>	
	TOTALS	2	28,028		
PUERTO RICO	1970	D Commissioner	1	513,627 (70-71)	
	1972	C Commissioner	1	162,778	
		D Commissioner	<u>1</u>	<u>99,461</u>	
TOTALS	3	775,866			

STATE	FISCAL YEAR	VEA PART	NUMBER OF PROJECTS	TOTAL FEDERAL FUNDS
TRUST TERRITORY OF THE PACIFIC ISLANDS	1971	D Commissioner	1	\$ 5,014
	1972	D Commissioner	<u>1</u>	<u>4,930</u>
		TOTALS	2	9,944
VIRGIN ISLANDS	1972	D Commissioner	1	10,547
		C Commissioner	<u>1</u>	<u>3,055</u>
		TOTALS	2	13,602



## APPENDIX B

### Part C Expenditures Profile

1. Summary of Expenditures by Category and Expenditures by Category for Each Year, Fiscal Years 1971-73
2. State-Administered Research and Development Funds, Part C, VEA, Categorized by State for Fiscal Years 1971-1973

SUMMARY

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q <sub>1111</sub> \$ 135,639 1.0%	Q <sub>1112</sub> \$ 885,011 6.5%	Q <sub>1113</sub> \$ 132,572 1%	Q <sub>1114</sub> \$ - 0 -	Q <sub>1115</sub> \$ 105,859 .8%	\$ 1,260,081 9.2%
Administrative	Q <sub>1121</sub> 467,229 3.4%	Q <sub>1122</sub> 751,657 5.5%	Q <sub>1123</sub> 930,493 6.8%	Q <sub>1124</sub> 563,481 4.1%	Q <sub>1125</sub> 592,912 4.3%	3,305,802 24.1%
Instructional	Q <sub>1131</sub> 25,599 .2%	Q <sub>1132</sub> 1,537,477 11.2%	Q <sub>1133</sub> 3,289,769 24.0%	Q <sub>1134</sub> 2,772,997 20.3%	Q <sub>1135</sub> 1,499,611 11.0%	9,125,453 66.7%
TOTALS	628,467 4.6%	3,175,175 23.2%	4,352,834 31.8%	3,336,478 24.4%	2,198,382 16.1%	13,691,336 100%

Figure B-1. Summary of Analysis of 1971 Expenditures of State-Administered Part C Funds. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

LOCAL

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q <sub>1111</sub> 20,052 .2%	Q <sub>1112</sub> \$ 282,908 2.0%	Q <sub>1113</sub> \$ 31,344 .2%	Q <sub>1114</sub> \$ - 0 -	Q <sub>1115</sub> \$ 54,613 .4%	\$ 394,917 2.9%
Administrative	Q <sub>1121</sub> 269,033 2.0%	Q <sub>1122</sub> 493,348 3.6%	Q <sub>1123</sub> 321,463 2.3%	Q <sub>1124</sub> 365,195 2.7%	Q <sub>1125</sub> 314,798 2.3%	1,764,437 12.9%
Instructional	Q <sub>1131</sub> 14,816 .1%	Q <sub>1132</sub> 1,003,921 7.3%	Q <sub>1133</sub> 1,504,903 11.0%	Q <sub>1134</sub> 1,741,990 12.7%	Q <sub>1135</sub> 690,789 5.0%	4,956,419 36.2%
TOTALS	310,501 2.3%	1,780,177 13.0%	1,857,710 13.6%	2,107,185 15.4%	1,060,200 7.7%	7,115,773 52.0%

Figure B-2. Analysis of State-Administered Part C Funds Obligated for Projects at the Local Level during 1971. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

STATE

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q 1211 \$109,587 .8%	Q 1212 \$ 597,003 4.4%	Q 1213 \$ 101,228 .7%	Q 1214 \$ - 0 -	Q 1215 \$ 51,246 .4%	\$ 859,064 6.3%
Administrative	Q 1221 197,596 1.4%	Q 1222 258,339 1.9%	Q 1223 609,030 4.4%	Q 1224 196,286 1.4%	Q 1225 279,114 2.0%	1,539,365 11.2%
Instructional	Q 1231 10,783 .1%	Q 1232 533,556 3.9%	Q 1233 1,759,866 12.9%	Q 1234 1,031,007 7.5%	Q 1235 808,822 5.9%	4,144,034 30.3%
TOTALS	317,966 2.5%	1,388,898 10.2%	2,470,124 18.0%	1,227,293 9.0%	1,138,182 8.3%	6,542,463 47.8%

Figure 2-3. Analysis of State-Administered Part C Funds Obligated for Projects at the State Level during 1971. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USCE, June, 1973.

NATIONAL

	Identification	Calrification	Solution	Implementation	Evaluation	TOTALS
Policy	Q 1311 - 0 -	Q 1312 \$6,100 .04%	Q 1313 - 0 -	Q 1314 - 0 -	Q 1315 - 0 -	\$ 6,100 .04%
Administration	Q 1321 - 0 -	Q 1322 - 0 -	Q 1323 - 0 -	Q 1324 \$2,000 .01%	Q 1325 - 0 -	2,000 .01%
Instructional	Q 1331 - 0 -	Q 1332 - 0 -	Q 1333 \$25,000 .2%	Q 1334 - 0 -	Q 1335 - 0 -	25,000 .2%
TOTALS	- 0 -	6,100 .04%	25,000 .2%	2,000 .01%	- 0 -	33,100 .2%

Figure B-4. Analysis of State-Administered Part C Funds Obligated for Projects at the Multi-State or National Level during 1971. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

SUMMARY

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q <sub>1111</sub> \$ 53,101 .9%	Q <sub>1112</sub> \$ 564,346 9.5%	Q <sub>1113</sub> \$ 37,672 .6%	Q <sub>1114</sub> \$ 43,542 .7%	Q <sub>1115</sub> \$ 378,782 6.4%	\$ 1,077,743 18.2%
Administrative	Q <sub>1121</sub> 99,680 1.7%	Q <sub>1122</sub> 387,661 6.6%	Q <sub>1123</sub> 159,250 2.7%	Q <sub>1124</sub> 443,401 7.5%	Q <sub>1125</sub> 274,947 4.7%	1,364,939 23.1%
Instructional	Q <sub>1131</sub> 81,774 1.4%	Q <sub>1132</sub> 605,617 10.2%	Q <sub>1133</sub> 609,220 10.3%	Q <sub>1134</sub> 1,925,733 32.6%	Q <sub>1135</sub> 247,047 4.2%	3,469,600 58.7%
TOTALS	234,555 4.0%	1,557,924 26.4%	806,151 13.6%	2,412,976 40.8%	900,776 15.2%	5,912,282 100%

Figure 3-5. Summary of Analysis of 1972 Expenditures of State-Administered Part C Funds. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

LOCAL

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q <sub>1111</sub> \$26,056 .5%	Q <sub>1112</sub> \$ 77,925 1.3%	Q <sub>1113</sub> \$ - 0 -	Q <sub>1114</sub> \$ 19,975 .3%	Q <sub>1115</sub> \$122,052 2.1%	\$ 246,106 4.2%
Administrative	Q <sub>1121</sub> 13,577 .2%	Q <sub>1122</sub> 222,067 3.8%	Q <sub>1123</sub> 70,735 1.2%	Q <sub>1124</sub> 243,203 4.1%	Q <sub>1125</sub> 81,959 1.4%	631,561 10.7%
Instructional	Q <sub>1131</sub> - 0 -	Q <sub>1132</sub> 414,784 7.0%	Q <sub>1133</sub> 288,691 4.9%	Q <sub>1134</sub> 1,144,741 19.4%	Q <sub>1135</sub> 139,579 2.4%	1,985,645 33.6%
TOTALS	39,633 .7%	714,794 12.1%	359,426 6.1%	1,407,919 23.8%	343,840 5.8%	2,865,612 48.5%

Figure B-6. Analysis of State-Administered Part C Funds Obligated for Projects at the Local Level during 1972. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.



STATE

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q 1211 \$ 27,045 .5%	Q 1212 \$ 486,423 8.2%	Q 1213 \$ 37,672 .6%	Q 1214 \$ 23,867 .4%	Q 1215 \$ 256,730 4.3%	\$ 831,737 14.1%
Administrative	Q 1221 \$ 6,103 1.5%	Q 1222 165,574 2.8%	Q 1223 \$ 8,515 1.5%	Q 1224 \$ 20,198 3.4%	Q 1225 102,958 1.7%	733,378 12.6%
Instructional	Q 1231 \$ 1,774 1.4%	Q 1232 191,033 3.2%	Q 1233 \$ 295,579 5.0%	Q 1234 762,559 12.9%	Q 1235 107,219 1.8%	1,438,122 24.3%
TOTALS	194,922 3.4%	843,030 14.3%	421,725 7.1%	986,624 16.7%	556,936 9.4%	3,003,237 50.8%

Figure E-7. Analysis of State-Administered Part C Funds Obligated for Projects at the State Level during 1972. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

NATIONAL

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q 1311 \$ - 0 -	Q 1312 \$ - 0 -	Q 1313 \$ - 0 -	Q 1314 \$ - 0 -	Q 1315 \$ - 0 -	\$ - 0 -
Administrative	Q 1321 - 0 -	Q 1322 - 0 -	Q 1323 - 0 -	Q 1324 - 0 -	Q 1325 - 0 -	- 0 -
Instructional	Q 1331 - 0 -	Q 1332 - 0 -	Q 1333 25,000 .4%	Q 1334 18,433 .3%	Q 1335 - 0 -	43,433 .7%
TOTALS	- 0 -	- 0 -	25,000 .4%	18,433 .3%	- 0 -	43,433 .7%

Figure 3-8. Analysis of State-Administered Part C Funds Obligated for Projects at the Multi-State or National Level during 1972. Percents shown are percentages of totals of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

SUMMARY

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q <sub>1111</sub> \$ 3,352 .04%	Q <sub>1112</sub> \$ 947,859 10.8%	Q <sub>1113</sub> \$ 66,029 .8%	Q <sub>1114</sub> \$ - 0 -	Q <sub>1115</sub> \$ 28,157 .3%	\$1,045,397 21.9%
Administrative	Q <sub>1121</sub> 74,217 .8%	Q <sub>1122</sub> 1,162,266 13.2%	Q <sub>1123</sub> 539,829 6.2%	Q <sub>1124</sub> 544,465 6.2%	Q <sub>1125</sub> 401,906 5.5%	2,802,663 31.9%
Instructional	Q <sub>1131</sub> 25,264 .3%	Q <sub>1132</sub> 227,550 2.6%	Q <sub>1133</sub> 1,921,844 21.9%	Q <sub>1134</sub> 1,912,115 21.9%	Q <sub>1135</sub> 839,408 9.6%	4,926,201 56.1%
TOTALS	102,855 1.2%	2,337,777 26.6%	2,527,762 28.8%	2,456,580 28.0%	1,349,466 15.4%	8,774,283 100%

Figure E-9. Summary of Analysis of 1973 Expenditures of State Administered Part C Funds. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

LOCAL

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q <sub>1111</sub> \$ - 0 -	Q <sub>1112</sub> \$ 294,034 3.4%	Q <sub>1113</sub> \$ 39,736 .5%	Q <sub>1114</sub> \$ - 0 -	Q <sub>1115</sub> \$ 11,000 .1%	\$ 344,770 3.9%
Administrative	Q <sub>1121</sub> 19,177 .2%	Q <sub>1122</sub> 662,533 7.6%	Q <sub>1123</sub> 324,519 3.7%	Q <sub>1124</sub> 237,062 2.7%	Q <sub>1125</sub> 103,039 1.2%	1,346,530 15.4%
Instructional	Q <sub>1131</sub> 17,271 .2%	Q <sub>1132</sub> 201,110 2.3%	Q <sub>1133</sub> 1,674,872 19.1%	Q <sub>1134</sub> 1,735,856 19.8%	Q <sub>1135</sub> 381,386 4.3%	4,010,495 45.7%
TOTALS	36,448 .4%	1,157,677 13.2%	2,039,127 23.3%	1,972,918 22.5%	495,425 5.6%	5,701,595 65%

Figure B-10. Analysis of State-Administered Part C Funds Obligated for Projects at the Local Level during 1973. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USCE, June, 1973.

STATE

	Identification	Clarification	Solution	Implementation	Evaluation	TOTALS
Policy	Q 1211 \$ 3,352 .04%	Q 1212 650,225 7.4%	Q 1213 \$ 26,293 3%	Q 1214 \$ - 0 -	Q 1215 \$ - 0 -	\$ 679,570 7.8%
Administrative	Q 1221 \$55,040 .6%	Q 1222 499,735 5.7%	Q 1223 215,310 2.5%	Q 1224 307,403 3.5%	Q 1225 378,867 4.3%	1,456,355 16.6%
Instructional	Q 1231 8,013 .1%	Q 1232 26,440 .3%	Q 1233 242,622 2.8%	Q 1234 173,759 2.0%	Q 1235 333,022 3.8%	783,556 8.9%
TOTALS	66,405 .8%	1,176,400 13.4%	484,225 5.5%	481,162 5.5%	711,889 8.1%	2,920,681 33.3%

Figure B-11. Analysis of State-Administered Part C Funds Obligated for Projects at the State Level during 1973. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

NATIONAL

	Identification	Calrification	Solution	Implementation	Evaluation	TOTALS
Policy	Q 1311 - 0 -	Q 1312 \$3,600 .04%	Q 1313 - 0 -	Q 1314 - 0 -	Q 1315 \$ 17,157 .2%	\$ 20,757 .2%
Administration	Q 1321 - 0 -	Q 1322 - 0 -	Q 1323 - 0 -	Q 1324 - 0 -	Q 1325 - 0 -	- 0 -
Instructional	Q 1331 - 0 -	Q 1332 - 0 -	Q 1333 \$4,350 .05%	Q 1334 \$2,500 .03%	Q 1335 \$125,000 1.4%	131,850 1.5%
TOTALS	- 0 -	3,600 .04%	4,350 .05%	2,500 .03%	142,157 1.6%	152,607 1.7%

Figure B-12. Analysis of State-Administered Part C Funds Obligated for Projects at the Multi-State or National Level during 1973. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix B are steps in the analysis of data found in State-Administered Research and Development Projects in Vocational Education, USOE, June, 1973.

Chart B-1. State-Administered Research and Development Funds, 1971 Part C, VBA, Categorized by State

State	1111	1112	1113	1114	1115	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	TOTAL	
Alabama																										39,500	
Alaska																										6,752	
Arizona																										800	
Arkansas																										167,203	
California	20,000																									162	
Colorado																										3,800	
Connecticut																										25,970	
Delaware																											
D. of C.																											
Florida																											
Georgia																											
Hawaii																											
Idaho																											
Illinois																											
Indiana																											
Iowa																											
Kansas																											
Kentucky																											
Louisiana																											
Maine																											
Marland																											
Massachusetts																											
Michigan																											
Minnesota																											
Mississippi																											
Missouri																											
Montana																											
Nebraska																											
Nevada																											
New Hampshire																											
New Jersey																											
New Mexico																											
New York																											
North Carolina																											
North Dakota																											
Ohio																											
Oklahoma																											
Oregon																											
Pennsylvania																											
Rhode Island																											
South Carolina																											
South Dakota																											
Tennessee																											
Texas																											
Utah																											
Vermont																											
Virginia																											
Washington																											
West Virginia																											
Wisconsin																											
Wyoming																											
TOTAL	26,032	282,908	31,344	34,613	268,633	693,248	221,663	363,193	314,798	14,816	1,003,921	1,504,903	1,741,990	690,789	109,587	597,000											





State	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	TOTAL
Alabama												211,112
Alaska												22,222
Arizona												12,121
Arkansas												15,151
California												15,151
Colorado												22,222
Connecticut												22,222
Delaware												22,222
D.C.												22,222
Florida												22,222
Georgia												22,222
Idaho												22,222
Illinois												22,222
Indiana												22,222
Iowa												22,222
Kansas												22,222
Kentucky												22,222
Louisiana												22,222
Maine												22,222
Maryland												22,222
Massachusetts												22,222
Michigan												22,222
Minnesota												22,222
Mississippi												22,222
Missouri												22,222
Montana												22,222
Nebraska												22,222
Nevada												22,222
New Hampshire												22,222
New Jersey												22,222
New Mexico												22,222
New York												22,222
N. Carolina												22,222
N. Dakota												22,222
Ohio												22,222
Oklahoma												22,222
Oregon												22,222
Pennsylvania												22,222
Rhode Island												22,222
S. Carolina												22,222
S. Dakota												22,222
Tennessee												22,222
Texas												22,222
Utah												22,222
Vermont												22,222
Virginia												22,222
Washington												22,222
W. Virginia												22,222
Wisconsin												22,222
Wyoming												22,222
TOTAL												23,691,336

Source: State-Administered Research and Development Projects in Vocational Education, 1973-83.



Chart B-2. State-Administered Research and Development Funds, 1972 Part C: VOA's Administered by State

State	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Alabama																								
Alaska																								
Arizona																								
Arkansas																								
California	33,000	19,975																						
Colorado																								
Connecticut																								
Delaware																								
D. of C.																								
Florida																								
Georgia																								
Hawaii																								
Idaho																								
Illinois																								
Indiana																								
Iowa																								
Kansas																								
Kentucky																								
Louisiana																								
Maine																								
Maryland																								
Massachusetts																								
Michigan																								
Minnesota																								
Mississippi																								
Missouri																								
Montana																								
Nebraska																								
Nevada																								
New Hampshire																								
New Jersey																								
New Mexico																								
New York																								
North Carolina																								
North Dakota																								
Ohio																								
Oklahoma																								
Oregon																								
Pennsylvania																								
Rhode Island																								
South Carolina																								
South Dakota																								
Tennessee																								
Texas																								
Utah																								
Vermont																								
Virginia																								
Washington																								
West Virginia																								
Wisconsin																								
Wyoming																								
TOTAL	26,056	77,983	19,975	122,052	17,577	222,087	70,735	243,207	81,959	414,794	288,691	1,244,741	139,829	27,045	486,433	37,672	6,225	3,013	34,639					

Chart B-2. Continued

State	Q 1216	Q 1217	Q 1221	Q 1222	Q 1223	Q 1224	Q 1225	Q 1226	Q 1227	Q 1228	Q 1229	Q 1230	Q 1231	Q 1232	Q 1233	Q 1234	TOTAL
Alabama																	29,719
Alaska																	4,296
Arizona																	45,539
Arkansas																	77,107
California	10,313		17,200						10,060							3,433	295,625
Colorado							300										32,124
Connecticut			16,455				11,844										45,332
Delaware																	8,636
Dist. of C.																	23,700
Florida			21,168				62,640										274,308
Georgia				25,268											25,000		234,333
Hawaii																	20,932
Idaho																	15,631
Illinois		102,773		19,481			57,963										375,446
Indiana															14,282		224,021
Iowa		10,200		4,200													116,014
Kansas		14,190					25,024										102,014
Kentucky																	144,779
Louisiana																	152,593
Maine																	39,595
Maryland																	104,351
Massachusetts																	119,786
Michigan																	42,000
Minnesota																	72,464
Mississippi					179												101,073
Missouri		5,739		326													94,607
Montana																	35,543
Nebraska																	31,222
Nevada																	15,830
New Hampshire									9,737								9,737
New Jersey			31,300						21,283								394,083
New Mexico																	57,052
New York				19,400													265,749
N. Carolina		118,500															225,528
N. Dakota																	26,024
Ohio																	124,772
Oklahoma							7,868									15,600	132,523
Oregon																	48,112
Pennsylvania																	298,766
Rhode Island																	34,780
S. Carolina																	46,638
S. Dakota				35,594													35,594
Tennessee				985													67,261
Texas									2,390								558,175
Utah	7,615						11,549		82,172								19,674
Vermont																	13,050
Virginia		4,030		4,791													34,807
Washington		4,473															80,108
W. Virginia																	37,499
Wisconsin				21,013													269,050
Wyoming																	11,225
TOTAL	23,867	256,730	86,103	165,374	192,984	200,198	192,984	81,274	191,131	293,518	762,559	107,218	25,000	18,433	5,932,232		

Source: State-administered Research and Development Programs in Vocational Education, 1966.

Chart B-3. State-Administered Research and Development Funds, 1973 Part C. VIA, Categorized by State

State	Q 1112	Q 1113	Q 1115	Q 1121	Q 1122	Q 1123	Q 1125	Q 1126	Q 1127	Q 1134	Q 1135	Q 1211	Q 1212	Q 1213
Alabama														
Alaska														
Arizona														
Arkansas														
California	40,300													
Colorado	11,000													
Connecticut														
Delaware														
D. of C.														
Florida														
Georgia														
Hawaii	8,077													
Idaho	29,985													
Illinois	12,675													
Indiana														
Iowa														
Kansas	9,715													
Kentucky														
Louisiana														
Maine														
Maryland	3,100													
Massachusetts	32,000													
Michigan	91,719													
Minnesota														
Mississippi														
Missouri	760													
Montana														
Nebraska														
Nevada														
New Hampshire														
New Jersey														
New Mexico														
New York														
North Carolina														
North Dakota														
Ohio														
(1/3 Ohio)														
Oklahoma														
Oregon														
Pennsylvania														
Rhode Island	31,780													
South Carolina														
South Dakota														
Tennessee														
Texas														
(3/4 Texas)														
Utah														
Vermont														
Virginia														
Washington														
West Virginia														
Wisconsin														
Wyoming														
Puerto Rico														
TOTAL	294,034	39,736	19,177	44,746	667,533	224,519	237,062	109,039	17,271	1,274,872	1,735,834	3,332	650,225	26,291



	Q 1221	Q 1222	Q 1223	Q 1224	Q 1225	Q 1226	Q 1227	Q 1228	Q 1229	Q 1230	Q 1231	Q 1232	Q 1233	Q 1234	Q 1235	Q 1236	Q 1237	Q 1238	Q 1239	TOTAL
Alabama																				185,570
Alaska			90,491																	185,570
Arizona			12,246																	50,813
Arkansas																				100,616
California			2,105	30,000	2,500															510,978
Colorado																				126,204
Connecticut																				37,277
Delaware																				10,161
Dist. of C.																				26,854
Florida	19,000	41,700	20,000		63,677															298,225
Georgia																				385,170
Hawaii		39,664		5,000																67,851
Idaho																				65,358
Illinois			38,766																	461,144
Indiana			28,680	5,403	487															232,533
Iowa		8,810	12,703																	252,224
Kansas																				50,458
Kentucky																				50,458
Louisiana																				31,210
Maine																				33,823
Maryland																				96,928
Massachusetts																				252,150
Michigan																				422,221
Minnesota																				12,222
Mississippi																				25,177
Missouri		700																		152,425
Montana																				35,418
Nebraska		23,893																		66,556
Nevada																				17,132
New Hampshire																				3,221
New Jersey		23,287																		242,762
New Mexico		37,852																		57,252
New York																				292,502
N. Carolina			18,000																	182,743
N. Dakota																				42,123
Ohio																				(2,385,484)
(1/4 Ohio)																				31,256
Oklahoma																				3,256
Oregon																				21,169
Pennsylvania		1,500																		628,793
Rhode Island																				31,750
South Carolina																				18,453
South Dakota																				1,029
Tennessee																				260,514
Texas	(53,386)	(79,455)																		(225,705)
(3/4 Texas)	40,040	59,591																		344,624
Utah																				153,803
Vermont																				16,721
Virginia		212,194	1,346																	597,530
Washington																				45,220
W. Virginia																				42,459
Wisconsin																				156,959
Wyoming		8,304																		15,227
Puerto Rico																				120,286
TOTAL	58,040	499,735	215,310	307,403	378,867	8,013	26,440	25,402	123,759	131,822	4,371	2,500	125,000	3,000	3,000	17,137	17,137	17,137	17,137	8,774,581

Source: State-Dependent Research and Development Projects in Vag. 1982.

## APPENDIX C

### Part D Expenditures Profile

1. Summary of Expenditures by Category and Expenditures by Category for Each Year, Fiscal Years 1970, 1972, 1973
2. State-Administered Exemplary Project Funds, Part D, VEA, categorized by State for Fiscal Years 1970, 1972, and 1973

SUMMARY

	Counseling and Placement	Career Awareness Expenditure	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Education and Manpower	P 1111 \$ 20,350 .3%	P 1112 \$ 24,582 .4%	P 1113 \$ - 0 -	P 1114 \$ - 0 -	P 1115 \$ 13,167 .2%	\$ 58,099 1.0%
Young people in Post-Secondary Vocational Ed.	P 1121 162,003 2.7%	P 1122 93,773 1.6%	P 1123 - 0 -	P 1124 71,941 1.2%	P 1125 928,389 15.7%	1,256,043 21.2%
Young people who are out of school	P 1131 37,726 .6%	P 1132 - 0 -	P 1133 - 0 -	P 1134 25,443 .4%	P 1135 134,136 2.3%	197,305 3.3%
Young people still in school	P 1141 943,553 15.9%	P 1142 2,351,416 39.7%	P 1143 92,316 1.6%	P 1144 49,607 .8%	P 1145 970,099 16.4%	4,357,051 73.6%
TOTALS	1,163,632 19.7%	2,469,771 41.7%	92,316 1.6%	146,991 2.5%	2,045,791 34.6%	5,918,051 100%

Figure C-1. Summary of Analysis of 1970 Expenditures of State-Administered Part D Funds. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.



LOCAL

	Counseling and Placement	Career Awareness Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Education and Manpower	P 1111 \$ 20,350 .3%	P 1112 \$ 24,582 .4%	P 1113 \$ - 0 -	P 1114 \$ - 0 -	P 1115 \$ 13,167 .2%	\$ 58,099 1.0%
Young people in Post-Secondary Vocational Ed.	P 1121 162,003 2.7%	P 1122 93,773 1.6%	P 1123 - 0 -	P 1124 71,941 1.2%	P 1125 626,289 10.6%	954,005 16.1%
Young people who are out of school	P 1131 37,726 .6%	P 1132 - 0 -	P 1133 - 0 -	P 1134 25,443 .4%	P 1135 134,136 2.3%	197,305 3.3%
Young people still in school	P 1141 812,679 13.7%	P 1142 1,851,802 31.3%	P 1143 80,761 1.4%	P 1144 49,607 .8%	P 1145 637,405 10.8%	3,432,254 58.0%
TOTALS	1,032,756 17.5%	1,970,157 33.3%	80,761 1.4%	146,991 2.5%	1,410,996 23.8%	4,641,662 76.4%

Figure C-2. Analysis of State-Administered Part D Funds obligated for Projects at the Local Level during 1970. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.

STATE

	Counseling and Placement	Career Awareness and Evaluation	Math Activities	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Education and Employer	P1211 - 0 -	P1212 - 0 -	P1213 - 0 -	P1214 - 0 -	P1215 - 0 -	- 0 -
Young People in Post-Secondary Vocational Ed.	P1221 - 0 -	P1222 - 0 -	P1223 - 0 -	P1224 - 0 -	P1225 \$302,101 5.1%	\$ 302,101 5.1%
Young People who are Out of School	P1231 - 0 -	P1232 - 0 -	P1233 - 0 -	P1234 - 0 -	P1235 - 0 -	- 0 -
Young People Still in School	P1241 \$130,874 2.2%	P1242 \$499,614 8.4%	P1243 \$11,555 .2%	P1244 - 0 -	P1245 332,694 5.5%	974,737 16.5%
TOTALS	130,874 2.2%	499,614 8.4%	11,555 .2%	- 0 -	654,795 10.7%	1,276,235 21.6%

Figure C-3. Analysis of State-Administered Part D Funds Utilized for Projects at the State level during 1970. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USCE, June, 1973.

SYSTEM

	Counseling and Placement	Career Awareness Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Education and Manpower	P 1111 - 0 -	P 1112 \$ 60,605 .6%	P 1113 - 0 -	P 1114 - 0 -	P 1115 \$ 10,403 .1%	\$ 51,368 .7%
Young people in Post-Secondary Vocational Ed.	P 1121 \$ 252,500 3.6%	P 1122 73,232 1.1%	P 1123 \$ 18,606 .3%	P 1124 - 0 -	P 1125 1,286,655 17.6%	1,571,143 22.6%
Young people who are out of school	P 1131 100,901 1.5%	P 1132 - 0 -	P 1133 - 0 -	P 1134 \$ 6,575 .1%	P 1135 69,024 1.0%	176,500 2.6%
Young people still in school	P 1141 851,077 12.2%	P 1142 2,858,602 41.1%	P 1143 91,714 1.3%	P 1144 62,599 .9%	P 1145 1,291,120 18.6%	5,155,122 72.6%
TOTALS	1,204,538 17.3%	2,972,619 42.8%	110,410 1.6%	69,174 1.0%	2,592,212 37.3%	6,954,153 100 %

Figure C-4. Summary of Analysis of 1972 Expenditures of State-Administered Part D Funds. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, LSOE, June, 1973.

LOCAL

	Counseling and Placement	Career Awareness Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Education and Manpower	P 1111 - 0 -	P 1112 \$ 40,985 .6%	P 1113 - 0 -	P 1114 - 0 -	P 1115 \$ 10,403 .1%	\$ 51,388 .7%
Young people in Post-Secondary Vocational Ed.	P 1121 \$252,560 3.6%	P 1122 73,232 1.1%	P 1123 \$18,696 .3%	P 1124 - 0 -	P 1125 879,851 12.7%	1,223,329 17.6%
Young people who are out of school	P 1131 100,451 1.4%	P 1132 - 0 -	P 1133 - 0 -	P 1134 \$ 6,575 .1%	P 1135 36,464 .5%	143,490 2.1%
Young people still in school	P 1141 710,124 20.2%	P 1142 2,416,859 34.5%	P 1143 80,714 1.2%	P 1144 62,599 .9%	P 1145 956,399 13.8%	4,226,695 60.8%
<b>TOTALS</b>	1,062,135 15.3%	2,531,076 36.4%	99,410 1.4%	69,174 1.0%	1,883,107 27.1%	5,644,902 81.2%

Figure C-5. Analysis of State Administered Part D Funds Obligated for Projects at the Local Level during 1972. Percents shown are percentages of the total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.



STATE

	Counseling and Placement	Career Awareness and Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Education and Manpower	P1211 - 0 -	P1212 P - 0 -	P1213 - 0 -	P1214 - 0 -	P1215 - 0 -	- 0 -
Young People in 11-12 Secondary Vocational Ed.	P1221 1,000	P1222 - 0 -	P1223 - 0 -	P1224 - 0 -	P1225 \$ 347,814 5.0%	\$ 347,814 5.0%
Young People Who are out of School	P1231 \$ 450 .007%	P1232 - 0 -	P1233 - 0 -	P1234 - 0 -	P1235 32,560 .5%	33,010 .5%
Young People Still in School	P1241 140,953 2.0%	P1242 \$ 441,743 6.4%	P1243 \$ 11,000 .2%	P1244 - 0 -	P1245 334,731 4.8%	928,427 13.4%
TOTALS	142,403 2.0%	441,743 6.4%	11,000 .2%	- 0 -	714,105 10.3%	1,309,251 18.8%

Figure C-6. Analysis of State-Administered Part D Funds Obligated for Projects at the State Level during 1972. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.

SUMMARY

	Counseling and Placement	Career Awareness and Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Ed. and Manpower	P 1111 \$ - 0 -	P 1112 \$ 80,330 1.1%	P 1113 \$ - 0 -	P 1114 \$ - 0 -	P 1115 \$ 6,948 .1%	\$ 87,278 1.2%
Young people in Post-Secondary Vocational Education	P 1121 205,033 2.9%	P 1122 176,179 2.5%	P 1123 - 0 -	P 1124 50,000 .7%	P 1125 1,173,068 16.8%	1,604,280 23.0%
Young people who are out of school	P 1131 41,773 .6%	P 1132 1,200 .02%	P 1133	P 1134 6,775 .1%	P 1135 65,314 .9%	115,062 1.6%
Young people still in school	P 1141 360,001 5.2%	P 1142 3,540,650 50.8%	P 1143 47,007 .7%	P 1144 96,898 1.4%	P 1145 1,118,798 16.0%	5,163,354 74.1%
TOTALS	606,807 8.7%	3,798,359 54.5%	47,007 .7%	153,673 2.2%	2,364,128 33.9%	6,969,974 100%

Figure C-7. Summary of Analysis of 1973 Expenditures of State-Administered Part D Funds. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.

	Counseling and Placement	Career Awareness and Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Ed. and Manpower	P 1111 \$ - 0 -	P 1112 \$ 80,330 1.1%	P 1113 \$ - 0 -	P 1114 \$ - 0 -	P 1115 \$ 6,948 .1%	\$ 87,278 1.2%
Young people in Post-Secondary Vocational Education	P 1121 196,833 2.8%	P 1122 176,179 2.5%	P 1123 - 0 -	P 1124 50,000 .7%	P 1125 710,146 10.3%	1,142,158 16.4%
Young people who are out of school	P 1131 41,773 .6%	P 1132 1,200 .02%	P 1133 - 0 -	P 1134 6,775 .1%	P 1135 63,797 .9%	112,545 1.6%
Young people still in school	P 1141 266,251 3.8%	P 1142 2,948,293 42.3%	P 1143 36,007 .5%	P 1144 96,098 1.4%	P 1145 866,503 12.4%	4,213,952 60.5%
<b>TOTALS</b>	507,857 7.2%	3,206,002 46.0%	36,007 .5%	153,673 2.2%	1,656,394 23.6%	5,556,933 79.7%

Figure C-8. Analysis of State Administered Part D Funds Obligated for Projects at the Local Level during 1973. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.



STATE

	Counseling and Placement	Career Awareness and Exploration	Work Experience	Cooperative Education	Vocational Instruction	TOTALS
Cooperation between Id. and Manpower	P 1211 \$ - 0 -	P 1212 \$ - 0 -	P 1213 \$ - 0 -	P 1214 \$ - 0 -	P 1215 \$ - 0 -	\$ - 0 -
Young people in Post-Secondary Vocational Education	P 1221 8,200 .1%	P 1222 - 0 -	P 1223 - 0 -	P 1224 - 0 -	P 1225 453,922 6.5%	462,122 6.6%
Young people who are out of school	P 1231 - 0 -	P 1232 - 0 -	P 1233 - 0 -	P 1234 - 0 -	P 1235 1,517 .02%	1,517 .02%
Youngs people still in school	P 1241 93,750 1.3%	P 1242 592,357 8.5%	P 1243 11,000 .2%	P 1244 - 0 -	P 1245 252,295 3.6%	949,402 13.6%
TOTALS	101,950 1.5%	592,357 8.5%	11,000 .2%	0%	707,734 10.1%	1,413,041 20.3%

Figure C-9. Analysis of State-Administered Part D Funds Obligated for Projects at the State Level during 1973. Percents shown are percentages of total of all categories and levels.

Source: All of the charts and figures in Appendix C are steps in the analysis of data found in State-Administered Exemplary Projects in Vocational Education, USOE, June, 1973.

Chart C-1. State-Administered Exemplary Project Funds,  
1970 (Part B, VEA, Categorized by State)

State	P 1111	P 1112	P 1113	F 1121	P 1122	P 1124	P 1125	P 1131	P 1134	P 1135
Alabama							36,925			
Alaska										
Arizona			2,460	17,320	3,902		53,652			
Arkansas							9,772			36,711
California				37,802			7,008			
Colorado										
Connecticut										
Delaware										
D. of C.										
Florida										
Georgia					8,761	8,761	20,505			
Hawaii							14,000			
Idaho							50,831	28,000		
Illinois										
Indiana	20,350									
Iowa										
Kansas					32,200					
Kentucky							19,000			
Louisiana							5,000			
Maine										
Maryland										
Massachusetts				18,600	22,000		29,297	1,351	25,643	21,600
Michigan			8,720				122,337			25,000
Minnesota										
Mississippi										
Missouri										
Montana				21,700			37,924			
Nebraska				30,044						
Nevada							8,140			
New Hampshire										
New Jersey			24,382							
New Mexico				5,000			12,802			
New York							26,675			
North Carolina			1,987	17,272	132					3,986
North Dakota										
Ohio										
Oklahoma					9,403	13,100	44,709			
Oregon							29,336			
Pennsylvania										
Rhode Island				1,404						
South Carolina										
South Dakota										
Tennessee										
Texas							55,229			
Utah							340			
Vermont										
Virginia				12,047			14,040	3,500		35,816
Washington										
West Virginia				1,014	16,873		23,936	4,675		1,623
Wisconsin										
Wyoming						50,000				
TOTAL	20,350	24,382	13,107	162,003	93,773	71,941	626,208	37,726	25,643	134,136

Chart C-3. (Continued)

State	P 11-51	P 11-52	P 11-53	P 11-54	P 11-55	P 12-51	P 12-52	P 12-53	P 12-54	P 12-55
Alabama	30,000	20,057	67,023	1,422	49,528					
Alaska		57,041			11,902					
Arizona		29,708			10,470					
Arkansas		62,076			12,800					
California	44,864					49,634	62,914			
Colorado	9,970									
Connecticut		42,161								
Delaware		65,274								
D. of C.		103,936								
Florida										
Georgia										
Hawaii		52,369								
Idaho	45,976	24,764			20,057					
Illinois	51,926				32,382					
Indiana		87,331			19,958					
Iowa	26,860									
Kansas		64,381								
Kentucky	60,374	60,374								
Louisiana	124,484									
Maine	15,120	21,407								
Maryland	16,500	31,594								
Massachusetts		53,461								
Michigan		52,329	23,738		28,938					
Minnesota										
Mississippi						116,278				
Missouri		76,695								
Montana	61,331									
Nebraska	73,896									
Nevada	19,074	19,064			5,592					
New Hampshire		4,000			45,710					
New Jersey		67,427								
New Mexico	6,432	15,923			29,650					
New York		95,226			123,569					
North Carolina		27,235			4,550					
North Dakota		13,600								
Ohio		159,276								
Oklahoma		3,919								
Oregon		25,962								
Pennsylvania	116,411	10,775								
Rhode Island										
South Carolina		50,707								
South Dakota	8,300	124,351								
Tennessee										
Texas										
Utah										
Vermont		39,249								
Virginia		116,734								
Washington	29,200	51,836								
West Virginia		13,340								
Wisconsin	33,961									
Wyoming		96,080								
TOTAL	812,699	1,851,892	80,761	49,097	617,405	202,101	499,616	11,555	332,694	5,928,901

Source: State Administrative Development Projects in Total Local Revenues: 1951, June, 1973.

Chart C-2. State-Administered Exemplary Project Funds, 1972 Part D, VFA, Continued by State

State	P 1112	P 1113	P 1121	P 1122	P 1123	P 1125	P 1131	P 1134	P 1135	P 1144	P 1145	P 1221	P 1225			
Alabama																
Alaska																
Arizona				5,000		2,000				25,000	49,738					
Arkansas				7,000		13,406				25,000	35,050		1,860			
California						38,591										
Colorado																
Connecticut																
Delaware																
D. of C.																
Florida																
Georgia																
Hawaii																
Illinois																
Indiana																
Iowa																
Kansas																
Kentucky																
Louisiana																
Maine																
Maryland																
Massachusetts																
Michigan																
Minnesota																
Mississippi																
Missouri																
Montana																
Nebraska																
Nevada																
New Hampshire																
New Jersey																
New Mexico																
New York																
North Carolina																
North Dakota																
Ohio																
Oklahoma																
Oregon																
Pennsylvania																
Rhode Island																
South Carolina																
South Dakota																
Tennessee																
Texas																
Utah																
Vermont																
Virginia																
Washington																
West Virginia																
Wisconsin																
Wyoming																
TOTALS	40,985	10,403	231,560	73,232	18,078	879,841	100,451	6,575	36,564	710,124	2,416,859	50,714	62,399	956,399	1,000	346,814



Chart C-3. (Continued)

States	P 1231	P 1215	P 1241	P 1242	P 1243	P 1244	P 1245	X	C/A 2	W/T 2	TOTALS
Alabama									39%	61%	150,207
Alaska									100%	0	104,491
Arizona			1,500				44,040		22%	78%	89,040
Arkansas							18,221		64%	34%	134,472
California				24,045					3%	97%	304,476
Colorado									86%	14%	94,706
Connecticut								1,993	100%	0	101,427
Delaware									54%	46%	104,923
D. of C.									100%	0	108,512
Florida							169,176		0	100%	169,176
Georgia									100%	0	99,135
Hawaii									48%	52%	120,435
Illino									2%	98%	100,815
Illinois									47%	53%	224,624
Indiana								2,274	61%	39%	168,530
Iowa									100%	0	123,954
Kansas							27,892		100%	0	131,234
Kentucky							17,000		100%	0	145,014
Louisiana									56%	44%	153,959
Maine							10,104		48%	52%	71,869
Maryland									100%	0	149,720
Massachusetts								18,000	82%	18%	127,638
Michigan									14%	86%	141,568
Minnesota									19%	81%	132,836
Mississippi									0	100%	72,662
Missouri									56%	44%	159,133
Montana									9%	91%	110,108
Nebraska									9%	91%	78,841
Nevada									67%	33%	94,253
New Hampshire									42%	58%	98,361
New Jersey									94%	6%	125,242
New Mexico								20,271	35%	65%	108,442
New York	450						78,950		59%	41%	321,470
North Carolina								4,431	77%	23%	194,225
North Dakota								8,408	47%	53%	91,857
Ohio									100%	0	163,030
Oklahoma									16%	84%	86,007
Oregon							15,940		64%	36%	70,721
Pennsylvania								46,789	64%	36%	278,256
Rhode Island									57%	43%	114,251
South Carolina									100%	0	140,876
South Dakota									9%	91%	108,929
Tennessee									79%	21%	152,949
Texas		32,560							33%	67%	232,323
Utah							55,500		44%	56%	114,582
Vermont									61%	39%	107,130
Virginia								15,058	49%	51%	169,965
Washington									100%	0	141,736
West Virginia								2,128	32%	68%	125,680
Wisconsin									57%	43%	124,194
Wyoming								10,000	22%	78%	104,761
TOTALS	450	32,560	140,433	441,741	11,000	134,731		225,310			7,079,463

X: This column contains projects that did not seem to fit any of the categories established. It is not used in determining the percentages for C/A or W/T.

C/A: This column indicates the percent of total Part B, state-administered funds spent for career awareness and finance type projects at the State and local level.

W/T: This column indicates the percent of total Part B, state-administered funds spent for work experience, cooperative education, and vocational instruction type projects at the local level.

Source: State-Administered Vocational Training in Vocational Education, 1966, June, 1973.



Chart C-3. State-Administered Elementary Project Funds, 1973 Part B, VFA, Categorized by State

State	P 1112	P 1113	P 1121	P 1122	P 1123	P 1124	P 1125	P 1126	P 1127	P 1128	P 1129	P 1130	P 1131	P 1132	P 1133	P 1134	P 1135	P 1136
Alabama																		
Alaska																		
Arizona	45,890																	
Arkansas																		
California						30,000							29,378					
Colorado																		
Connecticut																		
Delaware																		
D. of C.																		
Florida																		
Georgia																		
Hawaii																		
Idaho																		
Illinois	8,323																	
Indiana																		
Iowa																		
Kansas																		
Kentucky																		
Louisiana																		
Maine																		
Maryland																		
Massachusetts																		
Michigan																		
Minnesota																		
Mississippi																		
Missouri																		
Montana																		
Nebraska																		
Nevada																		
New Hampshire	7,303																	
New Jersey																		
New Mexico																		
New York																		
North Carolina																		
North Dakota																		
Ohio																		
Oklahoma																		
Oregon																		
Pennsylvania																		
Rhode Island																		
South Carolina																		
South Dakota																		
Tennessee																		
Texas																		
Utah																		
Vermont																		
Virginia																		
Washington																		
West Virginia																		
Wisconsin																		
Wyoming																		
Puerto Rico																		
TOTAL	80,133	6,948	196,833	176,178	50,000	219,146	41,773	1,229	9,773	63,737	266,231	18,340	26,879	1,135	1,135	1,135	1,135	1,135

States	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	TOTAL			
	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129				
Alabama	18,700		19,232														67,811			
Alaska	19,574																16,627			
Arizona	17,513		16,775														110,667			
Arkansas	12,212																187,060			
California	89,075														23,500		227,105			
Colorado																	114,965			
Connecticut	59,101		32,970														91,071			
Delaware																	45,403			
D. of C.	109,151																109,151			
Florida																	176,199			
Georgia																	161,731			
Hawaii	23,112																89,629			
Idaho	20,080		9,800														112,375			
Illinois	7,236																226,958			
Indiana	26,000																174,490			
Iowa	23,008																87,041			
Kansas	6,500																66,000			
Kentucky	122,771																132,771			
Louisiana	108,360																132,440			
Maine	55,507																103,635			
Maryland	109,775																149,775			
Massachusetts	100,000																136,743			
Michigan																	115,000			
Minnesota	21,000																101,578			
Mississippi																	135,000			
Missouri	159,910																159,910			
Montana	31,455																175,817			
Nebraska	91,333																123,418			
Nevada	77,282																95,329			
New Hampshire	53,717																113,479			
New Jersey	171,974																189,338			
New Mexico	19,000																92,450			
New York	111,704																111,704			
North Carolina																	115,791			
North Dakota	30,100																101,344			
Ohio	74,168																241,188			
Oklahoma	19,179																136,784			
Oregon	64,933																86,470			
Pennsylvania																	128,452			
Rhode Island	60,811																95,793			
South Carolina																	109,250			
South Dakota	11,999																176,943			
Tennessee																	81,000			
Texas	121,449																196,821			
Utah	101,937																122,874			
Vermont	51,341																113,634			
Virginia	136,470																246,040			
Washington	72,715																142,415			
West Virginia	1,237																69,611			
Wisconsin	69,229																107,941			
Wyoming	88,027																104,837			
Puerto Rico	31,949																176,130			
TOTAL	2,948,293		34,003		96,898		146,501		6,200		453,922		93,750		592,337		11,000	232,295	1,317	6,969,974





APPENDIX D

Part I

Current Status and Summary Analysis  
from USOE Curriculum Branch

APPENDIX D. PART I: Current Status and Summary Analysis  
from USOE Curriculum Branch

Part I, Curriculum Development, Vocational Education Amendments of 1968

Background/Overview

Legislation: VEA of 1963, as amended, Part I

Expiration Date: June 30, 1975

Funding History:

<u>Year</u>	<u>Authorization</u>	<u>Appropriation</u>
1969	\$ 7,000,000	-0-
1970	10,000,000	\$ 880,000
1971	10,000,000	4,000,000
1972	10,000,000	4,000,000
1973	10,000,000	7,000,000
1974	10,000,000	4,000,000*

\*Release of an additional \$2,000,000 brought this figure to  
\$6,000,000.

Program Purpose and Objectives

Part I of the Vocational Education Act of 1963, as amended authorizes the Commissioner to make grants or contracts with colleges and universities, State boards, and other public or nonprofit private agencies and institutions for curriculum development in vocational and technical education. No matching funds are required.

The Curriculum Development Program provides for the development, testing, and dissemination of vocational education curriculum materials for use in teaching occupational subjects, including curriculums for new and changing occupational fields and vocational teacher education. It further provides for: developing standards for curriculum development in all occupational fields; coordinating the efforts of the States with respect to curriculum development and management; surveying curriculum materials produced by other agencies; evaluating vocational-technical education curriculum materials; and training personnel in curriculum development.

Most of these activities are carried out through individual projects. However, there are also seven Curriculum Centers which cover the country and which provide a network for coordination.

PART I, CURRICULUM DEVELOPMENT,  
VOCATIONAL EDUCATION AMENDMENTS OF 1968

Current Status

Curriculum projects funded under Part I, Curriculum Development, P.L. 90-576, since 1970, tend to fall into seven major categories: (1) development of vocational curricula, with emphasis on occupational clusters, (2) general career education curricula, (3) curriculum development for emerging and expanding occupations at the postsecondary level, (4) curriculum development for groups with special needs, (5) training curriculum development personnel and familiarizing teachers with curriculum packages, (6) the national network for curriculum coordination, and (7) survey of curriculum materials available from government agencies. As of July 1, 1973 there were 65 active curriculum projects funded under Part I. Monitoring the technical content aspects of the projects is shared by members of the Division of Research and Demonstration and others in the Office of Adult, Vocational-Technical, and Manpower Education.

Curriculum development in the 15 occupational "clusters" identified by the Division of Vocational-Technical Education began in fiscal '71. Thus far the following areas have been addressed in major projects aimed at developing "cluster" curricula: agribusiness; business and office; communications and media; health; construction; marketing and distribution; manufacturing; public services; transportation; and the consumer aspect of the consumer-homemaking cluster. Some initial efforts have been undertaken in recreation, tourism, and hospitality; environmental protection and the arts. By fiscal '76 major curriculum development in all of the 15 clusters will have been undertaken. Products from these efforts are already beginning to be used in the schools.

Two major projects aimed at the development of career education curricula, K-6 and 7-9 are nearing completion. These will interface with the "cluster" curricula to form a K-12 instructional system. Complementing the elementary school career education curriculum development is a series of 16 films "The Kingdom of Could Be You" on the 15 clusters and the general world of work. Each film has been shown twice as part of the "Captain Kangaroo" children's TV program.

Soon to be published is a book on Career Education for the Gifted and Talented: Curriculum Guidelines, product of a Part I-funded project. Also in the area of career education is a machine-aided instructional program designed to contribute to awareness of careers on the part of students, K-12. Guidelines for industrial arts in career education, product of a Part I project have recently been disseminated as have guidelines for curricula for the arts in career education.

Curricula for emerging and expanding occupations at the post-secondary level have been developed in: bio-medical equipment technology; electro-mechanical technology; nuclear medical technology; electro-optical technology; concrete technology; and allied health. Impact of these efforts on post-secondary programs has been great. One project in the area of

electro-mechanical technology was instrumental in the development of instructional programs in 70 community colleges.

Curriculum development for groups with special needs is a priority area. Thus far, special efforts to meet needs of these in correctional institutions, Spanish-surname youth, disadvantaged adults, Indians, and other minorities have been undertaken. Further work to address needs of special groups is anticipated.

Training institutes for curriculum personnel development were held in three regions of the country under a Part I Curriculum Development grant. Just off the press are guides for curriculum development in vocational-technical and career education which are products of these institutes.

Education for transfer to the metric system has been undertaken under Part I funding. Further work in the priority area is anticipated.

A major achievement of the past three years is the development of a National Network for Curriculum Coordination, consisting of seven curriculum centers in California, Illinois, Kentucky, Mississippi, New Jersey, Oklahoma, Washington, liaison persons in the other states, and the Curriculum Development Branch of the Division of Research and Demonstration. The purposes of the Network are:

1. INFORMATION SHARING

To provide a mechanism for the sharing of information on curriculum materials available and under development, and for reporting on coordination efforts.

2. STANDARDS

To develop and recommend guidelines for curricula and curriculum development with the ultimate goal of increasing the effectiveness of curriculum materials and enhancing their transportability.

3. CURRICULUM NEEDS, AS A BASIS FOR PLANNING

To establish and maintain a system for determining curriculum needs in vocational-technical education and reporting conclusions to the field.

4. COORDINATION

To coordinate activities in curriculum development, dissemination and utilization with the aim of avoiding unwarranted duplication, enhancing quality of effort, increasing the transportability of curriculum materials, and improving the acceptance and use of curriculum materials.

The Network is proving cost effective in terms of avoiding unnecessary duplication of effort in curriculum development, coordinating curriculum development, and testing, and providing for more effective dissemination of curriculum materials.

Surveys of curriculum materials available from government agencies have been made and the results disseminated to the vocational education community. There is need for such surveys on a continuing basis.

PART I, CURRICULUM DEVELOPMENT, VOCATIONAL EDUCATION AMENDMENTS OF 1968

Related Tabular and Statistical Data

A. Funding and Number of Projects by Part I Purposes, '70-'73

Part I Purposes	1970		1971		1972		1973	
	Funding Level	No. Projects	Funding Level	No. Projects	Funding Level	No. Projects	Funding Level	No. Projects
1. Curriculum Materials Dev. and Dissem. (New, Changing Occupations)	670,633.73 (59,935)	16 (2)	3,299,997 (716,233)	19 (2)	2,852,310 (743,141)	21 (4)	3,128,342 (707,150)	23 (4)
2. Dev. Standards for Curriculum Development					25,000	1	60,000	1
3. Coordinating Efforts of the States	9,507.76	1			917,880	5	395,000	3
4. Survey Materials	167,074.00	1	129,000	1	48,731	2		
5. Materials Eval. and Use					56,060	3		
6. Personnel Training			571,000	7	99,679	1		
TOTALS	\$847,215.49	18	\$3,999,997	27	\$3,999,660	33	\$3,583,342	27

B. DISTRIBUTION OF PART I FUNDS BY OCCUPATIONAL CLUSTERS, '71-'73

AREA	FY 1971	FY 1972	FY 1973
General Career Education	0	\$1,137,661	\$ 273,729
Agribusiness	\$ 149,913	260,000	0
Business and Office	200,000	0	520,314
Communications and Media	570,000	0	241,830
Health	0	200,000	500,000
Hospitality, Tourism and Recreation	103,012	0	0
Consumer and Homemaking	164,383	195,724	162,144
Fine Arts and Humanities	0	0	26,109
Construction Occupations	150,000	71,705	262,786
Environment	296,236	0	0
Marketing and Distribution	0	24,000	189,853
Manufacturing	150,000	0	250,000
Public Services	150,000	0	229,707
Personal Services	200,000	0	0
Transportation	150,000	49,396	250,000
Marine Sciences	0	0	0
Other	150,000	200,000	570,835
TOTALS	\$2,433,544	\$2,138,486	\$3,477,307



C. CURRICULA FOR GROUPS WITH SPECIAL NEEDS

SPECIAL NEED GROUP SERVED DISADVANTAGED	FY 1971	FY 1972 \$196,697 Trng. in Correctional Institutions Employability Skills for Disadv. Adults	FY 1973
SPECIAL POPULATIONS	\$700,000 Seven Workshops for Teachers on Curr. Dev. and Modification Voc. Instr. Matls. for Students with Special Needs		
<u>MINORITIES</u> Indian			
Spanish Speaking		\$20,000 Developing Career Awareness for Spanish Surnamed People	
All Minorities			\$462,067 Mgmt. Trng. for Operators of Small Businesses Business Ownership Curriculum
GIFTED		\$55,463 Career Ed. for Gifted and Talented Career Cluster for College Oriented Students	

D. CONSUMER EDUCATION

<u>PROJECTS</u>	<u>FY '72 ONLY</u>
1. Survey of Consumer Education in the States with emphasis on effects of state legislation for consumer education	\$ 10,000
2. Development of curriculum modules in consumer education, K-adult	185,724
3. World of Work Economic Education, A Key to Career Education in Secondary Schools (consumer education component)	249,230
	<hr/>
TOTAL	\$444,954

PART I, CURRICULUM DEVELOPMENT,  
VOCATIONAL EDUCATION AMENDMENTS OF 1968

SUMMARY ANALYSIS

The impact of Part I funds in meeting national curriculum development and management priorities in vocational education is being felt in significant ways despite the fact that Part I funds have been available only since 1970.

Curriculum projects are nearing completion in six of the 15 occupational "clusters" identified by the Division of Vocational-Technical Education: construction, public services, manufacturing, communications and media, health, and consumer education (one aspect of the consumer - homemaking cluster). Development of curricula in five other clusters is underway and projected in the four remaining. Three hundred copies of the publicservice curriculum products have already been disseminated - in their test form. Guidelines developed for the recreation, tourism, and hospitality cluster have been disseminated to all states and 4,000 local education agencies. Thirty-five thousand copies of the product of a series of environmental occupations awareness workshops have been sold by GPO; an additional 15,000 are being printed. Seven thousand and four hundred copies of a curriculum guide for computer sciences at the secondary level, and 2,230 of the computer science guide for the postsecondary level have been disseminated. Curriculum guides for a variety of allied health occupations are being commercially printed and disseminated; in the testing of these materials, 15,325 students were involved.

In order to achieve a total instructional system, K-12 and above, two major projects for the development of career education curricula, K-6 and K-9, were undertaken to articulate with the occupational cluster curricula for the secondary level. The curriculum products, now being field tested, should be available to the field in summer, 1974. Just in the testing phases of the two projects, a total of 12,100 students are being reached in 14 cities. A series of films on the 15 occupational clusters, designed to develop career awareness in three to six year olds, have been viewed in the "Captain Kangaroo" TV program by more than 3,000,000 children across the United States. Career Education invitational workshops, funded under Part I, reached 984 educational leaders throughout the country; these were effective in developing understanding and promoting the concept of career education.

Four projects, funded under Part I in their last phases, are concerned with the development of curricula in the emerging occupational fields of: bio-medical equipment, electro-mechanical technology, laser and electro-optical technology, and nuclear medical technology. These projects have been instrumental in the initiation and development of training programs in these fields in postsecondary schools throughout the country. In the case of electro-mechanical technology, 70 schools have adopted the program, which has been published by a commercial publisher. A commercial publisher

has also contracted for the publication of curriculum guides in concrete technology. Recently printed for national dissemination by GPO are postsecondary curriculum guides in: Textile, Apparel, and Accessories Industries; Career Education in Natural Resources; Computer Science; Air Pollution Technology; Social Services; and a guide for the Library Technical Assistant.

Groups with special needs addressed through Part I funded projects have included: disadvantaged adults, those in correctional institutions, gifted and talented, and minorities. Two of the projects were state-of-the-art studies to provide direction for further work. One, on career education for the gifted and talented, was a pioneer effort in this field.

Another pioneering project is concerned with the development of curriculum packages for metric education and familiarizing teachers with these. Further work in metric education is anticipated.

First steps in meeting a crucial need for trained curriculum specialists in vocational education were taken in three regional institutes held in 1973. Out of these institutes have come recently-published guides for curriculum developers.

Surveying curriculum materials produced by other agencies is a Part I purpose. A survey of 48 agencies resulted in listings of materials in seven vocational areas and the printing of 79,986 copies of the documents which make these listings available to the vocational education community.

The Office of Education, through its Curriculum Development Branch in the Division of Research and Demonstration, BOAE, coordinates the curriculum work underway in some 65 active projects. For example, the directors of "cluster" projects are brought together to share experiences and problems and to relate their efforts; they have had one training session on field testing of curriculum materials.

Monitoring is shared by members of the Curriculum Development Branch and specialists in technical areas throughout BOAE. This is a particular strength of the Curriculum Development Program. It means that technical specialists in the content fields are contributing the benefits of their expertise to the projects and are, in turn, increasing their expertise through contact with specialists in the field.

In July, 1973, plans were completed for a national network to maximize resources for curriculum development and coordination in vocational-technical education. The National Network for Curriculum Coordination is now fully functioning. The achievement of this flexible and accommodative system for communication and curriculum coordination was the culmination of two years of planning and development. The system, involving seven curriculum centers and liaison persons in the states relating to each center, is proving cost-effective in meeting its objectives of: information sharing; standards; curriculum needs, as a basis for planning; and coordination.

Since it takes at least two years to develop and test a major curriculum package, and an additional four months or so for printing and dissemination, the impact of much of the early Part I effort is only now being felt. A number of projects more recently funded are in the development and testing phases. Nevertheless, there are many evidences that the Part I Curriculum Program is contributing significantly to broadening the concept of vocational education and improving the quality of its programs.

PART I, CURRICULUM DEVELOPMENT,  
VOCATIONAL EDUCATION AMENDMENTS OF 1968

PROJECTIONS

Curriculum development priorities are established by the Deputy Commissioner through interaction with: the Evaluation Committee of the National Advisory Council for Vocational Education; the Research Committee of the Association of State Directors of Vocational Education; other government agencies; relevant professional organizations; relevant groups from business, industry, and labor; members of BOAE staff; and Regional Office staff.

For fiscal '74 priorities include: (1) the occupational clusters of recreation, tourism, and hospitality, arts and humanities, marine science, and personal services, (2) paralegal occupations, (3) small business ownership, with emphasis on the secondary level, (4) home economics related occupations, (5) metrication, (6) career education for Indians and for Spanish-speaking migrants, (7) training films in a Public Services "common core" for CATV delivery, (8) the home as a learning center: feasibility phase, and (9) programs for preparing curriculum specialists in vocational education.

For fiscal '75 priority areas are: (1) emerging occupations, post-secondary level, (2) the environmental cluster, (3) metrication, (4) occupational education of gifted and talented, (5) adapting DOD curriculum materials to classroom use, (6) reorientation of family life aspect of home economics and development of a model for continuous updating of a field, (7) distribution of the public services films for CATV developed through '74 funding, (8) bilingual education, (9) curricula for Spanish-speaking, and (10) National Network for Curriculum Coordination.

Beyond fiscal '75, obvious broad priority areas are: the network for curriculum coordination; curricula for emerging occupational fields, such as solar energy and new applications of laser technology; curricula for specific occupations for high school and postsecondary levels related to the more general "cluster" curricula; further development of curricula for delivery in the home; further development of curricula for groups with special needs; further adaptation of DOD curricula for classroom use; and improved systems of dissemination and diffusion of curriculum materials.

## BIBLIOGRAPHY

- Amberson, Max L., Douglas D. Bishop, Agricultural Production Manpower Report, Montana State University, (Bozeman, Montana, August 1972).
- Amberson, Max L., Douglas D. Bishop, Agricultural Producers Manpower Report Manual, Montana State University, (Bozeman, Montana, July 1972).
- Parker, Richard L., The Role of Research Coordinating Units With Exemplary Programs in Vocational-Technical Education, Paper presented at the National R.C.U. Conference, San Diego, California.
- Bice, Dr. Garry K., Gary Q. Green, The Status and Image of Vocational-Technical Education in the State of Tennessee, State Advisory Council for Vocational-Technical Education, (September 1971).
- "Bread and Butterflies", A Curriculum Guide for Teachers, Agency for Instructional Television (Bloomington, Indiana, 1974).
- Buffer, James H., A Junior High School Industrial Technology Curriculum Project: A Final Evaluation of the Industrial Arts Curriculum Project (IACP), 1965-1971, Ohio State University Research Foundation, (Columbus, Ohio, 1971).
- Cameron, Walter A., Elementary IATOE Report, Tennessee Research Coordinating Unit, (Nashville, Tennessee, April 1974).
- Career Education, Advisory Committee, Third Report (June 1974).
- Career Education, A Guide to the 1972-73 Pilot Project, (East Providence School Department; East Providence, Rhode Island).
- Career Education, A Model for Oklahoma, The Oklahoma State Department of Education, The Oklahoma State Department of Vocational and Technical Education and Sand Springs Independent School District #2, (Sand Springs, Oklahoma, 1974).
- Clavarella, Michael A., Career Education in Pennsylvania: The First Year Evaluations of Four Major Projects, (Shippensburg, Pennsylvania, July 1973).
- Coffey, John L., Evaluating the Efficiency and Effectiveness of Self-Instructional Methods for Selected Areas of Vocational Education, (Columbus, Ohio, February 1968).
- A Comprehensive Vocational Education Program for Career Development in Grades K-14, School Board of Pinellas County Florida, (St. Petersburg, Florida, June 30, 1973).
- Cromer, Chalmers A., Procedure for Determining Vocational Education Needs Through Community Analysis, Nebraska Research Coordinating Unit for Vocational Education, (October 1968).



- Dees, Sherwood, et. al., Research, Developmental and Exemplary Activities in Vocational and Technical Education, Division of Vocational and Technical Education (Springfield, Illinois, June 1971).
- Divita Jr., Charles, "Employers and Labor Leaders", Attitudes Toward Vocational Education in Secondary Schools of West Virginia, West Virginia Research Coordinating Unit for Vocational Education, (Huntington, West Virginia, March 1971).
- Dodd, William J., "Course Data by Schools", Space Utilization of Vocational Technical Schools, State Department of Education of Louisiana, (1971).
- Dodd, William J., "School Data by Courses", Space Utilization of Vocational Technical Schools, State Department of Education of Louisiana, (1971).
- Donahoo, Dr. Alvin W., Dr. Max L. Amberson, A Study to Determine Competencies Needed by Employees Entering Agricultural Supplies and Services Occupations, The Montana State University, (September 1973).
- Dreves, Dr. Fred J., Basic Principles of Technology for Children, Bureau of Occupational Research Development, Division of Vocational Education, (Trenton, New Jersey, October 1973).
- Eberle, Fred W., Rex M. Smith, West Virginia Research Coordinating Unit for Vocational Education, U.S. Department of Health, Education, and Welfare, (September 1969).
- Education Turnkey Systems, Inc., Cost Analysis of the California Career Education Task Force Sites First Year of Operation, Part III Final Report, (September 19, 1973).
- Faust, John R., Final Evaluation Report on the Vermont Career Education Model Windsor Northwest School District.
- Fretwell, David, Summary of Applied Research and Exemplary Projects in Vocational Education 1973-74, (Salem, Oregon).
- Frazier, William D., William W. Stevenson, Research, Planning, and Evaluation 1968-1971, A Historical Activities Report of the Oklahoma Vocational Research Coordinating Unit, Project Report No. 15, (Oklahoma State University).
- Harris, James N., Austell O. Sherard, Workshop on Organization and Operation of Cooperative Work Experience Programs in Trade and Industrial Education, Tuskegee Institute, Alabama (August 14-September 1, 1967).
- Hirst Jr., Ben A., et. al., V-TECS, Vocational-Technical Education Consortium of States, (Atlanta, Georgia: Commission on Occupational Education Institutions, March 1974).
- Hooks, Vangalyn, et. al., Orientation and Exploration Career Education Handbook and Suggested Career Education Activities for Students and Teachers, Region III Career Education Development Projects, (Kentucky, June 1972).

- Huguley, James., SPAN: An Accelerated Project for a Systems Program Approaching Non-unemployment of Vocational Students, (Memphis, Tennessee, August 31, 1973).
- Investment Plan for Vocational Education Facilities, State of Ohio, (November, 10, 1969).
- Kaplan, Bernard, et. al., "Needs Assessment in Education", A Planning Handbook for Districts, (Trenton, New Jersey: Divisions of Research, Planning and Evaluation/Field Services, February, 1974).
- Krumboltz, John D., et. al., Vocational Problem-Solving Experiences for Stimulating Career Exploration and Interest: Phase II, Stanford, California (August, 1968).
- Kunzman, Leonard, Abstracts of 1972-73 Research and Exemplary Projects, (Salem, Oregon).
- Lamo, Vincent P., "Project CAREER in Motion", Project CAREER, Division of Occupational Education, (Randolph, Massachusetts, June 1973).
- LaReau, Edward H., Competency Based Education and Criterion Referenced Measures, Presented at a symposium, Career Education and the World of Work, (Edensburg, Pennsylvania, September 27-28, 1973).
- Louisiana Study of Manpower and Training Needs, Retail Firms and Wholesale Firms, Vocational Research and Development Coordinating Unit, Division of Vocational Education, (Natchitoches, Louisiana, June 1968).
- Loveless, Austin G., Integrated Shop Program Third Year Evaluation, Research Coordinating Unit for Vocational and Technical Education, (Salt Lake City, Utah, August 1972).
- Management Review, District Organization, Wisconsin Vocational, Technical and Adult Education, Department of Administration Bureau of Budget and Management, (May 1968).
- Mayer, Lynne S., Project Funded in West Virginia Through Authority of Vocational Education Amendments of 1968, West Virginia Research Coordinating Unit for Vocational Education, (Huntington, West Virginia, December 1970).
- McCage, Ronald D., et. al., Research and Development Unit, State of Illinois, Division of Vocational Technical Education, (Springfield, Illinois, October 1972).
- McMurtrie, Patsy Blake, Development and Evaluation of a One-Semester Stenography Course, (San Francisco, California, June 1966).
- Mission Statement, Wisconsin Board of Vocational, Technical and Adult Education, (November 1969).
- Moody, Dr. Ferman B., The Research Coordinating Unit for Vocational Education in Pennsylvania, Mr. Clarence A. Dittenhafer, (July 1971).

"Mountain-Plains Briefing MEMO", Mountain-Plains Education and Economic Development Program, Inc., Office of the Executive Director, (Glasgow, AFB, Montana, October 1973).

Morris, James K., Implementing a Career-Centered Curriculum in the Public Schools of Mississippi, Mississippi State Board for Vocational Education, (Jackson, Mississippi, August 1972).

A New Basic Resource for Career Education, National Laboratory for the Advancement of Education, (An affiliate of the Aerospace Education Foundation, Washington, D.C.).

Occupational Awareness in the Urban Middle School, A Vocational Guidance Institute September 1970 to May 1971, (New York).

Oregon Mutuality of Planning, Final Report, Northwest Regional Educational Laboratory Planning Service, (March 1973).

Oregon Mutuality of Planning, Learner-Based Needs Assessment Data, Northwest Regional Educational Laboratory Planning Service (1972 Assessment).

Perryman, Bruce C., Factors Governing the Establishment and Operation of Cooperative Comprehensive Educational Service Centers in Wyoming with Application to a State Master Plan, A Position Paper and a Proposal, (September 1970).

Perryman, Bruce C., "National Model IV", Mountain-Plains Education and Economic Development Program, Inc., (September 1974).

Perryman, Bruce C., Rock Springs/Green River Occupational Education Needs Study and Implications for Vocational-Technical Education, State Department of Education, (Cheyenne, Wyoming, July 1969).

Popham, W. James, Validation Results: Performance Tests of Teaching Proficiency in Vocational Education, Southwest Regional Laboratory for Educational Research and Development, A paper presented at the Annual American Educational Research Association Meeting, (Los Angeles, California, UCLA, February 5-8, 1969).

Popham, W. James, Performance Tests of Instructor Competence for Trade and Technical Education, Final Report, U.S. Department of Health, Education, and Welfare, Office of Education Bureau of Research, (Los Angeles, California, UCLA, June 1968)

Program Development and Operations Branch of the Division of Vocational and Technical Education, Abstracts of Exemplary Projects in Vocational Education, U.S. Office of Education (Washington, D.C., June 1973).

Program Development and Operations Branch of the Division of Vocational and Technical Education, et. al., Abstracts of Research and Development Projects in Career Education, U.S. Office of Education (Washington, D.C., June 1972).

- "Project VOGUE, Vocational Guidance in Education", A Demonstration System of Occupational Information for Career Guidance, Board of Cooperative Educational Services, (Jericho, New York, June 1968).
- Pucel, David J., The Minnesota Vocational Followup System: Rationale and Methods, (Minneapolis, Minnesota, February 1973).
- Quarterly Research Activity Report, Georgia Occupational Research and Development Coordinating Unit, (December 31, 1971).
- Research and Analysis Employment Security Division Department of Labor, Alaska's Manpower Outlook 1970's, Data Base and Projections Publication No. 4 Occupational Research.
- Research and Analysis Section, Alaska's Manpower Outlook 70's, State of Alaska, Department of Labor, Publication No. 2.
- Research and Development Project in Career Education, State of Connecticut Division of Vocational Education, Local Board of Education (Connecticut, July 6, 1973).
- Research, Planning and Evaluation 1968 to 1971, Report Submitted to the Oklahoma Congressional Delegation, (Oklahoma State Department of Vocational Education 1971).
- The Regional Education Service Agency of Appalachian Maryland as a Demonstration Project for Career Education in Appalachian Maryland, Regional Education Service Agency of Appalachian Maryland, (Cumberland, Maryland, June 6, 1973).
- Reid, James L., Research and Development Project in Career Education, (Baltimore, Maryland).
- Sanders, George, et. al., The Impact of New Area Vocational Schools on the Appalachian Region, Bureau of Adult, Vocational, and Technical Education, Division of Vocational and Technical Education, U.S. Office of Education, (Washington, D.C., September 1971).
- Sibley, J. Ashley, VITAL: Vocational Information Techniques Applied Locally, VITAL Career Information Center, (Baton Rouge, Louisiana 1974).
- Sizemore, Paul L., The Development and Demonstration of a Functional Model System of Occupational Education in Wyoming Public Education, K-14, Cheyenne, Wyoming, January 31, 1947).
- Smith, George N., et. al., "A Report on the Mesa Approach to Career Guidance, Counseling, and Placement", Toward Accountability, Mesa Public Schools, Arizona.
- Tadlock Associates Inc., Review and Assessment of the Impact on Occupational Education Resulting from Research and Developmental Activities, The Division of Vocational and Technical Education (Illinois, August 1972).

Texas VIEW, Vital Information for Education and Work, Region XIX,  
Education Service Center, (El Paso, Texas).

Thompson, Patricia, Larry Kliewer, Career Education: A Model for Place-  
ment, (Oklahoma, 1974)

Timmins, William M., Implementing Career Education in a Local Education  
Agency: A Guide, Utah State Board of Education, (Salt Lake City,  
Utah, 1974).

Wall, James E., James F. Shill, Mississippi Research Coordinating Unit  
for Vocational-Technical Education Annual Reports, Fiscal years 1970,  
71, 72, 73, Mississippi State University, (1970-73).

Wall, James E., James F. Shill, Occupational Education and Manpower  
Development, A Program and Bibliography, Mississippi State University,  
Administrative Report #3, (December 1969).

Walter M. Arnold Associates, Inc., A Report of the Impact and Effectiveness  
of the Vocational Amendments of 1968, Prepared for The Illinois  
State Advisory Council on Vocational Education, Springfield,  
Illinois, (Arlington, Virginia, May 1974).

Willett, George, Marshall Thombs, "Tri-County Career Education", Research  
and Development Project in Career Education, (Farmington, Maine,  
September 15, 1973).

## BIOGRAPHICAL SKETCH OF THE AUTHORS

Dr. Robert Miller worked for five years as an electronics engineer. During that time he began teaching electronics technology in the evenings as well. Following a year as education director of a private technical institute, he decided to commit himself to public Vocational-Technical Education. He gained his education degrees at Utah State University, in Logan, Utah, and at the University of Minnesota in Minneapolis-St. Paul. For three years he served as state supervisor of trade, industrial, and fisheries education in Alaska and he has taught technical and professional courses at Northern Arizona University for several years. His publications include Algebraic Transient Analysis, a textbook published by Holt, Rinehart and Winston, 1971; a chapter on organization of Vocational Education for the Fourth Yearbook of the American Vocational Association, and various papers relating to Vocational Education administration. He is currently an associate professor of industrial education at Northern Arizona University.

After gaining a master's degree in mathematical statistics at Arizona State University, Mrs. LaRue Miller taught mathematics for several years at universities and community colleges in Arizona, Utah, Alaska, and Minnesota. She became associated with Vocational Education through her work as editor, mathematics consultant, and typist for several manuscripts on vocational and technical subjects, including Algebraic Transient Analysis. She was also assistant to the editor and mathematics consultant to the printer for the 34th Yearbook of the National Council of Teachers of Mathematics.