DOCUMENT RESUME

ED 037 569 08 VT 010 602

TITLE	Massachusetts Vocational Education Research Coordinating Unit. Final Report. (July 6, 1966-October 31, 1969.)
INSTITUTION	Massachusetts State Board of Education, Woburn. Div. of Research and Development.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-6-2733
PUB DATE	Feb 70
GRANT	OEG-1-062733-2078
NOTE	29p.
EDRS PRICE	EDRS Price MF-$0.25 HC-$1.50
DESCRIPTORS	*Educational Research, Program Descriptions, *Research Coordinating Units, *Research Projects, State Programs, *Vocational Education
IDENTIFIERS	*Massachusetts

ABSTRACT

This final report of the Massachusetts Vocational Education Research Coordinating Unit (RCU), covers the activities during the period, April 1967 through October 1969. During the first year (April 1967-June 1968), the RCU concentrated on establishing an information system and announcing its existance. One third of the staff time was devoted to helping the Schaffer-Kaufman Study. Research projects the second year (August 1968-October 1969) focused on: (1) disadvantaged youth in urban vocational school settings, (2) developing of a system for a state-wide evaluation of vocational-technical education, (3) Massachusetts information feedback system for vocational education, (4) an evaluation of vocational-technical school facilities, (5) prototype of a program for girls in vocational-technical education, and (6) attitudes of junior high school staff members toward vocational education in the high school. Conclusions and recommendations are included. (GR)

FINAL REPORT

Project No. OE-6-2733

Grant No. OEG-1-062733-2078

Title of Project: Massachusetts Vocational Education Research Coordinating Unit

Period: July 6, 1966 - October 31, 1969

Project Director: Dr. William G. Conroy, Jr.

Contracting Agency: State Board of Education
Division of Research and Development
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Woburn, Massachusetts

Initiator: Dr. James F. Baker, Assistant Commissioner
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Date Submitted: February, 1970

The research reported herein was performed pursuant to Grant No. 1-062733-2078 with the Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position of policy.

U. S DEPARTMENT OF HEALTH,
EDUCATION AND WELFARE

Office of Education
Bureau of Research

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I. INTRODUCTION

This final report describes the operation of the Massachusetts Research Coordinating Unit during the last thirty months, April, 1967 through October, 1969.

Although the original beginning date for the Massachusetts Research Coordinating Unit was July 1, 1966, no staff was obtained and no expenditures incurred until April, 1967.

The Massachusetts Research Coordinating Unit had been extended, on a no additional cost basis, through October, 1969. Five interim reports of objectives and activities of the Massachusetts Research Coordinating Unit were reproduced and disseminated.

The final report is required at this time to bring up to date the Massachusetts Research Coordinating Unit activities as carried out under the current grant prior to the transfer to State Administration under provisions of Part C of the Vocational Education Act of 1963, as amended by P. L. 90-576. The Massachusetts Research Coordinating Unit transfer from its former status to that of being partially funded and administered by the Division of Occupational Education was effective on November 1, 1969.

Officially known as the Massachusetts Research Coordinating Unit for Vocational Education, the RC Unit was administered by the Division of Research and Development within the Department of Education in Massachusetts. This organizational structure allowed the RC Unit to serve the research needs for vocational education within the existing organizational structure of the Department of Education. Therefore, during the thirty months in which the RC Unit has been operational it has been housed at the Division of Research and Development, Massachusetts Department of Education, Olympia Avenue, Woburn, Massachusetts 01801. The RC Unit has

had full use of specialized personnel and equipment available at the Division of Research and Development, including: programmers, keypunch operators, collating equipment, xeroxing equipment, computer, etc. The setting has been most supportive of RC Unit activities. It has also encouraged the development of cohesive relationships among educational research activities for a variety of special interest groups within the educational enterprise, i.e., vocational education, elementary education, secondary education, special education, etc.

Purpose

The objective of the Massachusetts Research Coordinating Unit was broadly conceived in the original proposal. The purpose of the RC Unit was described as that of "stimulating and coordinating state-wide research activities in critical occupational problem areas, on a continuing basis.....". Other objectives included the dissemination of research findings and the development of an information base describing the scope of vocational educational activities within the Commonwealth of Massachusetts. Included in the objectives for the Research Coordinating Unit in Massachusetts was the establishment of a research capability for occupational education in the Commonwealth of Massachusetts.

The RC Unit in Massachusetts has undergone two phases of development. Phase one could be described as establishment and development, while phase two could be described as operational. Phase one occurred under the direction of Ghernot Knox, and extended from April, 1967 through June, 1968. (In June of 1968 Mr. Knox was made the Assistant Director for the Bureau of Vocational Education. Phase two occurred between August, 1968

and October 31, 1969, or the termination of this grant period, under the direction of William G. Conroy, Jr. The Results and Findings Section of this report, therefore, will be organized chronologically, i.e., activities will be categorized by establishment and operational phases, in relationship to the objectives of the RC Unit.

II. METHODS

Organizationally, the Director of the Research Coordinating Unit reported directly to Dr. James F. Baker, Assistant Commissioner, Division of Research and Development, Department of Education, Commonwealth of Massachusetts. Dr. Baker was the initiator and principal investigator for the RC Unit and served as the immediate superordinate to the Director of the RC Unit. There were no formal direct line relationships between the RC Unit and the Bureau of Vocational Education. Specific activities undertaken by the RC Unit, therefore, usually were initiated by the Director of the Research Coordinating Unit, in consultation with Dr. Baker.

The staffing of the RC Unit is displayed in Appendix A. It should be noted that the Unit remained understaffed during its first year of operation, and that, by and large, separate staffs were unique to each phase of operation.

During the establishment phase of the RC Unit, very little reaearch activity occurred. However, several important activities were undertaken.

(1) Logistics - The equipment and supplies necessary to operate the RC Unit were obtained.

(2) Public Relations - The very existence and role of the RC Unit were made known at the State Department level and throughout the Commonwealth of Massachusetts.

(3) Data System - The establishment of an information system to describe some parameters of vocational education in the state was undertaken. This was an enormous task, which involved the development of a fundamental data base, and included the development and validation of a number of data collection instruments. The development of this system necessitated numerous meetings with federal, state department and local school personnel; the development and maintenance of complex mailing lists, etc.

(4) Assisting Drs. Carl J. Schaffer and Jacob J. Kaufman with their study of "Occupational Education for Massachusetts". One-third of the time of the total staff of the RC Unit was put at the disposal of Drs. Schaffer and Kaufman during 1967-68.

During the production phase of the RC Unit, beginning in August of 1968, a Research Initiation Team (RIT)* was approved by the Director of the Bureau of Vocational Education, Walter J. Markham.

The Research Initiation Team consisted of knowledgeable and experienced vocational educators within the Commonwealth of Massachusetts and totaled thirteen (13) in number. The Research Initiation Team, during a two day conference, identified five (5) priority areas requiring research in vocational education within the Commonwealth of Massachusetts. These areas were:

(1) Disadvantaged youth in urban vocational school settings.

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* See Appendix B for list of RIT

(2) Development of a model to evaluate vocational education within the Commonwealth of Massachusetts.

(3) The expansion of vocational education for girls within the Commonwealth.

(4) Improving attitudes of non-vocational educators toward vocational education.

(5) Evaluating existing regional vocational-technical schools and providing an information base for expanding the regional vocational-technical schools in Massachusetts.

During the second year of operation the Research Coordinating Unit addressed much of its attention to the accomplishment of these five research priorities. Three of these research areas were conducted in house, while two were funded and conducted by outside agencies.

During the second year the data systems, which were established during the first year, were expanded and maintained. Also, considerable time was spent on developing a State Plan for research and exemplary programs by staff members of the RC Unit.

III. RESULTS AND FINDINGS

First Year - Establishment and Development (April 1967-June 1968)

A. Information System

The Massachusetts RC Unit, in conjunction with the Federal Electric Company, developed the Vocational Education Information System (VEIS), field tested this system, and during the end of this period, implemented this system across the Commonwealth of Massachusetts. The development of such a system within the Commonwealth was a task of enormous difficulty. It involved

coordinating efforts among several distinct groups; including, data processing specialists at the Research and Development Center of the Department of Education, local vocational school directors, high school principals, school superintendents, and USOE personnel. During the first year the data was collected by the RC Unit for the Bureau of Vocational Education. The Bureau of Vocational Education kept parallel records during this first pilot year, and data which was finally disseminated to USOE reflected much of the information collected by VEIS. During the second year of operation the Bureau of Vocational Education abandoned operating a parallel data collection system and the RC Unit acted as the sole agent for collecting data for the Bureau of Vocational Education. The data collected by VEIS formed a base for federal reporting, as well as a measure of the impact of vocational education in Massachusetts. Highlights of these data were compiled, published and distributed in Massachusetts.

B. Schaffer-Kaufman Study

The Schaffer-Kaufman Study entitled Occupational Education for Massachusetts, is a comprehensive study of vocational and technical education at both the secondary and post-secondary levels in Massachusetts. The RC Unit collected and analyzed most of the data which was used by Drs. Schaffer and Kaufman for this study. The so-called Schaffer-Kaufman Study involved on-site visits and interviews with many vocational schools across the State. These visits and interviews were accomplished by members of the RC Unit

staff. The Schaffer-Kaufman Study was conducted under the direction of the Massachusetts Advisory Council on Education and one copy of the study is enclosed with this report.

C. Public Relations

Members of the RC Unit staff developed and circulated a brochure during the first year and attended a variety of professional meetings across the State, including meetings with school secretaries, superintendents, directors of vocational schools, etc. This medium was selected as a useful vehicle for establishing the presence of the RC Unit as a facility for occupational education research in Massachusetts.

D. Other

During the first year, the RC Unit also participated in a multi-state development of a proposal for the study of T & I teachers on vocational education, and consulted with a number of individuals conducting research in vocational education in Massachusetts.

Second Year - Operational (August 1968-October 1969)

During the second year of operation the RC Unit developed a process to identify research priorities within the Commonwealth of Massachusetts, and then committed its resources to the accomplishment of these research projects. As described in the METHODS Section, the research projects were identified by the Research Initiation Team, which was selected by the Director of the Bureau of Vocational Education. The following is a brief summary of each study, as well as findings thereof. (Final or technical reports of studies accompany this report.)

Disadvantaged Youth in Urban Vocational School Settings

The purpose of this study was to identify and describe vocational educational programs that have been successful with disadvantaged urban youth. It was not the intention of this study to compare successful programs, but to view successful programs as potential sources for curriculum improvement in the Commonwealth at large. If selected out-of-state programs were successful, it was felt the Commonwealth of Massachusetts should know more about how, why and for whom they were successful. This study sought to develop information which would guide those responsible for planning programs for disadvantaged urban youth in vocational education. The study was designed to provide program planners with information about whether they should invest energies in developing vocational programs for disadvantaged youth de novo or examine so-called exemplary vocational programs in search of viable routes for meeting the vocational needs of disadvantaged urban youth.

In order to accomplish the primary objectives of this study, "apparently" successful vocational education programs for urban disadvantaged youth were identified and explored.

Criteria for selecting exemplary vocational programs for examination were:

(1) The selected program was in existence for three years or more;

(2) The program had been evaluated with good results;

(3) The school was located in a state or city apparently comparable to Boston, Massachusetts.

Schools were identified by:

(1) A letter of inquiry to all state directors of vocational education;

(2) comprehensive review of the literature;

(3) personal contact with USOE personnel at the Bureau of Vocational-Technical Education and the Office of Programs for the Disadvantaged.

Five programs outside of the Commonwealth of Massachusetts were visited and studied. Vocational programs for urban youth in Boston and Springfield were also examined.

The study found that the identified exemplary programs for urban disadvantaged youth did not have available information which described program characteristics, achievement of students, or subsequent successes or failure of students completing so-called exemplary programs. Since evaluative data was not available, the researchers resorted to an ecological approach, and developed findings and recommendations based on interviews with staff members, students, and community leaders. Some information of population, program characteristic and outcomes was available. However, impressionistic data formed the basis for most of the findings and conclusions of this study.

The findings include:

(1) Most innovative approaches to vocational education for disadvantaged urban youth were found outside the public schools in special programs geared to reclaim dropouts. These programs were housed in a variety of stores, warehouses, etc. and are known variably as work opportunity centers, urban centers, etc..

(2) A dynamic school administrator who selects his own staff is often a crucial ingredient to program success.

(3) Flexible, unstructured approaches to learning appear to encourage greater and wider scope for students.

(4) Exemplary schools are found to be quite traditional, i.e., there was little experimentation with team-teaching, program instruction, and, in fact, there was very little use of audio-visual equipment.

(5) There was very little use of community aides in the school.

(6) In general, the greatest failure rate occurred in academic areas, as compared with vocational areas.

(7) Planned program evaluation was seriously lacking in schools visited. Data collection was limited, and no school retained outside evaluation specialists. A few schools indicated some evaluation activity, but none was able to provide written reports.

(8) No extra-curricular activities were found in any of the out-of-state schools visited.

(9) The availability of test data was sporadic. One school indicated it had no testing program of its own and transfer records from the various junior high schools often came incomplete or with scores from different tests which make comparisons difficult.

(10) Three of the schools studied indicated that the major cause of dropout was "alienation" of youth.

The major recommendations include:

(1) Vocational offerings for urban youth who have social and economic handicaps must include additive measures, i.e., a

variety of services and activities other than straight-forward vocational education. The most efficient up-to-date faculty and highly skilled craftsman cannot hope to reach disadvantaged youth without the following elements successfully incorporated into the school's program:

(A) Guidance

Guidance counselors were found to be overworked keepers of records, and in some cases, disciplinarians. The study stated that these services, generally considered to be a function of school guidance, must be made available on a frequent basis to disadvantaged urban youth within the vocational school setting. The teacher and/or administrator referral guidance model is not appropriate in these school settings.

(B) Cooperative Planning

The study found that parents, local organizations, as well as cultural and recreational outlets for disadvantaged youth were viewed by most school officials as separate and distinct from the school. The study recommends that mutual understanding and planning between community organizations and the school may be helpful in bridging the gap between the alienated youth and the secondary school program.

(c) Educational Climate

There is a general tendency to think of wealth, newness, location, expenditure per student, class size, and facilities as being indicies of good environment. Although it is true,

it is quite realistic to note other environmental aspects that can and, in fact, do exist, independent of the above. The frank acceptance of individual youth by school personnel, as well as understanding, genuine cooperation, and encouragement are vital to all students. It is imperative that these positive, unobtrusive environmental factors be favorable for disadvantaged urban youth.

The study concluded as follows:

(1) "A nation-wide search yielded no truly exemplary programs for disadvantaged youth according to the criteria herein described."

(2) Positive teacher morale seems to provide cohesiveness, and this sense of unity is a vital factor in program success.

(3) Re-entry, a process that many times only serves to finalize a dropping-out of school procedure, was, as a part of the most flexible of programs, left to the discretion and willingness of the student. Students clearly understood that the school was open for them, teachers were there to help them, and the responsibility for re-entry was theirs.

(4) The paucity of data with regard to student characteristics, cost effectiveness, and longitudinal follow-up of students, all lend credence to the notion that vocational educational programs for disadvantaged youth are expanded and contracted in the absence of evaluative data.

Development of a System for a State-Wide Evaluation of Vocational-Technical Education.

The Massachusetts Research Coordinating Unit developed a system which:

(1) fulfills the criterion of providing a state-wide data base for the assessment of vocational-technical education programs;

(2) meets the needs of local institutions in terms of offering viable feedback on their programs;

(3) continues to grow and be flexible enough to meet the increasing needs for evaluation caused by program growth;

(4) gathers data on the three most essential aspects of vocational-technical education, namely; product, process and costs, and

(5) allows for the decision-making at the local as well as the State level.

Fundamental to the evaluation process was testing the feasibility of developing behavioral objectives for a variety of vocational-technical programs by local vocational-technical schools and, concurrently, developing a process to systhesize these objectives at the State level such that measurement and feedback can occur. The RC Unit worked with six local vocational-technical schools within Massachusetts, and through the medium of a training institute, and consulting with local instructors in local schools, six thousand (6,000) behavioral objectives within about eight vocational and technical fields were prepared by local schools. A process to synthesize these objectives was also developed, and prototyped in the machine trades area.

A publication, "A Guide to Evaluation: Massachusetts Information

Feedback System for Vocational Education", describes the evaluation process as developed by the Massachusetts Research Coordinating Unit and a working paper entitled, "The Synthesis of Behavioral Objectives", describes a system for compiling behavioral objectives within the framework of the Massachusetts Information Feedback System in such a way that state-wide assessment can occur, but not at the cost of local autonomy. It was felt that such a process was in fact in the best interest of program improvement over the long run.

An Evaluation of Vocational-Technical School Facilities.

This multi-phased project is designed to:

(1) Develop evaluative data of the perception by administrators, instructors, and students of the usefulness of new regional vocational-technical schools in Massachusetts in terms of their purpose, i.e., to facilitate learning.

(2) Identify a variety of vocational-technical school designs - with detailed information relating to financial impact and educational implications.

(3) Identify different materials for school construction with detailed information relating to financial impact, safety, and educational implications.

Prototype of Program for Girls in Vocational-Technical Education With an Integral Component for Multi-Occupational Exploration.

This project has developed an experimental multi-occupational exploration experience for girls at the junior high school-middle school level. Twenty experimental sites, i.e., junior highs, in fourteen

communities across Massachusetts have been identified and are committed to testing out components of this project. Each site contains a central vocational school, as well as potential feeder junior high or middle schools. The feeder schools at each site are designated as either experimental or control schools, allowing evaluation of the impact of the exploratory experience.

The experimental program is designed to "sensitize" girls to the need for career planning, factors important in personnel vocational growth, and possibilities for vocational training in their geographical area. A strong component of vocational guidance is incorporated into the exploratory experience. Teachers and guidance counselors for the vocational feeder schools at each site will be afforded an in-service training opportunity prior to implementing the exploratory experience.

The first phase of this project is complete, i.e., the consortium of experimental schools are identified and committed; the structure for the experimental program has been determined; materials for the experimental program and testing instruments have been developed.

Phase two of the project depends on support from Part D, Exemplary Programs (State Funds) of P. L. 90-576.

An Investigation of Alternatives to Improve Attitudes of Junior High School Staff Members toward Vocational Education in the High School.

This study sought information about the attitudes of junior high school staff members toward vocational education and tested alternatives designed to improve attitudes of junior high school staff members toward

vocational education. The significance of the study was based on the assumption that favorable attitudes by junior high school staff members were a fundamental prerequisite to the development of a coordinated vocational educational program within grades seven through twelve. Other information developed by this study includes professional self-concept of vocational staff members and attitude toward program change by vocational educators. This information was developed to facilitate inter-faculty program planning.

A regional vocational-technical high school and three feeder junior high schools in Massachusetts were studied, with two junior high schools serving as experimental groups, and one a control group.

The attitude change procedures employed by this study were developed from an analysis of attitude change literature. Criteria for the selection of procedures included replicability in an average vocational high school and the appropriateness of specific procedures. Attitude change procedures included public commitment and manipulation of belief systems related to vocational education. Experimental treatments were structured on the basis of various consistency theories, including balance theory, congruity theory, dissonance theory, and affective-cognitive consistency theory. Attitude change treatments were incorporated into a workshop structure and were held constant, except for the manipulation of one variable, a one or two-sided presentation. A one-sided presentation was characterized by an intentional display of favorable information describing vocational education, while a two-sided presentation displayed a balanced examination of vocational education. Vocational school staff members were also assinged to a one-sided, a two sided, or a control

group, permitting a two-sided analysis of experimental variables. Attitudes toward vocational education were measured by a Likert scale and a semantic differential.

The study found junior high school staff members to have favorable attitudes toward vocational education. Neither experimental treatment significantly improved attitudes of junior high school staff members toward vocational education, even though experimental junior high school staff members gained significantly more information about vocational information during the treatments. Further, one and two-sided experimental junior high school staff members perceived significant differences between "workshop experiences" in terms of a balanced or biased presentation, but no differences in attitudes resulted from this effect.

Analysis of the attitude scales found junior high school staff members to have favorable attitudes toward vocational education with two major exceptions: vocational education was not perceived to be a suitable experience for scholastically able students; and the occupations for which vocational students were trained were not as socially respectable as other employment alternatives.

Vocational staff members were found to have a professional inferiority complex, i.e., they perceived the attitudes of junior high school teachers to be significantly less favorable toward vocational education than they were, both before and after the "workshop experience". The improvement of the self-concept scores of vocational staff members who interacted with junior high staff members almost reached significance. Vocational staff members were found to have less than favorable attitudes toward program change within vocational schools, and interaction with the

junior high school staff members did not improve these attitudes.

The major recommendations of the study were that the findings indicated attitudes of junior high school staff members were not an obstacle to cooperative vocational program planning between vocational and junior high school staffs and that an intensive exposure to the "reality" of vocational education did not jeopardize these favorable attitudes. Attitudes of vocational staff members toward program change and their self-concepts should be considered in initiating a cooperative planning effort.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Clearly, the Research Coordinating Unit in Massachusetts got off to a slow start. Staff was not solicited or appointed until well into the granting period, and, in fact, the RC Unit was without a Director from May through August of 1968. In addition, one position was not filled until the last eight months of operation under this grant.

It is the judgment, however, of the current Director of the RC Unit that a solid base for research in vocational education has been developed by the RC Unit. The establishment of a data bank for "social bookkeeping" or "input" data, including: enrollment data, number of teachers, one year follow-up, etc. establishes an information base will be extremely useful for further analysis. This process has been quite difficult in Massachusetts, probably because of the enormous diversity of administrative responsibility for vocational education within the Commonwealth. This is not to suggest that a decentralized decision-

making process for vocational education is inefficient, but rather to point out the dimensions of the problem here in Massachusetts. In fact Massachusetts probably serves as an example that program administration does not have to be centralized for record-keeping purposes. It is just more difficult.

Equally important has been the development of a process for identifying and carrying out of research projects in occupational education. The identification of research priorities by a consortium of practitioners and theorists was most fruitful. This practice allows research to be relevant to but not limited by existing practices. This process identified an interesting variety of research problems ranging from model building to experimental research.

Problems

A major problem for the RC Unit in Massachusetts is its position in the organizational structure of the State Department. During the initial grant period it was a part of the Division of Research and Development. This allowed coordination of research efforts in vocational education with other research within the State Department, and permitted the RC Unit to capitalize on data processing equipment and the technicians who operated this equipment within the Department of Education. On the other hand, there were periods when the communication between the RC Unit and the Division of Occupational Education were hampered.

Under P. L. 90-576, and a new State Law dictating administration patterns for vocational education in Massachusetts, (the so-called Rogers Bill) the pendulum has swung 180°. Now the RC Unit is under the administration of the Division of Occupational Education, and is not

directly related to the Division of Research and Development. However, the RC Unit in Massachusetts continues to be housed in the Division of Research and Development. At this point in time, revision of the State Plan is being attempted which will provide for the joint administration of the RC Unit by both the Division of Research and Development and the Division of Occupational Education. A solution to this organizational problem is essential, such that the RC Unit will serve the research needs of occupational education, broadly defined, within the total structure of the Department of Education.

Recommendations

(1) That the Research Coordinating Unit be continued.

(2) That the Research Coordinating Unit expand its functions from the solid base it has established. These expanded functions are outlined in the State Plan submitted pursuant to P. L. 90-576 and include:

(a) management of the Massachusetts Information Feedback System, which is the implementation of the evaluation system developed by the RC Unit and described above;

(b) management of a document information system, the purpose of which is to disseminate research findings to practitioners on a local level, and assist in providing workshops to help the practitioner in interpreting research;

(c) management of an operations research unit, to provide the information and knowledge immediately useful to the management of vocational education; and

(d) to continue to manage the research process, i.e.,

identifying and conducting research around priorities developed by expanded Research Initiation Team.

(3) That the Research Coordinating Unit not be allowed to become exclusively a research management operation, but maintain the capacity to conduct in-house research. In our judgment, unless this occurs, it will be absolutely impossible to maintain competent research personnel in the Department of Education.

(4) That the Research Coordinating Unit manage exemplary programs. Research competency is obviously required in the management of exemplary programs, both in interpreting research to be implemented, and measuring the replication of applied research findings.

(5) Under the old law, the Federal Government was able to exercise a leadership position in research among the states. It is essential that the Federal Government maintain this position under the new law. Not only should they be concerned with coordinating research efforts, so that wasteful duplication does not occur, but it seems to us that they should be concerned that the research function within a Department of Education not be allowed to slip to a bookkeeping function. Without national leadership, this could very well occur.

A P P E N D I X A

STAFF

STAFF

Name	Title	Dates
Ghernot L. Knox	Director	6/21/67-5/28/68
Maurice J. Reutter	Supervisor	11/25/67-12/30/68
William G. Conroy, Jr.	Director	8/17/68-Present
Mary E. Green	Supervisor	2/69-Present
Joanne Szarian	Supervisor	12/68-Present
Catherine Rogers	Programmer	12/68-6/69
Patricia Brennen	Clerical	1/69-4/69
Claire Patten	Clerical	7/68-11/68
Kenneth Hull	Clerical	6/29/68-10/68
Betty Jo Peterson	Clerical	12/68-Present
Eileen Donahey	Clerical	7/69
David C. Berliner	Consultant (15 days)	4/69-8/69
Jimmie C. Fortune	Consultant (40 days)	11/68-8/69
Emma M. Cappeluzzo	Consultant (50 days)	4/69-8/69
Paula M. Rizzo	Consultant (90 days)	4/69-8/69
(S) Alice Vartanian	Consultant/Secretary (5 days)	4/69-8/69
(S) Anne M. Westbrook	Consultant/Secretary (19 days)	4/69-8/69
(S) Ruth Topin	Consultant/Secretary (20 days)	4/69-8/69
(S) Doris Holden	Consultant/Secretary (3 days)	9/69
(S) Mrs. Burnett	Consultant/Secretary (2 days)	9/69
M. Thomas Burke	Consultant (6 days)	4/69-8/69

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Name	Title	Dates
Sanford Greenfield	Consultant (8 days)	4/69-8/69
Raymond Johnson	Consultant (44 days)	4/69-8/69
Robert Schwerhen	Consultant (4½ days)	4/69

APPENDIX B

Research Initiation Team

RESEARCH INITIATION TEAM

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Donald E. Graves, Director
Southeastern Vocational Technical
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