ABSTRACT
                 This paper describes some of the systematic efforts
used in the last decade for disseminating the products of research
and development in vocational education and provides suggestions for
dealing with problems and issues to facilitate the movement of
information resources from producers to consumers. The paper: (1)
Traces the history and role of the Educational Resources Information
Center (ERIC) in the dissemination of information in vocational
education; (2) reviews the efforts and activities of the Center for
Vocational Education (CVE) at The Ohio State University in operating
the ERIC Clearinghouse; and (3) describes the scope and purposes of
the ERIC Clearinghouse on Career Education along with some recent
observations on the Center's operation while at Northern Illinois
University. The role of AIM/ARM (Abstracts of Instructional
Materials/Abstracts of Research Materials) in vocational education
information dissemination is described, including the history, goals,
funding, and accomplishments of its decade of operation. The state
dissemination systems of Tennessee and Pennsylvania are described in
detail. Also included are a discussion of the utilization of research
and development products and results, a sampling of current projects
funded under Parts C, D, and I of the Vocational Education
Amendments, and suggestions for more systematic ways to assess the
impact of research and development efforts. (NJ).

DISSEMINATION OF RESEARCH AND DEVELOPMENT

PRODUCTS AND RESULTS IN VOCATIONAL EDUCATION

Prepared for

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National Research Council
2101 Constitution Avenue
Washington, D.C. - 20418

Prepared by

Joseph F. Blake
Millersville State College
Millersville, Pennsylvania  17551

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# CONTENTS

## Introduction

The support of research and development activities in Vocational Education underscores the importance accorded this area of American Education. The Vocational Education Act of 1963 (P.L. 88-210) authorized that a percentage of the federal operating funds be set aside for research efforts, and legislative faith in the systematic application of intelligence to the problems of Vocational and Technical Education went beyond rhetoric. Since 1965, when these funds began to be available, 250 million dollars has been allocated to support research and development efforts.

Dissemination of the products and results of these efforts was an early concern. Francis Keppel, then U.S. Commissioner of Education, issued a memorandum in 1965 inviting state departments of education and universities to submit proposals for establishment of vocational education research coordinating units. Commissioner Keppel's memo listed broadly stated objectives related to the areas of dissemination, program planning, the change process, research coordination, statistical reporting to the Office of Education, and stimulation of research training efforts.

The role of the Research Coordinating Unit (RCU) was described more carefully in the 1968 Vocational Education Amendments Act (P.L. 90-576). This Act specified the following areas:

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(1) research in vocational education, (2) research training

programs, (3) projects designed to test the effectiveness of

research findings, (4) demonstration and dissemination pro-

jects, (5) development of new vocational curricula, and (6)

projects in the development of new careers and occupations.

> From these general mandates RCUs have developed
> into a diverse group of organizations whose ac-
> tivities fit roughly into the categories of re-
> search, development, technical assistance, and
> dissemination. The amount of emphasis placed on
> each activity depends upon the philosophy and
> role delineation perceived by the individual RCU.
> Some RCUs operate rather autonomously, doing
> research-type activities in a university setting,
> while others operate rather pragmatically per-
> forming technical assistance activities in a
> state department of education setting.[1]

RCUs are unique agencies in each state's vocational education

system. In some instances they play a major role in the dis-

semination network that has developed in vocational education

since their inception.

Although not directly provided for in national vocational

legislation research and development centers such as The Center

for Vocational Education at Ohio State University (CVE/OSE) and

the Center for Occupational Education at North Carolina State

University (COE/NCSU) are other examples of the impact of this

legislative concern. Their activities have produced results

that reach deeply into the very roots of the entire system.

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[1]Jesse S. Clemmons. "Role and Objectives of State Research
Coordinating Units as Perceived by RCU Directors and State Direc-
tors of Vocational Education," paper presented at the National
Conference of Research Coordinating Unit Personnel, Denver, Color-
ado, 17 March 1975.

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This is dramatically demonstrated in the products of the CVE/ OSU. The pioneering work of this center in the development of dissemination practice has provided techniques and procedures that still capture the imagination of planners and practitioners as they struggle with problems generated by the need to share, spread and utilize research and development knowledge.

No area of the nations educational system has paid more attention than vocational education to facilitating the sharing of the products and results of its research and development. The field has a complex of mechanisms and individuals actively linking producers and consumers. Many elements that could mature into a carefully coordinated consumer oriented knowledge sharing network are in place and functioning effectively. These elements are currently operating at national, regional, state, and local levels, and the expertise of the individuals involved is a great national resource. There has never been a better time for assessing and applying the products and results of vocational education research and development.

Definitions

In information work, language does make a difference. Terms like dissemination, diffusion, research and development products, and educational information are acquiring various interpretations. It may be important to share the meanings given these labels in this paper.

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Dissemination can be defined as the act of creating an awareness of and interest in a practice considered to be a worthy solution to a need or problem among potential users. Activities toward this end might include: the production and distribution of printed and audiovisual materials; conferences; interpersonal communication; traveling seminars; answering queries; and oral presentations.

Diffusion is the process by which a practice or solution is moved from the producers and developers to consumers who adopt or adapt and translate into practice. It includes:

° awareness/interest activities.

° visitation/demonstration.

° technical assistance for installation.

° staff training in preparation for field testing.

° evaluation to determine impact (quantity and quality).

Diffusion is a larger concept than dissemination. It demands more planning and resources and includes adoption/adaptation activities which require extensive back-up systems.

Dissemination has a popular currency and will be used in this paper unburdened by these distinctions. It is intended to include all elements in these definitions.

The product of most educational research is a document which presents the conclusions of a study or an evaluation. The product

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of development can be (a) a way of organizing and/or structuring

a set of behaviors that are designed to help make education

more productive, (b) a physical product designed to accomplish

the same objectives, or (c) some combination of these.

Educational r&d products are varied and diverse, but it

is important to keep in mind that much research does not gen-

erate development. Many products take the form of a written study

or report that might not lead to anything else.[2]

Along with the products of research and development, there

is something called _educational information_. Educational infor-

mation is neither research nor a development product. It is, as

the name implies, some kind of information about education. It

can take the form of reports on research in progress, practice,

debate and argument among professionals on various topics, and

so on.

Dissemination efforts in vocational education embrace all

of these possibilities. The stock in trade is research products,

development products, and information.

The products and results of a decade of the activities

initiated through the provisions of the 1963 Vocational Educa-

tion Act and the Amendments of 1968 would appear to constitute

an invaluable bank of options for planning, advancing, and main-

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[2]Daniel Weiler. The Dissemination of Educational R&D
Products: Research and Policy Issues for the Federal Govern-
ment. (Bethesda, Md.: ERIC Document Reproduction Service,
ED 099 005, 1973).

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taining viable programs in Vocational Education.

This paper describes some of the systematic efforts to move these resources from producers to consumers. It will provide suggestions for dealing with problems and issues that may be considered by policy makers who would facilitate this movement.

## CONSUMERS OF VOCATIONAL EDUCATION R&D EFFORTS

Who are the actual and potential users of the products and results in Vocational Education? The determination of who actually uses these efforts is beyond the scope of this paper and getting a fix on potential users is exceedingly difficult. Probing for a tentative picture of potential consumers tends to raise as many questions as answers. Searching for manageable data is frustrated by the complex set of domains that make up vocational education.

If the goal is improvement of vocational education practice, teachers and local administrators should be the prime target for most dissemination efforts. The focus here will be on this section of the user universe, and a gross count of the teachers in the field displays the immensity of the market. The number by type of occupational program during FY 1972 was:[3]

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[3]Center for Adult, Vocational, Technical, and Manpower Education. Division of Vocational and Technical Education (DHEW/OE). <u>Vocational and Technical Education Selected Statistical Tables, Fiscal Year 1972.</u> (Bethesday, Md.: ERIC Document Reproduction Service, ED 085 543, 1973).

| | |
|---|---|
| Agriculture | 13,270 |
| Distribution | 13,795 |
| Health | 14,552 |
| Consumer & Homemaking | 34,820 |
| Home Economics | 6,727 |
| Office | 52,662 |
| Technical | 16,820 |
| Trades & Industry | 65,105 |
| Other | 6,369 |

Trade and industrial education accounts for the largest number of teachers, followed by office education and home economics. Significant and steady growth in number of teachers occurred in all programs except agriculture which declined from 1965 to 1969 and again in 1970. Percentages of the total number of teachers in distribution, technical, and trade and industrial show little change from 1965 to 1972. Health and office doubled in proportion to the total and agriculture and home economics showed substantial decreases in percentages during the eight year period. The number of individual teachers grew from 109, 136 in 1965 to 235, 658 in 1972. It is also useful to consider the distribution of teachers by level and 1977 growth projections.[4]

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[4] Center for Adult, Vocational, Technical, and Manpower Education (DHEW/OE). Trends in Vocational Education, Fiscal Year 1972. (Bethesda, Md.: ERIC Document Reproduction Service. ED 985 542, 1973).

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Teachers of Vocational Education, By Level

|  | 1972 | 1977 (projected) |
|---|---|---|
| Total (unduplicated) | 235,658 | 350,000 |
| Secondary | 131,404 | 193,000 |
| Post-secondary | 56,311 | 85,000 |
| Adult | 67,242 | 100,000 |
| Disadvantaged | 15,007 | 24,500 |
| Handicapped | 4,919 | 10,500 |

Unduplicated total includes 37,562 teachers in 1972 teaching in special programs.

Any consideration of dissemination must deal seriously with the differences and similarities within and between these domains and levels. Each discipline and level has unique values, institutional arrangements, communication behaviors, and work styles that impinge on the dissemination of r&d products and results. Much more needs to be known about these and other factors as they have to do with information gathering and utilization behaviors.

Agriculture, for example, has a carefully nurtured dissemination tradition. The extension agent model is being boosted by some planners as the way to capture users for dissemination efforts.

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However, it is also suggested that this model might not be a functional choice for generalized use. The different conditions in agriculture might be more significant than any similarities possessed in common with other domains in vocational education.

> ...the agricultural development analogy so widely
> used these days is not altogether appropriate:
> the rationale and the appeal of agricultural
> research in the U.S. was to the farmer's self-
> interest; we found little evidence in the liter-
> ature that educational researchers or their
> sponsors are fundamentally concerned with what
> teachers self-interests are, let alone how they
> might be served...There is widespread belief in
> the educational research establishment (both
> those who produce that research and those who
> write it) that the agricultural extension agent
> concept is a sound analogy on which to proceed
> in ways of developing ways of enhancing 'know-
> ledge utilization' in education. This position
> is as unjustifiable as it is misleading. Edu-
> cators are not farmers. The senses in which the
> analogy might hold are slight and trivial compared
> to the senses in which it does not. The farmer
> does not apply his 'knowledge' to people; the
> educator does...What agricultural research has
> provided for the farmer are means of producing
> ever-larger yields; ever-larger ears of corn
> having but little more food value than their
> earlier, scrawny, misshapen counterparts. On
> the face of it, this would be a strange model
> to presume to in improving educational practice
> in the U.S....[5]

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[5]Lee Thayer and others. <u>Toward a Reconceptualization of Knowledge Utilization. Volume 1. Final Report.</u> (Bethesda, Md.: ERIC Document Reproduction Service, ED 075 330, 1973).

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The Educational Resources Information Center (ERIC)

Since its beginning in 1966, ERIC has attempted to become

a comprehensive system providing access to current educational

literature. It would allow any educator or person interested in

any aspect of educational development to identify and obtain quick-

ly, reports of exemplary programs, research results, and evalua-

tion studies in a specific area of interest from thousands of

selected documents that otherwise would have been impossible for

any single organization or person to locate.[6]

The development of ERIC as a national, document-based in-

formation system has brought about changes in the way r&d pro-

ducts and educational information is collected and made available.

Operating as a decentralized system its mission is intended to be

accomplished through a variety of clearinghouses. Individual

clearinghouses were originally

> ...located to optimize substantive expertise in
> staffing and in the institutional setting. This
> enhances communication with both the producers
> and users of knowledge in a substantive field.
> Through this approach, linkages are maintained
> with the organizational structure and profes-
> sional groups...[7]

The managers of the clearinghouses seem to feel that they

could can go beyond selecting, abstracting, and indexing documents to

directly serve users. It has become a widely subscribed to notion

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[6]Bernard Fry, _Evaluation Study of ERIC Products and Services._
_Summary Volume. Final Report._ (Bloomington, Ind.: Graduate Library
School, Indiana University, 1972).

[7]Celianna I. Taylor and Robert E. Taylor. "VT-ERIC: Purposes,
Programs, Projections." _Journal of Educational Data Processing_, 7
(April 1970): 108.

that the clearinghouses can add to their analysis function
and serve as knowledge linkers activating the interpersonal net-
work of communication within target audiences.[8]

The clearinghouses have tried to establish linkages with var-
ious professional organizations, educational leaders, and other
clientele groups. These efforts seem to have been successful,
but there has been a growing recognition that the information pro-
cessing and analysis function are demanding enough without the add-
ed burden of the complex and delicate requirements needed for serv-
ing teachers and administrators at the local level.

It has become clear that there must be a division of labor
shared by intermediate agencies located closer to the system's
consumers. At most, a clearinghouse can maintain familiarity with
the desires, personalities, and day-to-day considerations of target
audiences. They cannot perform the ultimate linkage function.
In vocational education the sheer number and variety of teachers
and administrators is a constraint that must be recognized.

The Center for Vocational Education, while operating the ERIC
Clearinghouse on Vocational and Technical Education, played a historic
role in studying these problems. Deeply meshed in the vocational
education enterprise, the Center moved early to establish coopera-
tive relationships with the RCUs and others. RCUs were developing
within the states concurrently with the growth and development of the
ERIC system.

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[8]Richard S. Farr. Knowledge Linkers and the Flow of Educa-
tional Information. An Occasional Paper from ERIC at Stanford.
(Stanford, Calif.: ERIC Clearinghouse on Educational Media and
Technology, 1969).

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Possible linkages were explored and nurtured in a pilot. project conducted by the Center with state RCUs. As a result a Guide[9] was developed and tested to assist states in implementing information dissemination programs for vocational and technical education at the state level. This collaboration. continued with The Center and RCUs conducting a significant user study[10] and developing a model Guide to State Information. Resources.[11] Another linkage effort with the RCUs was The Center's work with the New York State Research Coordinating Unit in a case study of the decision process as New York installed a statewide coordinated information network.[12]

Direct assistance was provided by the Center to other states as they initiated dissemination activities. Pennsylvania's Vocational Education Information Network (VEIN) was a beneficiary of their experience and encouragement. Vocational education through the activities of the Ohio State Center made important contri-

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[9]Celianna I. Taylor and Joel H. Magisos. Guide for State Vocational-Technical Information Dissemination Systems (Columbus, Ohio: The Center for Vocational-Technical Education, The Ohio State University, 1971)

[10]Joel H. Magisos. Interpretation of Target Audience Needs in the Design of Information Dissemination Systems for Vocational-Technical Education. (Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1971)

[11]David H. Miller. Guide to State Information Resources. (Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1972).

[12]William Hull and Gregory Benson, Jr. Installing a Coordinated Information Network in a State Education Agency: A Case Study of the Decision Process in New York. (Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1972).

butions to the refinement of ERIC operations. It was recognized

early that there had to be agencies close to system consumers if

effective linkage was to occur.

The center completed important studies of the communication

behavior of vocational educators. The result was a series of

studies which collectively may be viewed as a major programmatic

effort to assess user needs and improve dissemination and utili-

zation efforts. Findings of these studies are detailed by

McCracken,[13,14] Magisos,[15] and Gillespie[16] and are summarized by

McCracken and Gillespie.[17] The studies suggest further targeting

of products for specific user groups, inservice education and

promotional activities to increase clientele awareness and

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[13]J. David McCraken. "The Utilization of Information by
State Supervisory and Teacher Education Personnel in Vocational
and Technical Education," (Ph.D. dissertation, The Ohio State
University, 1970).

[14]_____. Information Needs of State Directors
of Vocational Education (Columbus, Ohio: The Center for Vocational
and Technical Education, The Ohio State Universiyt, 1973).

[15]Joel H. Magisos. "Problems Associated With Developing State
Vocational-Technical Education Information Dissemination Systems,"
paper presented at the Association for Educational Communication and
Technology Annual Convention, Minneapolis, Minnesota, 16 April 1972.

[16]J. David McCracken and Wilma B. Gillespie. Information Needs
of Local Administrators of Vocational Education (Columbus, Ohio:
The Center for Vocational and Technical Education, The Ohio State
University, 1970).

[17]_____. Information Utilization by Vocational
Educators (Columbus, Ohio: The Center for Vocational and Tech-
nical Education, The Ohio State University, 1973).

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utilization of information resources, programs designed to make
the system more accessible to users, more effective analysis and
interpretation of the knowledge base, and more rapid servicing of
user requests.

Targeting of information analysis products has always been
a major concern of the Center. As early as 1970 this concern was
expressed in the development and implementation of an "Information
Analys s Plan for the ERIC Clearinghouse on Vocational and Tech-
nical Education."[18] This plan set forth rationale and procedures
for developing differentiated products for different user groups.

A significant and interesting study was the evaluation of
the impact of one of these products.[19] This evaluation deter-
mined that the product was being used to keep up with current
work in a major area of interest, to find specific information
about a substantive field, to exchange information or find in-
formation for a colleague, to resolve work problems, and/or iden-
tify new concepts.

This thoughtful approach toward seeking solutions to dis-
semination problems has been characteristic of the Ohio State
Center. It's studies of users and products have led to new

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[18]Information Analysis Plan for the ERIC Clearinghouse on
Vocational and Technical Education (Columbus, Ohio: ERIC Clear-
inghouse on Vocational and Technical Education, The Center for
Vocational and Technical Education, The Ohio State University,
1970).

[19]N. L. McCaslin and John R. Walton. "Impact Evaluation of
Research and Development Products on Vocational and Technical
Education," paper presented at the American Vocational Associa-
tion Annual Convention, Chicago, ILL., December, 1972.

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and improved programs of education, and improved information for decisions about resource allocations.

Most of this work was generated at The Center for Vocational Education during the time they successfully carried on the daily operations that fell within the scope of The Clearinghouse on Vocational and Technical Education. It was a model operation constantly examining itself by studying its products and user behavior while generously sharing its expertise in developing linkages with practitioners in vocational education classrooms and laboratories.

Early in the 1970's the National Center for Educational Communication, the parent agency of ERIC, contracted with the Rand Corporation to study the operations of the ERIC system.[20] The study's report suggested that the number of Clearinghouses be reduced and that the scope of those that remained be increased. Rand's "consolidated model" recommended a clearinghouse which would encompass vocational and technical education, adult and continuing education, and the current scope from other clearinghouses relating to vocational and community programs and career choice. It would carry the national administration's favorite label, Career Education, and attempt to bridge distinctions made on the basis of age or place of learning.

The National Center for Educational Communication was moved from the USOE to the newly created National Institute of Education

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[20]P.W. Greenwood and D.M. Weiler, Alternative Models for the ERIC Clearinghouse Network, (Santa Monica, Calif.: Rand Corporation, 1972).

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and in 1973 instituted moves to implement some of the Rand

Corporation recommendations. Two very successful clearing-

houses, The Clearinghouse on Adult Education at Syracuse

University and The Clearinghouse on Vocational Education at

The Ohio State University were to be subsumed into one which

would be responsible for collection and dissemination activi-

ties related to career education at all levels of the educa-

tional system--from kindergarten through secondary, post-

secondary, and adult and continuing education. Principal at-

tention would be given to educational research and development,

and promising or exemplary programs and practices related to

various aspects of career education. This included career and

vocational education for the handicapped from childhood to

adulthood.

Coverage would also be given to career education provided

by public and private school systems, business and industry, man-

power organizations, and the various levels of government--local,

state, and federal. Career education was defined as the develop-

ment of knowledge and of special and general competencies in in-

dividuals and groups that would help them interact with the eco-

nomic sector in a manner ensuring satisfactory economic and

psychological incomes from employment.[21]

NIE persisted in its determination to merge the two clear-

inghouses and overran strong expressions of disapproval from the

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[21]National Institute of Education, _Request for Proposal._
RFP-NE-R-3-0011 (Washington, D.C.: National Institute of Edu-
cation, 29 May 1973).

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Vocational and Adult Education communities. The decision

was made and a contract was awarded to Northern Illinois

University at DeKalb to manage and operate the new Clear-

inghouse on Career Education. In an inexplicable move,

the principal information dissemination agencies of two

vast and complex domains were grafted onto the platform

the administration hoped would leave its mark on American

education.

## The ERIC Clearinghouse in Career Education (ERIC/CICE)

The National Institute of Education initiated its ERIC

Clearinghouse in Career Education in September 1973. It was

located at Northern Illinois University at DeKalb under the

direction of Dr. David V. Tiedeman, an important figure in the

conduct and direction of career research, policy, and practice.[22]

Brought together under the rubric career education, the

new clearinghouse was intended to consolidate the functions per-

formed by the ERIC Clearinghouse on Vocational and Technical

Education and Adult Education. The director explains the scope

of the new clearinghouse:

> CICE conceives Career as a life-long issue, an evolving
> combination of deliberate personal intention and societally
> afforded opportunity for personal development. Since the
> human career develops from birth to death, it has no one-
> kind, one-time goal. Rather the human career progresses
> with personal growth, with the attainment of appreciation
> for the loneliness of individuality in the grandness of
> human and environmental interdependence, and with the ev-
> olution of a satisfying vocational identity within an ever-
> enlarging personal identity.

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[22]Tiedeman, David V. and Robert P. O'Hara. Career Development:
Choice and Adjustment. New York: College Entrance Examination Board,
1963.

Primary concern is focused on documents in these areas:

1.  Purposes and theories: Philosophy; learning, per-
    sonality, social, and occupational and career psy-
    chology; occupational, career, and educational so-
    ciology; manpower economics; systems theory; and
    change processes.

2.  Career and human development through the retirement
    period: attitudes; self-knowledge; decision making
    skills; general and occupational knowledge; and specific
    vocational and occupational skills.

3.  Life roles: occupational; organizational; consumer;
    family; leisure; and citizen.

4.  Informal and formal educational practice: Vocational
    awareness and exploration; career, vocational-technical,
    and adult and continuing education; manpower training;
    career guidance and counseling.

5.  Educational policy: local; state; national; and inter-
    national. (In the latter case, input is limited to
    documents in the English language.)[23]

The territory mapped in these scope and subject statements

is impressive and enlarged by this statement of purpose:

> CICE inputs career education literature with the potential
> needs of citizens, students, teachers, counselors, and per-
> sonnel workers, administrators, policy makers, researchers,
> and scholars in mind. Through its literature input and
> user services, CICE strives to 1) facilitate exchanges of

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[23]David V. Tiedeman. "Career Education: A Guidance Idea Reaches Its Term." Quest: Michigan Personnel and Guidance Association News-letter, V 11 (March 1974).

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information, 2) have an impact on educational practice and 3) provide information to the general public.[24]

A recent visit to Northern Illinois University and discussions with the clearinghouse director and his staff prompts the following observations:

o The University has provided facilities that appear to be adequate. The Clearinghouse is located in a well maintained building. Offices and other work areas are in large open spaces.

o One senses that the staff of CICE is efficiently performing its information analysis functions of collecting, selecting, abstracting, and indexing, and partially synthesizing some of the literature in the fields of adult and continuing, career, and vocational-technical education.

o There has been some concern among vocational educators that the quality and quantity of service would be less from a clearinghouse somewhat peripherally positioned. If productivity is measured in terms of documents abstracted and announced in Resources in Education, the number of informal bibliographies prepared, and the publication of information analyses, a judgement can be made. Documents announced in RIE relating to vocational education seem to be approaching former levels.

o In a move to strengthen working relationships with the adult

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[24]Ibid.

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and vocational education fields two associate directors
have been added to the staff. Both are well known and
should provide strength in building relationships with
all domains.

o There is much justifiable concern over funding. The
Clearinghouse Advisory Board has strongly urged NIE to
increase its financial support for CICE.

o Relationships with RCUs, the National Network for Cur-
riculum Coordination in Vocational-Technical Education,
and state dissemination centers have not been established
at this time. This problem has been recognized by the
Clearinghouse staff and they plan to visit and expand
pilot service to five state RCUs and the National Network.

o Language used by the Clearinghouse to describe territory,
scope, and purpose seems to reflect the advanced percep-
tions of some members of the educational research community.
It exemplifies views that go beyond those held by most
practitioners.

o Considerable anxiety having to do with AIM/ARM and
Clearinghouse territories was expressed by the director.
The impression conveyed is that the joint announcement
prepared by the two systems has not solved some problems
relating to coverage.

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AIM/ARM

Abstracts of Instructional and Research Materials in Voca-
tional and Technical Education was initiated by the Center for
Vocational Education at The Ohio State University in 1967. It
was originally two separate publications issued quarterly to
announce relevant research and instructional materials to voca-
tional and technical educators. Conceived as a compatible sup-
plement to ERICs Resources in Education it was designed to pro-
vide more comprehensive coverage of the growing literature of
vocational and technical education.

Supported by grants from the ERIC system when it was part
of USOE, the USOE Bureau of Occupational and Adult Education, as
well as grants from the Sears Roebuck Foundation, it has had a
precarious financial history. Now in its eighth year, it con-
tinues through a new contract awarded to the CVE/OSU by the
Bureau of Occupational and Adult Education/USOE.

AIM/ARM is a mature and highly visible component of the
vocational education system. It has developed with the coopera-
tion, suggestions and support of personnel in state departments
of education, state research coordinating units, USOE/BOAE (pre-
viously BAVTE), the National Advisory Council on Vocational Edu-
cation, and the American Vocational Association.

The goal has been to develop and operate an information
system which makes instructional and research materials accessible
and available to educators and others involved in solving problems
in vocational and technical education. To meet this goal, the

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following objectives have been specified:

1. To collect, bring under bibliographic control, index,
   and abstract research reports, instructional materials,
   and other literature (many such materials resulting
   from projects funded by monies from Parts C, D, I, and
   F of the VEA of 1968).

2. To collect, bring under bibliographic control, and
   abstract proposals of in progress curriculum and re-
   search projects funded by monies from Parts C, D, I,
   and F of the VEA of 1968.

3. To compose, edit, and print the AIM/ARM published indexes
   containing the information about literature and proposals
   collected.

4. To circulate to paid and complimentary subscribers copies
   of the published indexes.

5. To arrange provisions to make the full text of materials
   announced in AIM/ARM available in microfiche form.

6. To produce and distribute magnetic-tape copies of the
   AIM/ARM computerized data base on a cost recovery basis.

The accomplishment of these objectives has contributed measurably
to a comprehensive information system for vocational and technical
education. A large body of information resources has been acquired,
brought under control, and been made available through linking
organizations to the systems consumers.

During its first seven years, AIM/ARM, in conjunction with the
ERIC Clearinghouse on Vocational and Technical Education, collected

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almost 25,000 separate pieces of literature for possible list-
ing in AIM/ARM and RIE.

Of this number, 15,593 were listed in a total of 57 AIM,
ARM, and AIM/ARM (combined) published indexes. Also, seven an-
nual, cumulative subject and author indexes have provided access
to the documents.

Of the 15,593 pieces of literature listed in AIM/ARM pub-
lications 8,296 have been made available in microfiche form in the
special AIM/ARM, VT-ERIC Microfiche Sets contained within the total
ERIC system microfiche collection. Others have been made available
as ED-numbered individual microfiche in the ERIC system.

As AIM/ARM has evolved and as it has acquired, processed,
published, and made available information for use by vocational
and technical educators, it has become an integral part of an emerging
comprehensive information system for vocational education in America.
As one of the principal information resources, AIM/ARM has become
an essential component of this information network which includes
state dissemination centers, research coordinating units, curriculum
coordination centers, instructional materials laboratories, ERIC and
other agencies.

Several important developments occured during 1967-1974.
Each new development improved the system, its product, and its
potential. The most significant developments were:

1. Computerization of the data input and camera-ready
    output phases of AIM/ARM production.

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2. Development of searchable computer tapes for use in searching.

3. Partitioning of the 1967-1971 AIM file into separate publications for use in seven occupational areas.

4. Addition of a "Research Projects in Progress section to report funded Part-C and D proposals.

5. Combination of the quarterly AIM and ARM into a single, bi-monthly publication (AIM/ARM).

6. Addition of a Curriculum Development in Progress section.

These developments in the AIM/ARM system and products were paralleled by efforts of The Center for Vocational Education to develop a linked network for information dissemination. The effectiveness of this RCU-based information dissemination system is well known and documented in the literature. More recently the Curriculum Development Branch of USOE/BOAE/DRD has developed a national network for curriculum coordination in vocational education. The Center has been represented at network meetings and has worked with the curriculum coordination center directors in assessing needs that could be met by AIM/ARM.

In addition to major developments in the AIM/ARM system and efforts to link an information dissemination network, several product potentials were realized. For example, as part of the school-based career education model, bibliographies were developed in each of 15 occupational clusters. These and over 100 ERIC information

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analysis papers were made possible by use of the AIM/ARM document collection.

Over 9,144 research and related materials and 6,252 instructional materials have been announced in AIM and ARM in seven years (1967-1974). These data provide some notion of the extent of the literature resulting from research and curriculum development. Most of these materials were "fugitive" in nature; that is, they were issued in limited quantities and were not systematically cataloged previously for broad or continuing use. Specifically, the materials appropriate for AIM/ARM are reports of USOE/BOAE-funded projects, program descriptions, and instructional materials useful to vocational and technical education which do not meet ERIC selection criteria. These materials cannot be used effectively if not accessible and available to educational practitioners or to researchers and curriculum developers.

The practitioner groups need the information for policy decisions and program development. The researcher-developer group needs information about completed and on-going work to avoid duplication and to benefit by existent knowledge. Among these groups the need is for collection and processing of materials into a system which makes the materials accessible and available on a continuing, stable basis. They need a system searchable through different levels of sophistication and capable of providing repackaged and digestible versions for speical target audiences.

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The primary users who need the system are state voca-

tional education directors, research coordinating unit direc-

tors, state advisory committee executive directors, state

supervisors or consultants, teacher educators, curriculum center

directors, and local vocational education directors. Other

important groups with special needs are graduate students, in-

service training participants, curriculum committee members,

practicing teachers, state and local advisory committee members,

and various professional organization staff members. The system

is needed also by various agencies of the Federal government,

principally the USOE Bureau of Occupational and Adult Education.

At present, AIM/ARM receives Part C, D, and I project re-

ports and products from USOE/BOAE/DRD for possible inclusion.

In addition, materials are received unsolicited from the field.

Instructional materials are sought, principally from curriculum

coordination centers, curriculum laboratories, and other sources.

A policy statement has been developed with the ERIC Clearinghouse

in Career Education which also solicits materials clarifying and

assuring the of announcement in the appropriate vehicle (i.e. AIM/

ARM or RIE).

Linkages to the RCUs, the National Network of Curriculum

Coordination, and the Vocational Instructional Materials section

of AVA are aimed at routine acquisition. The implementation of

the agreement implicit in the joint announcement with ERIC/CICE

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is intended to assure efficient, non-duplicative acquisition of the important literature in the field while ensuring that all projects funded by USOE/BOAE/DRD will be accessible and available through AIM/ARM.

AIM/ARM is distributed to nearly 1,600 prime users: state directors, RCU directors, curriculum coordination center directors, head state supervisors, teacher educators, and local directors in large cities. At no additional cost to the sponsor, a subscription service provides AIM/ARM to nearly 1,000 others, many in foreign countries.

In addition, AIM/ARM is included in ERIC microfiche collections at over 600 locations. Microfiche backup for documents in AIM/ARM is provided by the ERIC Document Reproduction Service with the cooperation of Central ERIC in the National Institute of Education.

Under the able and experienced leadership of Dr. Joel Magisos AIM/ARM has played an important role in the movement of r&d products and results from producers to consumers. Located in an appropriate setting at the Center for Vocational Education, a visitor finds it difficult to envision it anywhere else.

One concludes that AIM/ARM must remain at the Center and continue with funding that will facilitate its growth and effectiveness. This opinion is based on the following judgements relating to the Center for Vocational Education:

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° It has a long-standing commitment to develop a
   linked information dissemination network.

° It has the organizational capacity for all of the
   processes, having developed these over a seven
   year period.

° It has a staff with rich experience in all phases
   of information dissemination, respected backgrounds
   in vocational education and career commitment to the
   educational field, and

° It has already developed the relationships necessary
   to carry through an enlarged dissemination effort.

## State Dissemination Systems

A fundamental concept in information work is to move con-
tact and services as close to the potential user as possible. A
national system requires linkages which will facilitate this inter-
personal relationship between the system and its users.

The VEA amendments of 1968 included explicit provisions
for the dissemination of information which would improve voca-
tional education. RCUs were the logical agencies to foster this,
for among their primary functions has been the stimulation, coor-
dination, and dissemination of research products and results.

The Center for Vocational Education initiated a move to es-
tablish state dissemination systems in 1967. Well developed examples
have been implemented in Tennessee and Pennsylvania. Both are re-
plicable models of what can be done.

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Tennessee

The Tennessee Information Retrieval and Dissemination System for Vocational Education is an integral component of the state RCU. This RCU is a cooperative effort, serving clientele in the University of Tennessee College of Education, the State Division of Vocational-Technical Education, community colleges, technical institutes, and local schools.

Initiated in July 1970, the system describes its purpose as two-fold. One purpose is the straightforward role of service--providing information in response to a question. The second purpose is the assisting of planned change or improvement of vocational education by providing supporting information.

the    In working toward these goals, the System has engaged in a variety of activities during the period 1970-1975. A major activity has been the establishment of a library in university owned facilities which houses the ERIC microfiche files and indexes and the AIM/ARM microfiche and indexes, along with equipment to read and duplicate the microfiche. Selected hard copy of documents has been acquired and is also maintained in the library including a special collection of Career Education materials.

A computerized information retrieval system is available with ERIC and AIM/ARM tapes through the University of Tennessee's computer system, and the computer search service is an important feature of the system's program.

Dissemination efforts have included a wide variety of activities. Microfiche readers and selected microfiche were installed in 1970 in thirteen locations throughout the state. Most of these Regional Resource Centers, now totaling 15, are located at area vocational schools and technical institutes. Another effect has been the announcement of research projects and available documents in a bimonthly newsletter, the Circulator.

In 1972 a Selective Dissemination of Information (SDI) subsystem was developed. This provides for unsolicited dissemination of abstracts of curriculum materials to instructional personnel in the state. Secondary and postsecondary materials are mailed on alternating months. In addition to this, an "ERIC ALERT" is mailed to vocational teacher educators as pertinent information is identified.

The System develops informational products as the need arises. For example, an Annotated Bibliography on Career Education was compiled as a result of the increase in requests for information on this subject, and research activities have produced such documents as Where to Find Postsecondary Occupational Training Programs in Tennessee.

Repackaging efforts include a Bibliography Series and an Information Series of documents. These publications organize selected information into a useful format for the client as well as provide directions for the efficient use of the System.

Dissemination activities also include the regular mailing of RCU publications to appropriate audiences, both in Tennessee and out of state. Field agents working from regional offices distribute

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materials and promote use of the system.

Workshops, presentations, and inservice programs are given by the System to orient users and potential users on the availability and use of materials, equipment, and services. Displays and exhibits at regional and state meetings are employed to disseminate information and promote interest and use. The system, an integral component of the RCU, collects and disseminates occupational education information to support and complement RCU objectives.

Occupational education research is stimulated through a state Mini-Grant Program. Mini-grant project proposals are backed by a literature search of the ERIC files. Completed projects are announced in the RCU newsletter and, in select cases, are disseminated to appropriate audiences within the state; ERIC clearinghouses, and other RCUs.

The document-based Information System complements the data-based Management Information System (MIS), which coordinates occupational education research. Together they provide comprehensive information for vocational educators in Tennessee. In addition, the channels of communication established by the Information system are utilized to disseminate the information collected by the MIS.

Project INFOE, Information Needed for Occupational Education, and Special Projects provides occupational information to students. INFOE supports and complements the other systems. For example, the same reader/reader-printer used to view ERIC microfiche can also be used to view the INFOE microfiche aperture cards. By providing occupational information to students, Project INFOE rounds out a

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comprehensive program which serves teachers, counselors, adminis-

trators, researchers, and students.

The Information Retrieval and Dissemination System activities

have been evaluated in a variety of ways. Two follow-up studies

have been conducted to determine user satisfaction with infor-

mation services and products. Both studies showed user satis-

faction with the information services and with the usefulness and

appropriateness of the product, whether it was a computer search,

manual search, hard copy, or microfiche. Users indicated they

would use the services again. Annual analyses of user request

forms support these findings. There has been a marked increase

in use of the services and products each year and many clients

have become regular users of the system.

In an effort to determine the relevance of the SDI sub-

system, a questionnaire was mailed to secondary and postsecondary

institutions. Both secondary and postsecondary teachers responded

positively that the material was relevant and easy to use.

The Circulator, the RCU newsletter, is considered to be a

valuable communication mechanism. The mailing list has grown

from 2,644 names in 1970 to over 6,500 in 1975.

The major strengths of the Information Retrieval and Dis-

semination System lie in its variety of information resources,

the repackaging efforts, and a personalized approach toward meeting

the needs of its users.

The information sources of ERIC and AIM/ARM are well established

and widely recognized data bases. The close association between the

RCU and The Center for Vocational Education provides another valuable

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source of information. The University setting gives the RCU access to an unusual variety of human and institutional re-sources.

The personalized services provided by the Regional Research and Development Offices, the Regional Resource Centers, and the central RCU link the system with its ultimate consumer in the classroom. Local data indicates a growth pattern reflecting user acceptance. It is evidence of the productive milieu that is sensed in visiting the Tennessee RCU.

| Persons Using Library | July-Dec. | Jan.-June | Total |
|---|---|---|---|
| 1972-73 | 562 | 590 | 1,152 |
| 1973-74 | 463 | 763 | 1,226 |

| Microfiche Duplicated | July-Dec. | Jan.-June | Total |
|---|---|---|---|
| 1972-73 | 1,727 | 4,250 | 5,977 |
| 1973-74 | 3,085 | 4,872 | 1,727 |

| Computer Searches | July-Dec. | Jan.-June | Total |
|---|---|---|---|
| 1972-73 | 50 | 96 | 146 |
| 1973-74 | 107 | 109 | 206 |

Quantitative data of this kind must be handled carefully. Little is known concerning quantity as it relates to quality and impact.

One is impressed by the staff of this system and their sensitive concern for the user. In this context it is interesting to read and conclude with their perception of system problems and recommendations for improvement.

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- There are irregular communications between the RCU and Regional Resource Centers and Regional Research and Development Offices.

- There is still a lack of awareness of the information System's services in selected audiences.

- There is insufficient staff to provide utilization services.

- There is a poor computer turn-around time in regard to the computer searches.

- Regular retraining/planning workshops between Regional Research and Development personnel and central RCU personnel should be conducted.

- Development of a pointed communication effort through administrative groups, like local Vocational Directors, should increase awareness of available services.

- The installation of a more efficient software package for searching the ERIC files would improve the waiting period for the users.

- A re-evaluation of present Regional Resource Centers seems in order in conjunction with the new Tennessee Comprehensive Education legislation.

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## Pennsylvania

Pennsylvania's Vocational Education Information Network (VEIN) provides information and curriculum services to local, state, college and university educators serving vocational, adult, and career education. Located on the campus of Millersville State College, VEIN is a service of the college's Division of Education.

Working from modern facilities in the Stayer Research and Learning Center, VEIN is an integral component of Millersville's widely known and rapidly developing teacher renewal and outreach services. It's activiites are focused through the following goals:

○ Linking Pennsylvania's vocational educators with useful information and services appropriate for the maintenance and improvement of their professional activities.

○ Serving the dissemination function of the Pennsylvania Research Coordinating Unit for Vocational Education, and collaborating with the Center for Vocational Education, the ERIC Clearinghouse, and other systems in the conduct of information activities.

○ Extending these activities by developing a wider diffusion of curriculum materials dealing with the diverse aspects of vocational, adult, and career education.

○ Cooperating with the Pennsylvania Department of Education's Bureau of Vocational Education (BVE) in their efforts of promote increased understanding of and appreciation for vocational programs.

○ Assessing and reporting the effectiveness of all operations seeking continued improvement based on the needs of system users.

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Since its inception in 1970, VEIN has become widely ac-
cepted in the state's vocational education community. Maintain-
ing and increasing its dissemination activities the staff is deep-
ly involved in the sharing, adoption and installation of vocational
education r&d products and results. Programs currently being managed
by VEIN illustrate a dynamic and evolving dissemination effort:

Vocational Education Information Network for Pennsylvania (VEIN)

    Personnel: Director, 3 information specialists,
               1 secretary, 13 student helpers

    Purpose:   Dissemination of educational
               information and r&d products and results.

Vocational Education Curriculum Center for Pennsylvania (VECC)

    Personnel: Curriculum Services Coordinator, cur-
               riculum materials assistant, 1 secretary,
               3 student helpers

    Purpose:   Targeted dissemination of vocational education
               curriculum materials

Product Installation and Evaluation: Design and Analysis of Cost-
Effective Procedures for Vocational Educators

    Purpose:   Series of workshops for teachers, ad-
               ministrator and teacher educators and
               one-year observation of distributive
               education instructional program to
               develop new practices installation.

Team-Building and Staff Development Workshops for State Leaders
in Vocational Education

    Purpose:   Management team staff development for
               effective communications and leadership

## Vocational Education Management Seminar on Transactional Analysis

Purpose: Develop techniques for staff development and communications

## Consumer-Oriented System for Dissemination of Practice and Products to Adult Educators: Exploratory Phase

Personnel: Coordinator, Information worker

Purpose: Structured effort to identify alternatives for dissemination of practices and products to adult educators

## Development of Instructional Materials for Cooperative Education

Personnel: Manager, part-time secretary, consultants

Purpose: Preparation and publication of instructional materials guide and course of instruction on related theory

## PDE Vocational Education Staff Development Programs

Purpose: Organize and manage workshops for state staff development

## Seminars for Distributive Education Instructors

Purpose: Implementation of product installation model through orientation and instructional seminars

These programs are operated with state granted federal vocational and adult education funds. They represent the finely tuned collaboration between VEIN, The Pennsylvania Department of Education Bureau of Vocational Education and its Research Coordinating Unit to improve communication and utilization of R&D products and results.

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The managers and staff of VEIN emphasize a highly per-
sonalized approach to information work. Staff members visit
schools, attend meetings, and participate in a wide variety
of educational events. They've developed an intricate web of
personal relationships with educators at all levels.

Queries arrive at VEIN by mail, telephone and with visitors.
They come with staff members who have sought them out while
visiting, meeting, and talking to practitioners. These visits,
meetings, conferences and conventions are rich environments
for the interpersonal encounters that seem to be so necessary
in ferreting out authentic information needs.

This seeking out of questions and problems personifies
the commitment of VEIN's staff to the development of effective
ways to engage users. They consciously try to move beyond the
archiving of information. They have "freed up from" the old
habit of waiting for the client to seek them out. VEIN's staff
shops for problems. Present and emerging needs of users are
constantly reconoitered, and products are delivered rapidly.
Feedback on how the system is working is aggressively sought.
The staff likes to point out that in this milieu daily queries
grow in quantity, quality and precision and that the increased
interaction between information specialists and practitioner-
users develops and refines information seeking and utilization
behaviour.

Securely developed relationships with an outstanding col-
lege library and its curriculum materials center, and a campus

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computer center provide resources that go far beyond those
usually found in ERIC related information centers.  Special
data banks have been developed and organized as new needs have
been identified.  Collections of curriculum related materials
prepared in Pennsylvania schools and a file of architectural
drawings of facilities for vocational education are examples
of local file building that enlarge resource sharing activities
beyond anything that could ever be accomplished at the national
or regional level.

The major thrust of VEIN's dissemination effort is focused
on the collection, review, and distribution of curriculum re-
lated materials and information.  A special program to accomplish
this was established in 1973.  Operated as an extension of VEIN
the Vocational Education Curriculum Center for Pennsylvania
provides additional linkage in curriculum matters for system
consumers.  State and local vocational educators are consulted
to assure consistency of disseminated materials with the curric-
ulum development policies of the BVE.

An important aspect of this program is the collaboration
between the RCU, the BVE, and VEIN to promote local curriculum
development activities through systematic collecting, screening
and dissemination of useful and usable curriculum materials.
Other aspects of current activities as described by VEIN's staff
are summarized below:

> oUser Information and Curriculum Materials
> Requests.  VEIN activity reports show that
> both general information and curriculum ma-

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terials requests are in constant and increasing demand. Priority for searches is given to those educators with vocational and adult education responsibilities. A standardized search procedure coupled with the VEIN insistence on interaction with the potential information user and awareness of BVE philosophy and policy with regard to program operation and development enables VEIN staff members to deliver relevant documentation. Information specialists carefully review and select materials which are appropriate in quality and quantity. Customized search information is promptly delivered in usuable form to the requestor.

Selective Dissemination of Information. Selected materials are identified and delivered to individuals and groups with specific interests. Although much staff time is devoted to answering requests, they are aware of the need to alert user groups to activities related to on-going problems, and periodically provide unsolicited information. BVE, RCU, teacher educators and local school personnel are advised on USOE and NIE requests for proposals to develop, reserach and evaluate vocational, adult, and career programs. Announcements

of current documentation on special topics are provided to conference and workshop participants. Efforts are directed to enhancing the posture of the BVE and RCU leadership roles for vocational and adult education.

oPromotional Activities. Locally produced audio-visual materials are solicited and exhibited to demonstrate the effective use of vocational monies and the impact of instruction on students. Public relations activities are generated to keep users and the community-at-large aware of vocational education efforts to promote lifelong career development of students.

oField Visits: Interviews and Group Presentations. Personal contacts with teachers, directors, coordinators, librarians, and counselors are given highest priority. Indications are that the VEIN contact program gains response as greater numbers of teachers and directors request a variety of services. Participation in workshops and conferences focuses on the cooperative efforts of the BVE, RCU, and VEIN. The staff attempts to vary its contact activities to fit each situation as it arises.

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oReporting. BVE and RCU personnel are informed

by oral and written communications on the use and

effectiveness of VEIN activities. Users and

local program people are kept aware of the services

used by the target audiences. Newsletters are

published and distributed.

oUser Survey Analysis. Interpretation of data col-

lected from users is used to determine the utility

of current activities, needed revisions and ad-

ditions to the VEIN program. Response to surveys

has been substantial and useful. Reports of surveys

are distributed to BVE and RCU staffs for their

reactions and recommendations.

oSystem Evaluation. Assessment by VEIN staff of

current activities is conducted using formal and

informal procedures. Time-studies are made peri-

odically to determine staff effectiveness and re-

assessment of duties. BVE and RCU evaluations are

solicited. Third-party evaluations are employed

whenever major changes in activities or funding are

proposed.

oData Sources Review. Consultation with BVE, RCU,

and other groups enable VEIN to determine the relia-

bility of current data sources and the need for

alternative or additional data sources. The Pennsyl-

vania microfiche collection now contains those
projects and reports supported and monitored
by the RCU and BVE with access through a com-
puterized index.  Guidelines for document
preparation are supplied to BVE, RCU, and local
program developers to ensure quality of content
and reproducibility.

oUser Surveys.  Different approaches are used each
year in surveying VEIN activities and their impact.
An attempt is made to reduce the possibility of
involving the same persons more than once in a
given year.  The surveys, requiring written or
oral response, are designed to encourage quick
response and to invite comments and suggestions.

During 1973-74 the VEIN staff completed and delivered 1871
searches.  In 1974-75 this increased slightly to 1913.  Over
50 per cent of these searches had to do with curriculum related
products or information as requested by local administrators and
teachers.  When this is coupled with VEIN's practice related
activities listed earlier in this section it clearly reveals a
focus on local concerns.

Local administrators and teachers express a need for "recipes,"
not theories or research data.  They want applied not "research"
information.  This preference is supported by their comments on

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the materials supplied by VEIN. It suggests a pattern of services and products that might not be congruent with the notion's of educational researchers and information workers interested only in "what should be".

At this point VEIN is an information dissemination model that has opted to start with the user, his problems, and his information needs rather than with a concept or product to be disseminated.

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## Utilization of R&D Products and Results

In 1965 the first funding for research and development in Vocational Education became available through the Vocational Education Act of 1963. Since then nearly $250 million has been provided in an effort to implement research projects, exemplary projects, and curriculum development activities in Vocational Education.

Have these monies and the resulting activities made a difference? LaRue and Robert Miller in a study conducted for Project Baseline at Northern Arizona University present information that demonstrates some impact on the nation of this ten year effort.[25]

Their major conculsion is that research and development funding has begun to make a significant impact on areas of knowledge about Vocational Education and Manpower needs. They support this conclusion by pointing out that

> o Programs have grown from small projects into a fund of knowledge that has altered the structure of Vocational Education in some states and foreign nations as well.

> o Information systems have been instituted, some providing analysis for state planners and some intended for use by students and teachers.

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[25] Robert and LaRue W. Miller. _Impact of Vocational Education Research at the Federal and State Levels._ (Flagstaff, Ariz.: Project Baseline, Northern Arizona University, 1974.)

o Behavioral objectives and ways of measuring
their achievement have been written for train-
ing programs in nearly two hundred job
categories.

o Nationwide networks for curriculum coordination
and for cooperative planning and sharing have
been instituted.

o A higher level of community involvement has
begun to appear.

They categorize the State-administered projects under parts
C and D and analyze the resulting patterns. It appears that the
majority of the funding has been directed into instructional
implementation with a strong emphasis on career development at
the secondary and post-secondary levels.

After studying, integrating, and analyzing the available
information used in preparing this report the Millers almost off-
handedly offer the following suggestions:

o Additional emphasis on the cooperation between
educatior. and manpower and the resulting ef-
fects on the very successful methodology of
cooperative education should be encouraged.

o More work needs to be done in the area of
training programs for young people who are
out of school and facing socio-economic hard-
ships due to unemployment.

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In an attempt to demonstrate the national impact of specific programs the Miller report displays a sampling of projects funded under VEA, Parts C, D, and I. This display is reproduced below:

| Project Title | First Funded | Original Impact | Current Impact |
|---|---|---|---|
| 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. |
| 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 |

*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.

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|---|---|---|---|
| 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 uses at original site. 75+ schools adopting this program. Consortium members in 38 States, and 2 other countries. |
| V-TECS: Vocational-Technical Education Consortium of States Georgia | 1968 | Performance objectives determined for occupational areas, task analysis procedure developed. | 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 joint this year. |
| Occupational Training Information System (OTIS) Oklahoma | 1968 | Provided manpower demand and supply information to Vocational and Technical Education administrators. | Information to several State agencies concerned with manpower planning, followup of vocational students after one, three, and five years. Personnel training information. |

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|---|---|---|---|
| Program Review for Improvement, Development, and Expansion (PRIDE) in Vocational Education Ohio | 1970 | Initiated in eleven (11) of Ohio's 104 Vocational Education Planning Districts. | 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. |
| SPAN: Systems Program Approaching Non-unemployment of Vocational Students Tennessee | 1970 | Job Guidance and Placement center including co-op work experience, elementary instructional television series for career exploration. | 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 Statewide. |
| 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. |

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|---|---|---|---|
| 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. |
| Toward Account-ability 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 Butter-flies 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. |

Careful reading of this report and some of the other literature on impact prompt these observations:

o One has to be impressed with what seems to
be some rather global evidence that there
has been considerable impact from VEA ex-
penditures for Vocational Education R&D.

o Statements like "...the impact is Self-
evident" may be useful in describing ex-
tensive efforts but they are not very
helpful in getting at what kind of impact,
the scope of impact, or the long-term
effects of impact.

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○ Little seems to be known concerning the kind
of information that can be used to get at
the nature of impact. In many cases it has
been easier to use money and public relations
as a measure.

○ A uniform set of procedures for collecting in-
formation relating to these matters is needed.

○ Useful data on impact might become more visible
if r&d projects involved students and teachers
at all stages from inception to evaluation.

In keeping with the growing consciousness concerning the
planning and implementation of Vocational Education, an increas-
ing number of States are committing their resources to providing
a comprehensive education system designed for all 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 unemployment rates have only begun to be explored.

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## Conclusions and Recommendations

During the past decade there has been an enormous amount of vocational education research and development activity. The products and results of this activity contains much of value, but it will have limited impact on practice unless it reaches the appropriate consumers at the right time in digestible and usable form.

There are mechanisms at federal, state and local levels disseminating these products and related information to teachers, administrators and researchers. Although many of these systems are working well, much remains to be done. Even if it is assumed that most practitioners are motivated to find and make active use of the best available information it is well known that:

- Many practitioners do not have a clear understanding of the relationship between their daily problems and their need for r&d products or information.

- Help is needed in defining problems clearly or in understanding the nature of the difficulties identified.

- Many practitioners find it difficult to identify, locate, and acquire potentially useful materials.

- They need help in locating appropriate products and information.

- Practitioners are not provided with much information or help as to probable utility, reliability, or validity of r&d products and results.

- Many need some assistance with the practical interpretation and application of most products they find.

The implications for improvement inherent in these
judgements are based on the sanguine assumption that there
is an abundance of useful educational information and many
od r&d products. This may be a correct assumption but
there is a compelling need for evidence that goes beyond
intuition and "experience."

Much information exists concerning the agencies and
policies for dissemination that have emerged through federal
legislation and funding. This information needs careful
attention in order to determine whether or not the real needs
of practitioners are being met and what can be done to im-
prove these essential services in the years to come.

Individuals and a complex of mechanisms are at work dis-
seminating the products and results of vocational education re-
search and development. In many instances, this movement of re-
sources is effectively accomplished. This activity should be
maintained and encouraged. Priority should be given to cap-
italizing on these resources. Work can proceed as increase in
present efficiency and responsiveness is sought.

New encouragement and support, especially at the federal
level, would create a climate in which psychological and political
momentum for future improvement could develop. Specific moves
might include:

    ° Continuation of AIM/ARM and ERIC/CICE with adequate
       funding. Too much valuable staff time has been and

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is being dissipated in desperate struggles to survive.

° Reducing anxiety concerning overlapping and duplication
of services. Vocational Education is a diverse set of
domains and deserves unique systemic arrangements for
moving information. The decentralized nature of voca-
tional education practice requires decentralized, multi-
ple, redundant sources of educational information.

° Provision of more coordination, at the federal level,
of the various efforts at all levels. This should be
lodged in the agency responsible for all planning and
decision making for Vocational Education.

° Encouraging state vocational education managers and their
Research Coordinating Units not giving dissemination top
priority at the present time to do so. Replicable pro-
grams with a variety of approaches are functioning ef-
fectively and expertise is available now for moving toward
a more systematic effort at the state and local level.

° Developing plans to include school library media special-
ists presently working at the building level in vocational
programs in any scheme to promote sharing activities. In
many instances, these important information workers have
been "written off." Pre-service and inservice training
programs should be developed to capitalize on and expand
the skills and experience of these grass roots specialists.

° Formation and support of knowledge transformation teams
at state and local levels. Much work needs to be done in

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translating research results into digestible and usable
form. Local conditions require localized experience
and teams of researchers, practitioners, students, and
information workers at this level might develop sharing
behaviors leading to new models of exemplary practice.
These teams could help establish crucially needed pro-
cedures for screening, rating, and classifying products
and information.

Much needs to be done to increase and improve the sharing and
utilization of information, products, and results. Short term and
long range planning urgently requires carefully designed investi-
gation of these matters. Some pioneering work, especially at the
Center for Vocational Education, has been focused on administrators
and others at the upper levels. This work should be mined and ex-
tended to teachers and students. Important questions include:

° What are the information needs of classroom teachers and
   students in vocational education?

° How do classroom teachers and students seek, acquire, share
   and use research and development results and educational in-
   formation?

° How are the incentives of vocational education practitioners
   to seek, share, and utilize these resources influenced by
   variations in; information and style, the substance of the
   information, practitioner roles, product availability, prac-
   titioner objectives, and opportunities to put information
   and products to practical use?

° What incentive structures exist or need to be devised

that can be employed to promote wider use of r&d re-

sults?

° How can different kinds of specialists help practitioners

utilize r&d products and educational information?

° Can Vocational Education r&d products and information be

screened, rated and classified so that high quality pro-

ducts can be differentiated from those which are less useful.

° What are the practical technological options for providing

all present and potential consumers better and faster ac-,

cess to a wide variety of knowledge?


This is a brief and incomplete report on a very complex process.
For example, The National Network for Curriculum Coordination in
Vocational and Technical Education and its various elements haven't
been discussed.  Consideration of its plans and activities are very
important in future dissemination developments and related omissions
are due to time constraints.

There could have been a interesting and useful discussion of
the process of cultural diffusion, that obscure, ambiguous and some-
times involuntary transaction system which spreads information widely
throughout subsocieties and whole cultures.

However, at this time it seems important and feasible to direct
the efforts specified earlier toward

° Capitalizing on existing programs to implement short-run

improvement efforts

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° Mounting these efforts while keeping long-run policy
options open.

° Undertaking carefully thought out programs of research,
design, and experimentation that will: enable policy
makers to look at the national picture as a whole, show
how this picture relates to and differs from their ex-
pectations and the real needs of the systems ultimate
consumers, and provide information for future decision
making.

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