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ABSTRACT

This paper focuses on the federal efforts in vocational research and development (R&D) of the last decade, reviewing major accomplishments, speculating on possible misdirections, and recommending directions for the future. The administration of vocational R&D is briefly described and a historical overview is presented of federal efforts from the passage of the vocational act of 1963 to the present status of funding. In addition to the administration's major accomplishment of providing visibility for vocational R&D, several specific accomplishments are enumerated, most of which indicate that the emphasis has been on developmental rather than on basic research. In speculating on possible alternatives to past directions, the change in emphasis from research to developmental priorities is traced from the point of view that the haste to operationalize has seriously decelerated vocational research efforts, channeling research monies into programmatic efforts and failing to engage in interdisciplinary research for a long enough period of time. In addressing the problem of how best to utilize the existing vocational research and development system for improvement, the author argues for more basic research to solve the sociological, psychological, and economic problems encountered in vocational education. An appeal is also made to the two national centers to return to their original mission of vocational R&D, and to the research coordinating units to focus more on research coordination. (NJ)

HELTER-SKELTER: VOCATIONAL EDUCATION R & D

(A paper prepared for The Committee on Vocational Education Research and Development)

Carl J. Schaefer*

This is not an historical treatment of vocational R & D, yet it is based on events that have taken place from 1963 to the present. It is not an undetached synthesis of what has transpired as the result of vocational R & D since the author has been a part of the movement from its inception. Therefore, it can not be said that what follows is unbiased as some strong feelings emerge throughout.

Having provided such caveats, it is appropriate to indicate that this paper is an attempt, at least from one viewpoint, to focus on the Federal Vocational R & D effort given its history of sporadic development and its frequent shifts of major emphasis and its several directions.[1]

More specifically, an attempt is made to answer three questions: (1) What has been the nature of our accomplishments? (2) Where we might have been had we taken another route? and (3) Where should we be going?

[1] The period covered is from 1963 to 1975.

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Historical Perspectives

Everyone likes a breadth of fresh air. So it was with vocational educators when the Vocational Act of 1963 was passed. Far too long in the making, vocational education needed a stimulus and the Act of 1963 (PL 88-210) provided just that. The term research and development in vocational education was almost non-existent until this event. Now, it appeared on the lips of almost all vocational educators; as well as in the jaundice eyes of those from other disciplines.

What kindled this enthusiasm was Section 4-c of the Act which stated:

> Ten per centum of the sums appropriated pursuant to section 2 for each fiscal year shall be used by the Commissioner to make grants to colleges and universities, and other public or nonprofit private agencies and institutions, to State boards, and with the approval of the appropriate State board, to local educational agencies, to pay part of the cost of research and training programs and of experimental, development, or pilot programs developed by such institutions, boards, or agencies, and designed to meet the special vocational educational needs of youths, particularly youths in economically depressed communities who have academic, socio-economic, or other handicaps that prevents them from succeeding in the regular vocational education programs (U. S. Congress, 1963).

However, it was not until October 6, 1964 that the Federal Register announced the regulations promulgated to govern grants by the U. S. Commissioner of Education that action took place. Starved and waiting,

this announcement set into motion an interdisciplinary rush for the 11.85 million dollars available for FY 1965. Under the direction of David Bushnell, Director, Division of Adult and Vocational Research, Bureau of Research, policy was established to "non-target" priorities, much to the delight of those from the various disciplines. Consequently, these early endeavors saw the widest acceptance of studies dealing with the broadest aspects of problems facing vocational education. An onslaught of 475 proposals were received from the first Federal Register announcement -- about double the estimate.

Fiscal year ending June 30, 1965 accounted for the following:

1. Of the 475 proposals, 146 or 31 per cent of the total received were approved by the Commissioner.

2. The total of 11.85 million dollars for FY 1965 was expended according to the following classification:

   16 per cent teacher education
   13 per cent vocational school dropouts and slow learners
   26 per cent training and support of research personnel
   45 per cent scattered among other classifications

3. Where the money went:

   32 per cent was for research
   29 per cent for experimental and developmental and pilot programs
   22 per cent for training
   17 per cent for research centers and coordinating units

4. The geographic distribution of the funds was concentrated in the states of California, Illinois, Michigan, New York, and Pennsylvania with 57 per cent of the total going into these five states -- only 13 states showed no approved projects.

The excitement of this early period can not go unrecorded. The Bushnell strategy was one of the widest possible disciplinary involvement. Proposal review panels were established and individuals of considerable renown recruited to assist in the process. But to mention a few: Donald Super, Professor of Psychology and Guidance, Teachers College, Columbia University; Kenneth Hoyt, Professor of Counseling and Guidance, then of the University of Iowa and now Associate U. S. Commissioner of Career Education; William G. Bowen, Professor of Economics, Princeton University and now President of that distinguished institution; Daniel Katz, Professor of Psychology, University of Michigan; Gordon Swanson, Professor of Vocational Education, University of Minnesota; Jerome Moss, Professor of Vocational Education, University of Minnesota; and many others.

The immediate years that followed saw the initial enthusiasm toward vocational R & D effort remain high. The pattern of funding, although never at the 10 per centum of the sums appropriated, were lucrative in terms of dollars. Table I shows the amount of funds during the ten year period 1965-1975 and with the exception of 1970, substantial funding can be recorded.

TABLE I

FUNDING PATTERN FOR VOCATIONAL R & D

FY Year	Authority	Amount
1965	PL 88-210, Sec. 4(c)	$11.85
66	"	17.5
67	"	10.0
68	"	13.5
69	"	11.55
1970	PL 90-576 Part C Sec. 137(a) and (b)	1.1
71	"	17.52
72	"	18.0
73	"	18.0
74	"	18.0
75	"	18.0
Total	11 years	$155.02

Fiscal year 1965 saw 143 proposals funded and in 1966, 212 were approved. Breakdown by type of project reflect the following in Table II.

TABLE II

BREAKDOWN BY TYPE OF PROJECT

Type	Number of Projects FY 65	FY 66	Total
Research	56	76	132
Training	26	49	75
Experimental, Development, or Pilot	36	66	102
Research Center	2	-	2
State Research Coordinating Units	23	21	44
Total	143	212	355

Breakdown of approved proposals by priority areas during the 1965-67 fiscal years can be seen in Table III:

TABLE III

BREAKDOWN BY PRIORITY AREAS

Priority Area	Number of Projects FY 65	FY 66	Total
1. Program Evaluation	7	12	19
2. Curriculum Experimentation	30	53	83
3. Personal and Social Significance of Work	21	23	44
4. Personnel Recruitment and Development	26	50	76
5. Program Organization and Administration	27	47	74
6. Adult and Continuing Education	8	6	14
7. Occupational Information and Career Choice	14	17	31
8. Miscellaneous	10	4	14
Total	143	212	335

It is also noteworthy in any historical perspective to record what might be called the forerunner of the present day career education concept; "the organic curriculum." As early as November 1966 and at the time of the Job Corps, Manpower Development and Training Act and the Economic Opportunities Act, David Bushnell and Robert Morgan targeted on the need for educational reform. In their paper "Designing an Organic Curriculum" Morgan and Bushnell (November 1966), specified eight objectives; many of which are on the lips of educators even today. The objectives as they saw them were to:

1) Emphasize the articulation between academic and vocational learning for the purpose of fusing the two programs. Employing vocational preparation as the principal vehicle, the inculcation of basic learning skills could be made more palatable to many students who otherwise have difficulty seeing the value of a general education.

2) Expose the student to an understanding of the "real world" through a series of experiences which capitalize on the universal desire of youth to investigate for himself. Abstract, verbal principles would be acquired through non-verbal stimuli, such as seeing, feeling, manipulating, and even smelling.

3) Develop a core of generalizable skills related to a cluster of occupations rather than just those related to one specialized occupation.

4) Orient students to the attitudes and habits which go with successful job performance.

5) Provide a background for the prospective worker by helping him to understand how he fits within the economic and civic institutions of our country.

6) Make students aware that learning is life-oriented and need not, indeed must not, stop with his exit from formal education.

7) Help students cope with a changing labor market through developing their problem-solving ability and career strategies which can lead to an adequate level of income and responsibility.

8) Create within the student a sense of self-reliance and awareness which leads him to seek out appropriate careers with realistic aspiration levels.

The years between 1966 and 1968 saw much discussion and decision making which resulted in the launching of the ES'70's program (An Educational System for the '70's) including 17 representative local school districts spread across the United States. Cooperating with these 17 districts in their exploration of new approaches to curriculum organization and teaching methods, were 14 state educational departments and a number of universities, foundations, private non-profit and profit making institutions, and several federal agencies including the U. S. Office of Education. The ultimate aim of this highly diversified effort was a long-range research and development program to validate the widest possible range of educational procedures. Thus for the first time, the Vocational R & D effort found itself immeshed in a large developmental program which transcended the totality of problems facing public education.

At the same time and during the period of 1965-68, Part 4-c discretionary funds of the U. S. Commissioner were being used to establish the State RCU's (Research Coordinating Units) in some 46 states. These units, which are still with us today, took on a variety of loci as can be seen in Table IV.

TABLE IV

LOCATION OF RCU's BY ADMINISTRATION AGENCY
1965-68

	FY 65	66	68	Total
State Department of Education	14	12	2	28
Universities	8	6		14
Research Foundations	2	2		4
Research Centers				
Total	24	20	2	46

The purpose of the RCU's as announced by Francis Keppel's memo on April 9, 1965 was to:

> -Stimulate and encourage occupational education research and development activities in State departments, local school districts, colleges and universities, and nonprofit organizations.
>
> -Coordinate occupational research activities conducted within the State by the agencies noted above, and further, coordinating such research activities with those being conducted outside the State.

-Disseminate information on the progress and applications of the results of occupational education research.

-Stimulate activities which will result in increased interest and improved competence in research such as encouraging pre-service and in-service training of occupational researchers.

-Participate in the review, monitoring or conduct, as appropriate, of occupational research and development projects supported by Federal, State, local or private organization funds.

-Identify and maintain an inventory of available occupational research and development resources in light of anticipated needs and programs within the State.

-Survey available data on employment opportunities, emerging occupational trends, and future job projections, as a base for planning vocational programs, curricula, and facilities within the State, and teacher training, recruitment and placement.

-Identify issues and problems relating to the nature and place of vocational education in the State school system, and determine the contributions which occupational research and development could make in resolving them (Keppel, April 9, 1965).

In the implementation of the Keppel memo, Bushnell advised the Chief State School Officers on March 11, 1966 that some 24 states had been funded RCU's and invited other states to submit proposals. To encourage such proposals, Bushnell made known that the first years'

budget included a minimum of 10 per cent of matching funds. This amount was to be escalated to a level of 25 per cent during the second year of operation and 50 per cent during the third year. Federal support for each RCU was limited to a maximum of 200 thousand dollars for a 36 month period.

At this time, thought was being given to research management. On March 4, 1965, Bushnell announced applications for establishment for three centers for vocational and technical education, research and development. In contrast to the two national centers, these R & D centers were to be regional in nature and in effect would coordinate the RCU's. Although this thrust did not fully materialize, at least two of these three centers were initiated for a short period of time.

Only too quickly the years passed. David Bushnell left his position in the Office of Education in 1969 after providing five years of national leadership. By this time the administrative structure of the Division of Adult and Vocational Research had been renamed and shifted several times within the Office of Education. To illustrate, what is called the Division of Research and Dissemination, Bureau of Occupational and Adult Education; has evolved over the past decade from its original conception as the Occupational Research and Planning Program,

Division of Vocational and Technical Education to the Division of Comprehensive and Vocational Research, Bureau of Research. Today with the creation of the National Institute for Research, one finds many of the original programatic efforts scattered between NIE and the original concept of the DAVR.

The present status of vocational R & D is best presented by Hjelm and Boerrigter (1974) and summarized from their paper presented at the American Vocational Research Association meeting.

Presently based on the 1968 amendments to the Vocational Act of 1963 for FY 1975, 18 million dollars is being used under the Part C authorization program. For the fiscal years 1970-74 the appropriation has been 1.1 million, 35.034 million, 18 million, and 18 million respectively.

The authorization of Part D Exemplary Demonstration Programs was 15 million for FY 1969 and 75 million for each subsequent fiscal year. The RCU's, on the average accounted for $2,000,000 of Part C funds. The 1968 amendments to the Vocational Act of 1963 provides support up to 75 per cent of the cost of the state RCU. . Fifty of the RCU's are located at state departments of education and six at universities.

Part D of the 1968 amendments provides financial support for exemplary-demonstration programs. It is the purpose of these monies to stimulate new ways to create a bridge between school and earning a living and to promote cooperation between public education and manpower agencies. The funds are allocated to each state with $200,000 (50 per cent of the monies) going to each state and the District of Columbia. The other 50 per cent of Part D funds is retained by the U. S. Commissioner so as to make grants or contracts with state boards of education, local educational agencies, and public or private agencies, organizations or institutions. The Commissioner is not required to secure "non-federal review" of applications submitted for the Part D funding.

Under Part I of the 1968 amendments, Curriculum Development, there exists a network of seven curriculum centers; each to serve a region of the United States. The annual investment in the curriculum development centers is about $200,000. For this investment the centers perform the following functions: 1) Sharing information regarding materials available and underdevelopment; 2) Develop and recommend guidelines for curriculum transportability; 3) Staff and maintain a system for determining curriculum needs, and 4) Conducting the diffusion and utilization of curriculum activities that will improve the use and acceptance of the products.

The management of R & D at the Federal level resides in the Division of Research and Dissemination in the Bureau of Occupational and Adult Education. The operating policy is to coordinate the funding of vocational R & D targeted against selected priorities. Thus Part C monies are used to support applied and developmental studies; the Part D program is used to support demonstrations and the Part I program is used to support the development of nationally needed curricula.

In order to determine the priorities of these programs, meetings are held once or twice a year with the Research Committee of the National Association of State Directors of Vocational Education and the Research Evaluation Committee of the National Advisory Council of Vocational Education. Also, interaction is maintained with the RCU and curriculums center directors. At the present time, nearly all the grants and contracts are awarded through a competitive process as announced through the Federal Register and the Commerce Business Daily.

What Has Been The Nature of Our Accomplishments?

Having spanned slightly over a decade of R & D in vocational education, the basic question is, "What has been the nature of our accomplishments?" A federal investment of approximately 155 million dollars reflects but a partial commitment to the effort. State matching and "in kind" contributions probably swell the total by two or three times the Federal amount. Therefore, the effort in dollars may well be somewhere around 300 to 400 million; yet, what has been accomplished?

To indicate that nothing has been achieved would be a misstatement. On the other hand to argue that Utopian and Herculean strides have been made would also be unreal. In the first place, the dollar figure for R & D, although looming large in the eyes of the educational enterprise, falls far short of the annual expenditure on R & D by any measure. Business and industry, let alone the Department of Defense, consistently spends upwards to 15 per cent on its R & D. Thus, in a single year the federal appropriation of dollars to the vocational R & D effort should have been somewhere around 35-45 million. Thus, it can always be said the dollars were not there in the first place. But what did the dollars we had at our disposal buy? First, they brought a realization that there was such a thing as research and development and R & D was a needed and respected

undertaking in our field. Secondly, the dollars enticed some keen minds and dedicated individuals to the cause of vocational education both within the Office of Education and from without. Thirdly, a community of research scholars has developed within the field as evidenced by the American Vocational Education Research Association. And lastly, the Federal dollars brought a certain amount of respect to vocational education in some rather high places; not the least of which are on the campuses of colleges and universities. The centers for vocational research at The Ohio State University and The University of North Carolina have been extremely visible over the years. Of lesser prominence, but with a few exceptions; namely those located at universities such as the one in Minnesota, have been the 56 RCU's. Even less can be said about the visibility created by the Curriculum Development Centers and although some of the exemplary demonstration projects have been recognized locally, little is known about them nationally. So one of the main effects of the vocational R & D effort over the years has been that of visibility.

Besides the visibility created by the investment, however, it is difficult to allude to many major "breakthroughs," caused by the effort. The state of the art remains one of groping for answers and even more

depressing, groping for the right questions for which to seek answers. The accomplishments as singled out by Hjelm and Boerrigter in their paper already cited attribute to Federal funding (Parts C, D, I) among other things: a new curriculum for bio equipment technicians; career education projects supported out of Part D exemplary monies; the development of the World of Construction and World of Manufacturing, which were basically curriculum projects; a new aviation mechanics curriculum adopted by the Federal Aviation Administration and revised licensing requirements; the Oklahoma State University, OTIS system; a new nuclear medical technicians curriculum; the MBO (Management By Objectives) developed by Oklahoma; the State Management Information Systems development at The Ohio State University; a new electro-mechanical technicians curriculum; the CVIS (Computerized Vocational Instructional Systems) program developed with the support of the Illinois' RCU; the Kingdom-of-Could-Be-You films aired by Captain Kangaroo's program; the National Occupational Competency Testing Institute located at ETS; the application of the Delphi technique at Oklahoma State; Project Talent support; the national experiment in terms of DOD curricular material; AIM/ARM as compiled at The Center for Vocational Education; the information retrieval

system project of Western Michigan University; new instructional learning packages for the training of public service employees and the new curriculum for the preparation of laser and electro-optical technicians curriculum. These appear, at least to Hjelm and Boerrigter, as some of the major accomplishments.

As laudatory as these projects may be, they leave more questions facing vocational education unanswered than answered. If indeed they are the "cream of the crop," they appear to cluster around more of the developmental rather than the research thrust of the Federal effort. They target on the delivery of the product of vocational education and not the socio-economic-psychological underpinnings of the movement. And they imply at least, that what receives recognition is something less than originally envisioned by the authors of the Act of 1963 as well as subsequent legislation. Or at least it can be said that the research emphasis has failed to receive the focus of a capital "R" in our haste to get to the more concrete products of curriculum development and the like.

The danger of proceeding too rapidly to the development side of the R & D picture should be apparent. Without the theoretical foundation on which to proceed, meaning the research, the development aspect of

R & D could lead to a giant step backwards. All that one needs to do is look at the forward rush into the Jobs Corps, new mathematics curriculum, and some of the OEO efforts to realize that there just was not enough prior research done to assure these massive programatic efforts as being the answer. Failures of this kind happen when the call for change transcends the research base upon which decisions are made. Lack of development of a sound research base becomes all the more depressing when one realizes that our two National R & D Centers have been in operation for a decade and have had considerable federal support.[1] The conclusion reached regards the question, "What has been the nature of our accomplishments" must be one of reticents, if not of despair.

[1]The center at The Ohio State University had over $5 million and the center at The University of North Carolina had over $2 million during their first four years of operation.

Where We Might Have Been Had We Taken Another Route?

The question of, "Where we might have been had we taken another route?" provides considerable intrigue. Speculation is a highly matter, but indulged in by the foolhardy and one can be so wise in retrospect.

The 1963 vocational R & D effort, to repeat, "Was like a breath of fresh air to vocational educators." Yet, it is the position of this author that it has fallen short of producing the refreshment envisioned. The question then is one of what might have been. When Keppel's November 13, 1964 announcement of some $11.8 million for research proposals came, there was a definite shock wave felt throughout the research community. This initial interest, not only in the dollars but in the broadly conceived multi-faceted research possibilities brought together for the first time in the history of vocational education a multiplicity of varied research interests. The disciplines of economics, sociology, psychology, anthropology and others were well represented in this initial thrust. The academic communities of colleges, universities, private agencies (profit and non-profit) foundations and the like emerged with a desire to take part in the effort. It can be truly said that "vocational education research" was on the lips of a variety of scholars.

In those early days, grants were not large, but there were many. Competition was keen and the managerial process, at least at the awarding stage, involved a large number of capable individuals. Such involvement served as a multiplier effect for the solicitation of more proposals and at no time during these years did the number of proposals dry up.

Partially because of the need for quick answers to pressing problems and partially because the goals changed as each new U. S. Commissioner emerged on the scene, the research program of the Office of Education shifted. Shifts in organization and reorganization tended to redirect goals and efforts. Personnel changed as did the review process. Awards and contracts became larger and a greater and greater emphasis was placed on "targeted" priorities of a more and more developmental rather than a research nature. Thus, fewer and fewer interdisciplinary scholars were involved. Although the dollar volume of the effort fluctuated somewhat, the large grants diminished the dollars going to unsolicited projects. An example of the forthright movement to large scale undertakings was the ES'70's project. In the early 1960's, some educators were appealing for a more relevant brand

of education to serve all the boys and girls of all the people. Bushnell[1] as early as 1966 recognized this need and sounded a call for greater articulation between academic and vocational learning by fusing the two programs. He emphasized by, "employing vocational preparation as the principal vehicle, the inculcation of basic learning skills could be more relevant to more students who otherwise have difficulty seeing the value of general education" (Bushnell, 1966).

Interest in moving forward with this concept reached a high point at a U. S. Office of Education called conference on an Educational System For The '70's held on March 6-8, 1968 in New Orleans. The list of conference participants representing a variety of disciplines and institutions was most impressive (see Appendix). As stated by Foshay, "ES '70 is best considered as a large scale attempt to alter the secondary school curricula, root and branch." Large scale indeed it was, and upward to 30-40 million dollars were the planned expenditures. In 1969 alone, some 21 million (at one time) appeared to be budgeted for the ES'70 effort.[2]

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[1] see also Morgan, Robert M., and Bushnell, David S. "Designing an Organic Curriculum," Bureau of Research, USOE, November 1966.

[2] It should be noted that all these funds did not come from the vocational R & D budget.

As gallant as the ES'70 effort was, it did not achieve the major breakthrough its supporters had hoped. Yet, who is to say that ES'70 was not the forerunner of Commissioner Marland's career education concept. When examined closely there appears to be a great deal of similarity between both of these endeavors. The ES'70 and Career Education concepts have been carried out at a major expense of the more discrete R & D problems facing vocational education. Vocational educators have long complained that monies going into Career Education were basically vocational funds and their drain-off has curtailed the vocational R & D effort.

If the problems of vocational R & D had been the major focus, and not those of all education, what might have been accomplished? Had those in charge not operationalized so quickly and especially to the whole area of education what might have been? Had we wooed and captured the related disciplines for the needs of vocational R & D research, what might have been the results? And had the dollar amount been targeted more on the basic research problems of vocational R & D over a longer time span, what might have we accomplished?

Speculation would appear to indicate that the gains for vocational R & D may have been quite different. In retrospect, it appears vocational R & D has stood still at the expense of such large programatic efforts as

Career Education. Had the two National Centers for vocational R & D not become a pawn in the funding pattern of the Office of Education, we would have been able to target more on the problems facing vocational education. And had the R & D effort been able to embrace for a longer period of time, those from the related disciplines instead of leaving educational problems to educators we may have been further down the road. In this respect, the Career Education effort is a good example. Once launched operationally on this concept, its implementation today lies almost totally in the hands of educators themselves without the help of those from other disciplines.

What is being said about what might had been had we taken another route is that in the haste to bring about change, the very principle of research -- especially basic research was ignored. That in the rush to propound a prescription to correct all the ills of education, the vocational R & D effort was badly usurped.

In terms of what might have been had we not fallen into this trip, it is suggested that vocational education would have made greater strides in solving its basic problems. And it might be added, problems that need solving with the help of those from disciplines and fields other than vocational education itself.

Had the Federal appropriations been at the full 10 per centum and all of these monies been available over the years to do the vocational R & D job, there may have been some significant breakthroughs in our problems. Conversely, had not the vocational R & D monies and talent been drained off for career education and the like; even the amount appropriated may have made a significant difference.

What appears to be left is a residue resulting from years of direction and redirection of the vocational R & D effort, far different from what was originally intended.

Where Should We Be Going?

Addressing the question of where we should be going implies at least that there is still hope for the vocational R & D effort.

When one realizes that we still have 56 state RCU's, two National Centers and a staff in the Office of Education, this in itself is an accomplishment. The mere survival of these entities is a tribute to the personnel involved. Therefore, the problem is not one of their further demise, but one of how best to utilize them to build a viable R & D vocational education program.

Few will argue that we have found satisfactory answers to our problems of curriculum development; attainment of objectives, special needs programs, instructional materials and devices; placement and drop outs; organizational patterns; funding; cooperative education; community relations, supervision, and the like. Such problems are operational in nature and require continual study using the best possible applied research techniques. But beside the need for applied research in our field we need more basic investigations. More knowledge of the behavorial scientist is needed to help solve the sociological, psychological and economic problems encountered in vocational education. Little has been studied about the cognative, affective and psyco-motor problems of youth and adults needing vocational education. We know precious little about those whom we profess to teach; be they youth or adults. A need for a body of knowledge needs to be accumulated about: the process of learning; individual differences; vocational counseling; work and leisure; the labor markets we serve; skill specificity; manpower needs; work groups in society; income and class; unemployment and underemployment; job satisfaction; automation and the labor force; vocational education conducted in other agencies; teacher preparation; leadership development and the like.

Not enough thought has been given to the quest of knowledge in a systematic manner so as to assure end results. Here, it is well to review the paradigm presented by Brandon and Evans (1965) in their appeal for an organized approach to our R & D effort. See Table V.

TABLE V

CATEGORIES FOR THE CLASSIFICATION OF RESEARCH

Category	Examples from two areas of specialization	
	Testing	Guidance
1. Basic scientific investigation (content indifferent)	Learning theory	Decision-making
2. Basic scientific investigation (content relevant)	Transferability of skills	Theory of occupational choice
3. Investigation of educationally oriented problems	Development of a test of skills	Effect of vocational-ed classes on occupational choice
4. Classroom experimentation	Norming, validating, standardizing	Trial of units on occupational choice in selected classes, with revision as necessary
5. Field testing	Packaging, feasibility testing	Test of new program in a broad sample of schools
6. Demonstration and dissemination	Advertising and marketing	Installation of new program in schools which agree to explain it to visitors, plus other dissemination activities

Although Brandon and Evans do not discuss in detail categories 1 and 2 and they only provide examples in testing and guidance, it is at the basic scientific level that interdisciplinary centered research needs to be emphasized.

We know little about comparative education for occupations as found in other countries such as: the British and French systems of worker education, their varied means of organizing and financing vocational education, their preparation of teachers and the like. In the USSR, the employment-production-demand aspects of training need study as do their varied delivery systems. The involvement of large numbers of women in the Swedish labor force should be investigated and the whole area of legislative response to vocational training by the various European countries needs to be studied. At this very moment, it can be said that European and Soviet educators know more of vocational education trends in countries other than their own than do American educators.

If indeed, the concept of having two National Centers and 56 RCU's is sound and the R & D problem still exists, the place to begin is to apply pressure at these points. The two national centers must place renewed effort on their original charters and return to their mission of vocational

R & D. Much the same can be said about the state RCU's. The charge to the RCU's lies in the word "coordination"; an aspect which appears to be sadly missing in most. In contrast to the leadership of the two National Centers, the leadership role at most state RCU's appears to be wanting. It may be here that some changes need to be made so as to assure a maximum contribution to our research and development.

And lastly, a word needs to be said about the field of vocational education itself. Vocational educators have never been known to possess an attitude conducive to change. It has been with steadfast pride, springing from a long heritage of struggle within education itself that has brought vocational education to the status it presently enjoys. To suggest that changes can be made to improve our practices is often viewed as heresy. In this respect, it might be said that vocational educators are their own worst enemy. Therefore, the proof for needed change must be overwhelming indeed if vocational R & D is going to have any effect. Thus, all the more reason for the R & D effort to be one of major emphasis and not one of passing fancy.

Summary

It has been the attempt to answer three questions: 1) what has been the nature of our accomplishments, 2) where we might have been had we taken another route, and 3) where should we be going? In order to set the backdrop, considerable detail was presented about vocational R & D in retrospect.

The question of what we have accomplished drew the conclusion that our track record is not one of outstanding acclaim; that we have not really discovered much, and there remains much to be accomplished.

In trying to determine where we might have been had we taken another route, the point is made that had we been able to embrace those involved in the related disciplines longer, and embellished their effort more, we may have been further down the road. It is further proposed that the desire to come to grips with the organizational and operational problems of making all of education more relevant was premature to the needed underpinnings. Had we not been quite so ambitious and stuck longer with the early years of more basic research and had we not had so many redirections of effort dictated by U.S. Commissioners of Education, more vocational R & D problems would have been solved.

And lastly, in answer to the question of "where should we be going", an appeal is made for a return to their basic charter by the two National Centers and the charge of the state RCU's to perform a more research coordination function. The final note addresses itself to the reluctance of vocational educators to accept change and appeals for the R & D effort to have the hard data to eliminate this attitudinal block.

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The appendix containing names of conference participants was not reproducible and was removed from this document prior to its being submitted to the ERIC Document Reproduction Service.