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Research and Implementation in Vocational Education.

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Educational research occupies a pivotal position as educators move to meet growing social challenges. Educational change must be a logical outcome of systematic, controlled, empirical, and critical investigation. Improvement of research is dependent upon increased interaction of research specialists and vocational educators. Some major recommendations concerned project review, the need for greater dissemination of research data, and the guarantee of full amounts of research funds offered by public laws. The vocational education amendments of 1968 designated use of research funds for: (1) research in vocational education, (2) training programs for research dissemination, (3) experimental, developmental, and pilot programs for projects, (4) demonstration and dissemination projects, (5) development of new vocational education curriculums, and (6) development of programs for new careers and occupations. Areas of proposed research were: (1) philosophical foundations of vocational education, (2) the process of vocational education, (3) preparation of professional personnel, (4) reorganization of the high school curriculum, (5) post-secondary development, (6) vocational guidance and curriculum development, (7) evaluation of vocational education, and (8) vocational education needs for girls and women. (DM)

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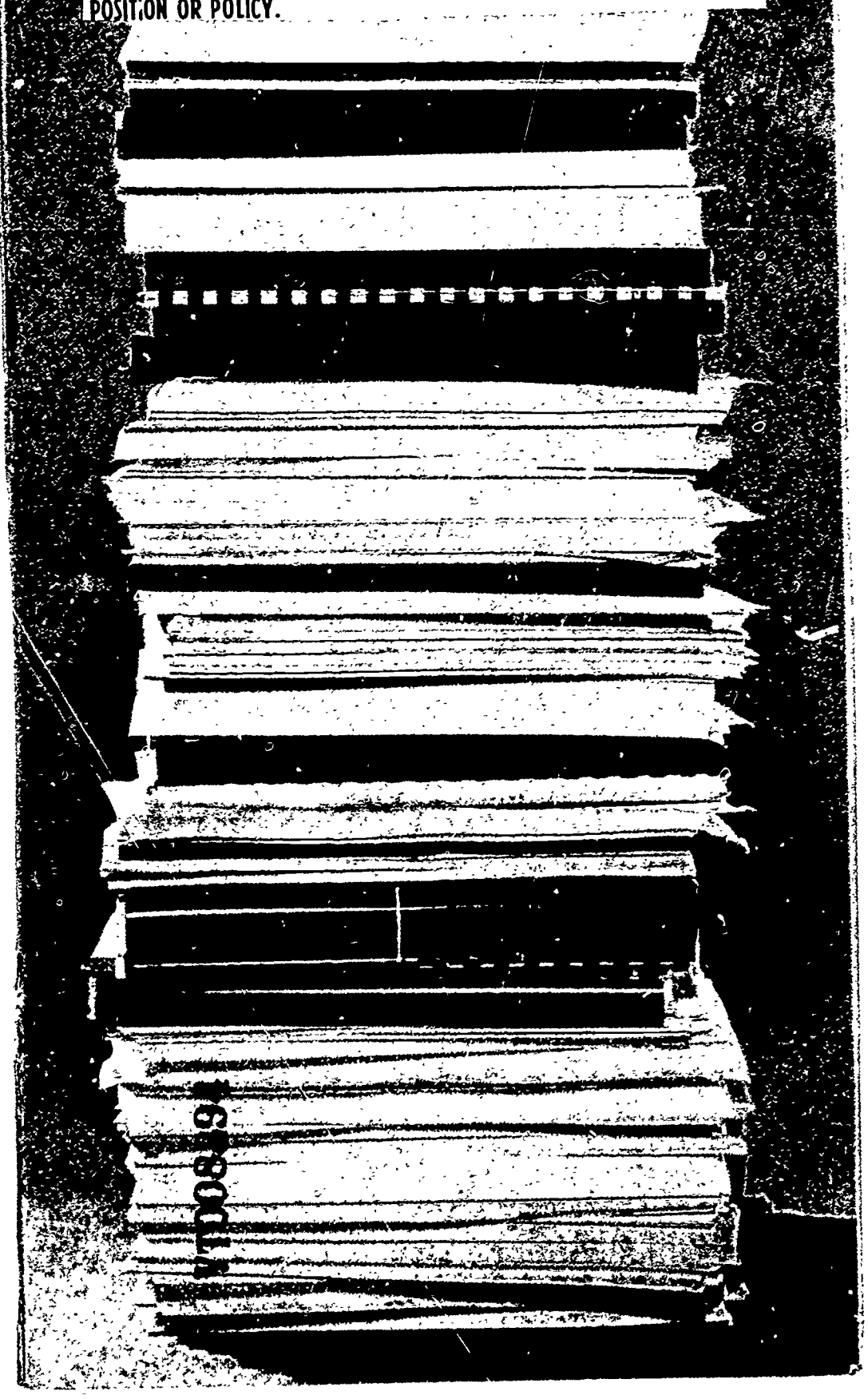
research and implementation

IN VOCATIONAL EDUCATION



This publication was prepared by Gordon F. Law, Professor of Education, Department of Vocational-Technical Education, Graduate School of Education, Rutgers-The State University. Dr. Law, formerly Director of Research for the American Vocational Association, consulted with leaders in the field as he gathered this material.

introduction and purpose

Whether considered as an approach to problem solving, or thought of as a state of mind, a process, or a set of principles, research is the legitimate vehicle for assessing the status of existing conditions, for making comparisons between various methods or techniques, or for testing the efficacy of theory. It is an important adjunct to every aspect of modern living.

As related to education, research occupies a pivotal position as educators move to meet the growing social challenges through individual and coordinated efforts.

Meeting these challenges often means change, and educational change, to have substance and integrity, must be a logical outcome of *systematic, controlled, empirical,* and *critical investigation*—a product of research.

As the importance of research and its implementation in vocational education[1] is discussed in this booklet, the focus will be upon:

1. Presenting the position that research in vocational education is everybody's concern;
2. Relating the major recommendations of the 1968 Report of the Advisory Council on Vocational Education, and the provisions of the Vocational Edu-

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[1] The term *vocational education* as used in this publication includes vocational, technical, and practical arts education.

cation Amendments of 1968 (Public Law 90-576); and,

3. Identifying some of the directions and contemporary issues that relate to vocational education research.

the practitioner

The idea that a few highly trained specialists in research technology are the only persons who can or should conduct research in vocational education is a common misconception. Equally untenable is the view that only vocational education practitioners are qualified to initiate and conduct investigations in vocational education. A more appropriate position would be that research in vocational education is everybody's affair—and everybody in vocational education should take it as his concern.

While the premise that everybody can actively participate in the conduct of research may be impractical, the proposition that all vocational educators must be informed about this area cannot be debated.

Teachers of vocational subjects, having daily contact with students, are deeply involved in the learning process. They, and their associates in guidance and administration, should be identifying problems, making objective assessments, conducting pilot investigations, and introducing promising innovative practices. If meaningful change for improvement is to take place in vocational education, the impetus for such change can only come about through the total involvement of school personnel. Even as research must be an integral part of school operation—not something imposed from other institutions and agencies—so must be the implementation.

The concept that school personnel must be imbued with research thinking and intimately involved in research activities imposes a responsibility on both schools and institutions generally associated with research, such as colleges and universities, state and national research units, and private research organizations. For school personnel, it means that they must be committed to research thinking. When they are ready to question any custom or practice in terms of immediate and long-range benefits to students, regardless of the consequences for comfort or tradition, then they will be better equipped to think and work in a spirit of scientific inquiry. If vocational educators do not develop the ability to look on all they do with objective candor, they will have little or no recourse when others determine what is wrong with schools—and what should be done to improve them.

For teachers, counselors, and school administrators to think and act in research terms, they must receive a substantial orientation to research in their professional training, and be given opportunities to participate in the conduct of research. Here is a mandate for colleges of education that prepare vocational education personnel. These institutions must strengthen their instructional programs in research—at all levels, for all students.

As investigations are conducted in vocational schools and colleges, operational personnel should be involved in every aspect of the research. Such involvement should begin at the planning stage and continue throughout an investigation, with certain guidelines in mind as to particular participation.

The Research Policy of the AVA carries the following statement: "In the selection and planning of research activities, administrators, supervisors and teachers must be responsible for identifying critical operational problems and their priorities, but researchers must make the

final decision about the nature, form and order of the specific questions to be investigated." [1]

Through such interaction of research specialists and vocational education personnel, the study can have greater depth and relevancy.

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[1] As submitted by the AVA Research Committee and approved by the AVA Board of Directors. Although the Research Committee was dissolved when the association was restructured, the policy statement forms a portion of the operational foundation for the new Research and Evaluation Department. This department will be primarily concerned with professional activities of personnel engaged in: (a) systematic study and pursuit of new knowledge in vocational education, (b) evaluation efforts to ascertain the effectiveness of existing vocational programs, and (c) the establishment of direction for new programs.

legislative focus

Those who accept the challenge that research *is* everybody's concern must be aware of the legislation that presents the means for constructive involvement. The most recent bill to be signed into law is the Vocational Education Amendments of 1968 and provisions were, in part, based on recommendations of the Advisory Council on Vocational Education.

The Council's Report

As authorized by the Vocational Education Act of 1963, the Council was appointed in November 1966 by Secretary of Health, Education, and Welfare John Gardner. It was the responsibility of this group to review and evaluate vocational education programs and submit recommendations based upon the findings.

The section of the Advisory Council Report dealing with research cites the specific areas of emphasis which had been identified by the Panel of Consultants and the Vocational Education Act of 1963, and some of the problems which have resulted from organizational changes in the U.S. Office of Education. It also calls attention to the leadership role of the American Vocational Association in the promulgation of research activities. In regard to the need for the research function in vocational education to be conducted within the environment of vocational education, the Advisory Council recommended that the Division of Adult and Vocational Research, now located

in the Bureau of Research, be transferred to the Bureau of Adult, Vocational, and Library Programs, and that the delineation of research function and responsibility be clarified with respect to the three major groups—colleges and universities, research centers, and research coordinating units. The Council also made recommendations relating to project review, the need for greater dissemination of research data, and the guarantee of full amounts of research funds authorized by Public Law 88-210, the Vocational Education Act of 1963.

The 1968 Amendments

The Vocational Education Amendments of 1968 and the supporting administrative regulations spell out how federal funds may be used for research and training in vocational education. Part C of the legislation lists the following:

1. Research in vocational education;
2. Training programs designed to familiarize persons involved in vocational education with research findings and successful pilot and demonstration projects in vocational education;
3. Experimental, developmental, and pilot programs and projects designed to test the effectiveness of research findings;
4. Demonstration and dissemination projects;
5. The development of new vocational education curricula; and,
6. Projects in the development of new careers and occupations such as—

(a) research and experimental projects designed to identify new careers in such fields as mental and physical health, crime prevention and correction, welfare, education, municipal services, child care, and recreation requiring less training than professional positions and to delineate within such careers roles with the potential for advancement from one level to another;

(b) training and development projects

designed to demonstrate improved methods of securing the involvement, cooperation, and commitment of both the public and private sectors toward the end of achieving greater coordination and more effective implementation of programs for the employment of persons in the fields described in subparagraph (a), including programs to prepare professionals (including administrators) to work effectively with aides; and,

(c) projects to evaluate the operation of programs for the training, development, and utilization of public service aides, particularly their effectiveness in providing satisfactory work experiences and in meeting public needs.

directions and issues

Having dealt briefly with the challenge and examined the areas upon which Congress has focused, it is logical to consider the directions that can be taken and the attendant issues.

One important reason for indicating some suggested directions for research in vocational education is that the gaps between research, knowledge, and implementation in the schools can be closed only through concentrated effort. Isolated research findings, regardless of significance and authenticity, serve no one until they are incorporated into the educational process. Productive change, then, comes from the work of many minds and many institutions . . . ch, focused on one problem, builds an operational fabric from the threads of basic theory.

Although it is not the purpose of this publication to set forth an authoritative list of priorities for needed research, it is legitimate to call attention to some important trends and issues. For this purpose, the following areas of interest are proposed:

1. Philosophical foundations of vocational education;
2. The process of vocational instruction;
3. Preparation of professional personnel;
4. Reorganizing the high school curriculum;
5. Post-secondary development;
6. Vocational guidance and career development;

7. Evaluation of vocational education; and,
8. Vocational education needs of women and girls.

Philosophical Foundations of Vocational Education

What are the philosophical foundations of vocational education? Are they essentially different today from what they were in other times? How great are the differences between generally accepted concepts and common practice? How well do recently articulated philosophical positions reflect the convictions of vocational educators, those in the broad field of education, or the general population?

Much additional research is needed in this area—research to study the sources of tradition, the manifestations of change, and the relationships between philosophic statements, individual and group convictions, and daily practice in the schools.

Attention paid this phase during a summer study at MIT [1] resulted in the proposal of six philosophical foundations as keystones for change. The six, which follow, are examples of what one research group produced when its interest was directed to innovative thinking and practice.

1. Accessibility to quality vocational education programs;
2. Programs to meet the full spectrum of capabilities of youth and adults;
3. Coupling vocational and general education as integral parts of a common core within a total educational program;
4. Open-ended continuous vocational education and training opportunities;

[1] Nathaniel H. Frank, *The Summer Study of Occupational, Vocational, and Technical Education* (Cambridge, Mass.: Massachusetts Institute of Technology, 1965).

5. Early orientation to vocational education through exploratory occupational experiences in a setting where the traditional division of education into separate educational subject disciplines is replaced by an educational "mix" starting in the elementary school; and,
6. Instructional flexibility to prepare students for adaptation to constantly changing employment patterns.

If these six concepts, or any others, are to be of value to an educator, it will be necessary for him to explore first the literal meaning of the statements. For example, what does the phrase "accessibility to quality vocational programs" mean in operational terms? What is a "full spectrum of capabilities?" In what way and form does "coupling of vocational and general education" take place?

Also, if statements of philosophy such as these are to have any meaning and be more than platitudes, they must be based upon conviction and probable behavioral outcomes.

As philosophical principles are considered in regard to vocational education and its relationship to education in general, it is essential to establish concomitant strategies for implementation.

The Process of Vocational Instruction

When directions are considered, the process of vocational instruction warrants special attention. For too long, the unique and significant aspects of the vocational teaching process have been taken for granted. Vocational educators know their approach to teaching works and that, by and large, students in vocational programs have found the instruction relevant and meaningful. But it has never been established what there is about vocational education that has made it successful.

How well can vocational educators identify the innate and essential elements in their form

and style of teaching that bring such tangible results? Which of the components commonly associated with vocational schoolwork is most significant—the practical experience of the teacher; the nature of the curriculum; the learning environment, including the periods of time given to practical instruction; or, the method of teaching employed? Are these not fundamental questions for research?

Preparation of Professional Personnel

Another important field for research in vocational education deals with the preparation of teachers, counselors, administrators, and other professional personnel.

How much do the persons responsible for establishing and conducting the programs know about the qualifications which vocational education personnel must possess in order to function competently in various roles and situations? And how much do they know about the efficacy of their separate and composite programs?

If all of education is subject to assessment, it would appear incumbent upon institutions that espouse the value of research to hold their own organizations and institutions up to the hard objective light of research.

But little has been done, as yet, to analyze the foundations of teacher education. Examination of the 141-title bibliography contained in a 1967 study of research in vocational technical teacher education points up the limited amount of study that has been directed to this area. The comments of the author, Jerome Moss, Jr., with respect to the need for a scientific base are worth repeating here: "We need a system of verified principles which will permit us to understand and control the teacher education process. At present we are still operating programs primarily on the basis of

tradition, convention, wisdom, and personal experience."[2]

Reorganizing the High School Curriculum

The purpose of the American high school to provide meaningful instruction for *all* youth is a commonly accepted ideal. The distance between this goal and satisfactory realization, however, represents a critical problem in education.

When 80 percent of the population is not likely to receive a baccalaureate degree, it is inconceivable that the college curriculum and college admission policies are the prime determinants of the high school program. When a third of American youth still drops out of high school short of graduation, in spite of the severe handicaps that result from such action, and when the unemployment rate of young people is from three to six times the adult average, then it must be said that something is wrong with the purposes and curriculum of the high school.

Recognizing the difficulties associated with the initiation of dramatic educational change through the slow process of evolution, the U.S. Office of Education sponsored an innovative program titled ES-70. This pilot project now being conducted in 18 high schools across the country calls for a basic reorganization of the curriculum to better serve the individual needs of students. Important elements in ES-70 are the use of computerized multi-media systems, the establishment of behavioral objectives for all learning activities, and individualized, open-ended programs of instruction that incorporated the elements of vocational and general education.

A study of interest which deals with the high

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[2] Jerome Moss, Jr., *Review of Research in Vocational Technical Teacher Education* (Minneapolis: Minnesota Research Coordinating Unit in Occupational Education, 1967).

school is "The Preparation of Youth for Effective Occupational Utilization: The Role of the Secondary School in the Preparation of Youth for Employment." [3] Specifically concerned with vocational education, the work concludes that the real failure of such instruction has been in not penetrating the main ranks of the student body. Recommendations called attention to the educational needs of minority groups, the special curriculum and guidance requirements of female students, and the impact of technological change on the secondary school curriculum.

Post-secondary Development

Of course, the relationship of the post-secondary programs to the high school must not be neglected nor the research possibilities in the post-secondary area overlooked.

A study of occupational trends and educational requirements based on information supplied by the Bureau of Labor Statistics, the U.S. Office of Education and the University of Michigan's Center for the Study of Higher Education shows that: in 1930, 58 percent of the nation's occupations required grade school training or less; 32 percent, a high school or vocational schooi education; and, 10 percent, a college degree. The 1970 estimates for educational requisites are: 6 percent of the occupations will require a grade school education; 26 percent, high school or vocational school training; 50 percent, post-secondary education; and, 18 percent, a baccalaureate degree or higher.[4]

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[3] Jacob Kaufman and Carl Schaefer, *The Preparation of Youth for Effective Occupational Utilization: The Role of the Secondary School in the Preparation of Youth for Employment* (University Park, Pa.: Pennsylvania University, 1967).

[4] Norman C. Harris, *Technical Education in the Junior College/New Programs for New Jobs* (Washington, D.C.: American Association of Junior Colleges, 1964), p. 27.

These figures testify to the necessary involvement of the post-secondary institutions in meeting the training needs of the labor force.

As the future of post-secondary education is considered, several questions call for the attention of the researcher. These include:

1. Who should be served?
2. How should the curriculum be developed?
3. How should the teachers be trained?
4. Should students be "selected"?
5. What effect do advisory committees have on programs?
6. Is there a tendency to pattern the post-secondary institutions after the four-year college?
7. How has the changing philosophy of vocational education legislation affected post-secondary occupational education?
8. How much of the post-secondary material is a duplication of that offered by secondary institutions?
9. How flexible can the institutions be?
10. Are there basic philosophical differences between secondary and post-secondary personnel?

Some of the research completed in the post-secondary area was mentioned in the October 1967 AMERICAN VOCATIONAL JOURNAL. The *Research Visibility* section dealt with "The Educational Needs Beyond the High School."[5] The topics included: accessibility to area programs; evolving curriculums and levels; and, forces influencing quality standards. The bibliography listed 35 related studies.

Three basic facts make it essential that concern with post-secondary research is continuing and realistic. They are: (a) in the next few years, 95 percent of the population will be

[5] "Research Visibility," *American Vocational Journal,* XLII (October 1967), p. 41.

within commuting distance of a post-secondary institution; (b) hundreds of thousands of disadvantaged young people drop out of school before high school graduation; and, (c) the manpower needs of the economy are becoming so highly technical and varied that there is a question as to whether or not a single-purpose secondary school program can adequately prepare students for a lifetime career.

Vocational Guidance and Career Development

Although it may be said that the guidance movement has brought numerous improvements to public education, it also must be conceded that reorganization of the guidance function is advisable. When the traditional objectives of guidance—which relate to person, vocation, and education—are held up to candid analysis, there is evidence that, in many instances, the original purposes have been subverted by the specific pressures and demands of college admissions. And for many young people, the guidance service related to self-identification and vocational orientation have been far from adequate.

Theories of career development have strong implications for vocational education. Career development has been defined as a series of experiences, decisions, and interactions, which, taken cumulatively, result in the formulation of a vocational self-concept and provide the means by which that self-concept can be realized. Elements commonly involved are: self and community awareness; experiences in simulated and real situations; the capacity for planning and decision making; and, willingness to take purposeful action.

Although career development theory has generated considerable research, particularly in the behavioral sciences, its implications for vocational and pre-vocational education have been largely overlooked by those who should be directly involved—the teachers, counselors,

and administrators of vocational education. What is called for is the widespread initiation of action projects to help bring theoretical principles to live situations.

If the vocational teacher has missed the opportunity to become familiar with career development theory, this is the time to correct the deficiency. For he is well equipped through interest, background, and experience to bring theoretical concepts to life in the shop or classroom.

Recommended readings in the field include Donald E. Super's "A Theory of Vocational Development," Eli Ginsberg's "Toward a Theory of Occupational Choice," and David V. Tiedeman's "Decision and Vocational Development: A Paradigm and Its Implications."[6]

Evaluation of Vocational Education

Vocational educators have consistently endorsed the need for evaluation in vocational education, and have supported widespread use of follow-up studies, accreditation systems, and other methods of program assessment.

Legislation also has reflected these concerns. According to the Vocational Education Act of 1963, "Evaluation of the program of instruction will be made periodically at the state and continually on the local level with the results being used for necessary change and improvements." With a sustained emphasis on national and state advisory councils, special manpower studies, and related subjects, the concept of evaluation permeates the 1968 Amendments.

But the amount of research that has been generated so far in this area has been limited. As yet there is not an adequate body of knowledge upon which to build a theoretical base, and whatever evaluation is taking place now is

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[6] Herman J. Peters and James C. Hansen, Editors, *Vocational Guidance and Career Development: Selected Readings* (New York: The Macmillan Co., 1966).

heavily weighted with value judgments. Despite the mandate for periodic and continuing programs of evaluation as prescribed by Public Law 88-210, suitable criteria still have not been established nor have appropriate systems and procedures been developed.

One of the most significant recent trends in the field of vocational education evaluation is cost-benefit analysis. Some important initial work has been conducted in order to assess to what extent vocational education offers a return on the financial and human investment. Preliminary findings tend to support the theory that vocational education does pay off in terms of earnings and employment, but only limited data are available at present. Additional work in cost-benefit analysis and cost-effectiveness analysis is needed, especially long-term studies which would trace the life patterns of vocational education products, graduates and dropouts, and compare the findings with similar information about counterparts who had taken the general curriculum.

One study included these major steps: an exploration of the theory of public expenditures for education; consideration of special problems in cost-benefit and cost-effectiveness analysis; description and statistical analysis of data; and, the presentation of conclusions and recommendations.[7] The implications of this work assert that vocational education does yield economic benefits—but has failed to penetrate the main ranks of the student body.

Another study to be considered is "Review and Synthesis of Research on the Economics of Vocational Education." The author recommends cost-effectiveness analysis as the most appropriate technique for evaluating vocational

[7] Jacob J. Kaufman, *An Analysis of the Comparative Costs and Benefits of Vocational Versus Academic Education in Secondary Schools* (University Park, Pa.: Pennsylvania State University, 1967).

education because it allows non-economic as well as economic benefits to be related to programs.[8]

Vocational Education Needs for Girls and Women

The growing importance of women in the work force, the limited range of vocational education opportunities typically available to them, and the general failure of guidance to appreciate fully and provide for the unique counseling requirements of high school girls are situations which call for more research.

Sylvia Lee's study on the implications of work patterns asks some valid questions about the educational system in terms of the participation of women in the current labor force.[9] Foundation for the work was a two-day conference attended by 30 people representing various services in vocational education and related areas. Recommendations were aimed at the need for better and faster communication; the need for research upon which predictions could be based; and, the need for guidance workers, specialists, curriculum guides and prepared educational media materials.

If the approach to establishing programs for girls and women is to be intelligent, the following questions, and numerous others, will have to be answered.

How can women be educated to prepare themselves for opportunities for entering or reentering the work force and for advancement? Who is responsible for providing information

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

[9] Sylvia L. Lee, *Implications of Women's Work Patterns for Program Development in Vocational and Technical Education* (Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1967).

on new jobs? What kind of services might the homemaker need in order to begin to work, i.e., child-care facilities? Are women in the age group 45-55 entering the labor force for the first time, or are they re-entering? What kind of training do they need? What are the characteristics of secondary students? What happens to girls and women after preparation for employment?

All are apt subjects for study and increasing attention as the unsuspected size of the woman's role in the work force is realized.

conclusion

Research and implementation in vocational education are subjects without dimensions and every aspect could not be dealt with, or even touched upon, in a booklet of this size.

What has been attempted is to establish the fact that everybody should be involved.

On the premise that many would recognize themselves in the "everybody," provisions of the latest legislation have been listed. It is fundamental to know how the government views research for vocational education.

Also, information about the directions research can take, and has taken, would be required. A *few* of the pertinent studies have been mentioned, with the idea that examination of these works will lead to other reading, and *some* of the issues presented, as natural springboards for individual contemplation.

Involvement in research must come to be considered as an accepted, and necessary, part of a professional's career and essential to vocational education if vocational education is to do the job with which it has been charged.

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