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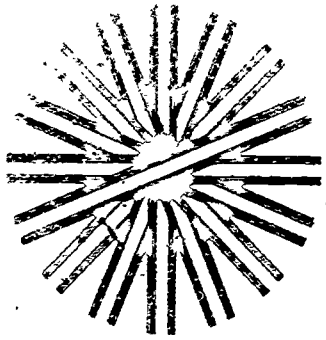
ABSTRACT

The literature review focuses on the nation's current readiness to incorporate the 15 USOE occupational clusters into the nation's evolving career education. This readiness first simplifies job complexity by grouping a multitude of jobs into occupational awareness, career orientation and exploration, and career selection and preparation. But knowledge of career development is needed to make career education work. So is a vision of education as a continuing arrangement of means by which individuals challenge their environments to make them speak back to them honestly. Systems knowledge is required. Management by objectives becomes an acurely needed technique. Titles cited in the review (the documents are contained in the ERIC or AIM/ARM collections) indicate the considerable span of career education. The program must be organized and administered in the school as a whole because the subject must be taught in elementary, middle, and high school and in postsecondary education as well. Occupational clusters must be introduced into the curriculum at all levels and reflected in the functions of career guidance, placement, and follow-up at various times. Some products of the cluster development efforts have been entered into the ERIC system and are identified and briefly described; projects developing material are described in the appendix. (Author)

Educating for the Integration of Occupational Clusters Into Careers

by Joyce Cook, Dale Stenning and David V. Tiedeman



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Clearinghouse in Career Education

EDUCATING FOR THE INTEGRATION OF OCCUPATIONAL CLUSTERS INTO CAREERS

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EDUCATING FOR THE INTEGRATION

OF OCCUPATIONAL CLUSTERS

INTO CAREERS

Contents

EDUCATING FOR THE INTEGRATION OF OCCUPATIONAL CLUSTERS INTO CAREERS

Needed: Education for Careers

Only about two months after assuming the United States Presidency, President Gerald R. Ford reaffirmed the current national priority to educate for careers. On 30 August 1974, President Ford made the following promise to graduates of Ohio State University:

> "I do want to pledge one thing to you here and now: I will do everything in my power to bring education and employers together in a new climate of credibility--an atmosphere in which universities turn scholars out and employers turn them on....The Secretaries of Labor and Health, Education and Welfare have been asked to report new ways to bring the world of work and the institutions of education closer together...Skills and intellect must harmonize so that the wheels of industry not only hum but sing. I propose a great new partnership of labor and academia.... We need new jobs and new skills...."

Education for careers, or career education as it has come to be called, is a today's response to a yesterday's effect which is designed to meet a tomorrow's problem of children, youths, and adults. In the late 60's and early 70's, there were many harbingers of the social, technological, economic and psychological changes we today experience. During the 60's the modal social consciousness of United States citizens was changed to raise in dominence an egalitarian over the then prevailing elitist social philosophy. Parity in political, social, psychological and economic rewards has subsequently remained a persistently prominent national priority despite sporadic but repeated attempts at reversals.

The technology undergirding United States productivity changed and expanded in the 50's and 60's. Power magnification, systems operations, and information processing rose to dominate production. In 1969, the U.S. Department of Labor (ED 079470) reported that employment growth rates were fluctuating markedly from past experience and would soon affect the occupational structure of the nation's work force. Former U.S. Commissioner of Education John R. Ottina (ED 079 506) reflected these changes in 1973 when he wrote that by the end of the 1970's only one-fifth of the jobs will require a four-year college degree, but that most of these jobs will require training beyond high school. Further, most blue collar jobs as we have known them are fast disappearing.

In the middle 70's, economic consequences of these social and technological changes starkly confronted the U.S. citizen. John and Suzy Q. Public had to cool down their homes, cut down their travel, realize that gold was no longer the monetary standard and wonder what would stabilize as such a standard, slow down the manufacture of automobiles, suffer unemployment at recessionary and even depressionary levels, and get to realize that the U.S. standard and style of living was jolly well changing. Should old-line monetary policies continue, the recently touted affluent society will have only a short day in the sun unless we can, in a few short years, make a significant advance in our capacity to live with more direct uses of energy and with less of our presently indirect uses of energy through matter.

In 1969, later U.S. Associate Commissioner of Education Grant Venn, who has been a dominant architect of education for careers, pointed out that most American young people today change jobs four or five times during their lives. The U.S. Department of Labor more explicity reported about that same period that the "...average twenty-year old man in the work force could be expected to change jobs 6 or 7 times and spend about 5½ years on each job during a working life of about 43 years." (see

ED 079 470). These job changes are also accompanied by moving. The average U.S. citizen no longer is employed for all of his life in the community in which he was born. Job is likely to fill fewer waking hours of U.S. citizens in the future. Meaning and satisfaction will have to come through more balanced integration of vocational and avocational activity in the future.

Career education was singled out in 1971 by former U.S. Commissioner of Education, Sidney P. Marland Jr. as the way in which U.S. educational institutions should move today to meet yesterday's quite considerable social, techonological, economic, and psychological changes for the better futures of today's children, youths, and adults. Upon his appointment as U.S. Commissioner of Education, Dr. Marland quickly announced his intentions for the field of career education at the 1971 Convention of the Association of Secondary School Principals meeting in Convention at Houston, Texas. At this Convention Dr. Marland proposed that "...life and how to live it is the primary vocation of all of us. And the ultimate test of our educational process, on any level, is how close it comes to preparing our people to be alive and active with their hearts, and their minds, and for many, their hands as well." (ED 048 480, p. 9) With this goal, Marland then took off from Dr. Grant Venn's conclusion in his Man, Education, and Manpower, (1970, ED 044 782), namely, "If we want an educational system designed to serve each individual and to develop his creative potential in a self-directing way, then we have work to do and attitudes to change." (p.4) According to Dr. Marland,"... All our efforts as educators must be bent on preparing students either to become properly, usefully employed immediately upon graduation from high school or to go on to further formal education." (p. 5) This is the goal for the work we must do and the attitudes we must change.

Occupational Clusters as Means to Career Education Ends

In 1971, "the work to be done and the attitudes to change" became clearer as the band of educators enabled by the U.S. Office of Education to attend to career education became sufficiently large relatively soon after former Commissioner Marland announced his intention to introduce career education into American schools. Specifically, consensus began to form (ED 079 470; EJ 076 091) from analyses of the social, technological, economic, and psychological changes enumerated above that there is need:

1. both give youths and adults the flexibility to deal with the changing world of work through their participation in a cluster core curriculum where skills and knowledges taught are common to many occupations and to broaden vocational training by promoting both the lateral and the upward mobility of its graduates;
2. to give youths and adults an instructional program containing an obvious ladder of jobs from the skilled through the professional levels which in conjunction with adequate guidance services will eliminate the visages of a "tracking system" from the instructional program;
3. to improve educators' communication with the general public and the employing community by providing obvious linkages between the instructional program and related units of business, industry, the professions, and government; and
4. to provide each person leaving the free public school system with an entry-level job skill permitting school leavers to exercise the option of either getting a job or pursuing a further education.

In 1971, the derivation and implementation of occupational clusters therefore became a first major task of the Division of Occupational and Adult Education within the U.S. Office of Education (ED 069 922). This report first synthesizes the results of this and related work and then reports 1975 priorities at the Bureau now that preliminary work is about completed.

As McKinlay (1971, ED 083 457) has noted, various job classifications existed prior to Office of Education sponsored work on occupational clusters. For instance, the U.S. Bureau of the Census Department of Labor publishes a Dictionary of Occupational Titles (ED 013 963) in which jobs have necessarily been previously classified by occupation. This Department also publishes an Estimates of Worker Trait Requirements for 4,000 Jobs (no date) by which occupations are classified according to a rather intricate set of worker trait characteristics. Conger (1973, ED 087 909) reports a national effort in Canada which combines for Canadian occupations the Dictionary of Occupational Titles and Worker Trait Characteristics approaches which the U.S. Department of Labor has kept

separate. The Canadians have derived about 350 clusters of occupations from the structure of their own occupational classification and dictionary of occupations. A third approach to occupational classification in the United States is characterized by the several efforts to classify occupations in ways which embrace the numerous career psychologies to be found among U.S. citizens.

The efforts by psychologists to classify occupations so that the classification embraces a significant proportion of the stable part of citizens' career psychologies have taken many forms. One form which these efforts have taken has been the study of students' perceptions of job clusters. The study of Vivekananthan and Weber (1974, ED 090 467) illustrates this approach. Seventy-eight high school students were asked to cluster job titles derived from interest inventories. Twelve clusters appeared. Another form of bridge between person's characteristics and work requirements has been on the one hand to assume that personality determines what a person does and to ascertain what such clusters are. Seymour and others (1973, EJ 080 258) provide an illustration of this procedure. The classifications of Flanagan, Holland, and Roe which we will soon discuss more fully represent applications of this technique to the full range of occupations in the United States. The other effort to bridge person's characteristics and work characteristics generates lists of work elements and of personal characteristics and then relies upon knowledgable judgement as to the personal characteristics which various work elements require. The Estimates of Worker Trait Requirements for 4,000 Jobs was derived by this means. Cunningham (1972, ED 085 491), and Tuttle and Cunningham (1972, ED 085 493) have elaborated and refined this procedure.

John Flanagan (1971, ED 053 395), John Holland (1959), and Anne Roe (1956) have each derived a somewhat widely used classification of occupations based on the psychological and personality requirements primarily stressed in each category.

Flanagan's occupational classification system consists of 12 career groups numbered and labeled as follows:

Number	Group
1	Engineering, physical science, mathematics, and architecture
2	Medical and biological sciences
3	Business administration
4	General teaching and social services
5	Humanities, law, social and behavioral sciences
6	Fine arts, performing arts
7	Technical jobs
8	Proprietors, sales
9	Mechanics, industrial trades
10	Construction trades
11	Secretarial-clerical, office workers
12	General labor, community and public service

The occupations which Flanagan assigns to each of the 12 career groups were initially defined in Flanagan, Shaycoft, Richards, and Claudy (1971, ED 053 395). They were based on the similarity of high school profiles of abilities and interests of people in different occupations 5 years after high school. Flanagan subsequently slightly modified the location of a few occupations for the Career Data Book (ED 085 569).

Holland includes only six occupational groups in his classification system. The system was initially defined by Holland (1959) on the basis of a model of types of job environment and matching personality types.

The current classification (1969, EJ 004 791) is as follows:

Number	Group
1	Realistic
2	Investigative (formerly intellectual)
3	Artistic (formerly number 6)
4	Social (formerly number 8)
5	Enterprising
6	Conventional (formerly number 4)

Roe (1956) grouped occupations into eight categories in her classification system. The numbers and names of the Roe groups are as follows:

Number	Group
1	Service
2	Business contact
3	Organization
4	Technology
5	Outdoor
6	Science
7	General cultural
8	Arts and entertainment

There is a good deal of communality among the occupational groups of the Flanagan, Holland, and Roe occupational classification systems, but they are not identical systems. The Flanagan system tends to stress level and kind of education in its categories more than the Holland and Roe systems; the Holland system tends to stress psychological function satisfied by the occupation more than the other two systems; and the Roe system tends to stress the kind of work done more than the other two systems.

The several occupational classifications so far identified have all been advanced for different purposes. For instance, the U.S. Census Bureau needs its classifications to indicate in concise but explicit ways where U.S. citizens are employed. The Labor Department needs its classifications to help

someone who knows little about an occupation to get general ideas of what functions each serve. Flanagan, Holland, and Roe derived their occupational classifications to achieve a parsimonious grouping of the relatively stable part of occupational membership over extended portions of a worker's lifespan (McLaughlin and Tiedeman, 1974). However, none of these purposes was as fully co-extensive with the purposes of education and occupational choice and progression as is required in a late twentieth century career education program. The U.S. Office of Education needed a classification of occupations which not alone would suggest what the curriculum ought to be to prepare for the occupation, the Office needed one by which employers would be willing to accept an applicant's qualifications for a job in an occupational classification. The U.S. Office of Education needed a classification or clustering of occupations by the similarity of the tasks which are performed within the occupations of the cluster.

We divide work activity by tasks, jobs, and occupations among other ways. Work tasks are the specific activities and/or functions associated with adequate performance of a given job. Educational objectives are sometimes substituted for work tasks in some task, job, occupation, and cluster hierarchies. Project CAREER (ED 078 163) makes such a substitution. An occupation consists of several jobs which have many, but not all, work tasks or educational objectives in common. The U.S. Office of Education sponsored research which simply extended this progression to occupational clusters. An occupational cluster is a set of occupations whose jobs have many, but not all, their tasks or educational objectives in common (Morrison, 1965, VT 001 392; Phelps, 1972, ED 073 252).

Work tasks, jobs, occupations, and occupational clusters as defined constitute an obvious hierarchy. A job consists of a set of tasks; an occupation of a set of jobs; an occupational cluster of a set of occupations. This hierarchical arrangement of task, job, occupation, and cluster within

each of the 15 USOE occupational clusters offers a fine advantage to citizens looking for jobs and to employers looking for workers. A citizen looking for jobs can locate same by entering a cluster hierarchy either from above with the name of the occupational cluster or occupation for which he or she is qualified or from below with the tasks which his education has qualified him or her to perform. A student trained in an occupational cluster has his or her occupational and job possibilities both heightened and broadened by their potential career lattices (Grede, 1970, ED 073 269; VT 003 804). A lattice makes upward or sideward mobility possible. The employer on the other hand can locate manpower in the regions of qualifications he or she seeks whenever the supply of labor is less than the employer's demands. Such a use can arise either from moving up from the company's present job in a hierarchy and finding workers from the occupation or cluster in which the job falls or by moving down to tasks and looking for workers with an optimum combination of the needed task qualifications even though no one worker would have all the desired qualifications. A student trained in an occupational cluster thereby has his upwards and sidewards occupational and job opportunities expanded accordingly. Grayson County College (1972) has provided a job/occupation hierarchy for each of the 15 USOE occupational clusters. We indicate in a later section what has been done in each cluster to extrapolate this work to tasks for each of the occupational clusters. Project CAREER (1973, ED 078 163), as a part of Project MISOE (EJ 093 859-093 868), has this general intention but has not yet completed its work. The procedure holds promise of providing a competency-based definition to help the handicapped over the perceptive hurdles currently barring their entry into employment.

The fifteen USOE occupational clusters for which educational objectives, job, occupation, and cluster hierarchies have recently been derived are named as follows (VT 007 991, ED 067 474):

1. Agribusiness and Natural Resources
2. Business and Office
3. Communications and Media
4. Construction
5. Environment
6. Fine Arts and Humanities
7. Health
8. Homemaking and Consumer Education
9. Hospitality and Recreation
10. Manufacturing
11. Marine Science
12. Marketing and Distribution
13. Personal Services
14. Public Services
15. Transportation

Education for the Integration of Occupational Clusters into Careers

We have shown that education for careers is a today's response to a yesterday's effect which is designed to meet a tomorrow's problem of children, youths, and adults. We next indicated that occupational clusters are educational means for such career education ends. In 1971, the then Bureau of Adult, Vocational, and Technical Education, United States Office of Education organized the curriculum development effort needed to incorporate the occupational cluster concept into career education. In a set of working papers on career education (ED 069 922), members of the Bureau determined that curriculum development at all grade levels, K-14, was the central procedure around which other supporting activities of the Bureau would function. The curriculum undertaking was to be a three pronged effort: (1) an occupational

curriculum cluster effort; (2) a curriculum refocussing effort for grades 1-8; and (3) a subject-matter relating effort in grades 8-14. The largest and most involved component of the curriculum development undertaking was the cluster curriculum effort which involved the efforts of 15 separate task forces, one for each of the clusters. Each task force was to develop a complete cluster-core curriculum for grades 9-12 including the selection and/or development of suitable instructional media for each occupational area. In addition, each task force also had to provide guidelines and material for use in grades K-6 to insure that occupational information provided at the elementary school level is technically accurate and comprehensive. Each task force also developed a one semester exploratory curriculum for grades 7 and 8.

These 1971 planned efforts of the USOE Bureau of Adult, Vocational, and Technical Education presently offer a resource of considerable magnitude to all education in the United States. This review synthesizes the literature related to this BAVTE effort.

Most, but not all, of the literature reported in this review has originated from this BAVTE effort. We report the related literature in order to give the practitioner perspective on the Federal effort.

General Bibliographic Resources

Four available reviews offer background for the occupational cluster concept beyond the scope of the present review. The USOE Division of Comprehensive and Vocational Education Research first organized its sponsored research on the cluster concept in a bibliography of projects completed between 1 July 1964 and 30 June 1968 (VT 009 360). This bibliography was augmented in 1968 by a bibliography of the University of Wisconsin Center for Studies in Vocational and Technical Education which offered annotated citation of materials published in educational and trade periodicals, reports, and text form on the concept of occupational clusters (VT 008 124). A 1973

unannotated Bibliography on Career Education(ED 086 828) includes reference to 49 documents and articles on the cluster concept published from 1965 to 1972. Finally, the ERIC Clearinghouse in Career Education assembled "An Annotated Bibliography for the Implementation of Occupational Clusters" under guidance of Joyce Cook. Part D. Program Coordinator, Division of Research and Demonstration, USOE Bureau of Occupational and Adult Education. That bibliography of literature on occupational clusters published in Resources in Education, Current Index to Journals in Education, and Abstracts of Instructional and Research Materials in Vocational-Technical Education from the inception of each of these three journals through September 1974 provides the basis for the present synthesis.

Career Education in Its Generality

Theory. The personal formation of a concept of one's career is a lifelong process occurring in the interchange of the person and his or her environment. Education for such understanding has to be an integrated process taking place in education at every time and level. Programs which educate for career therefore need a basic theory on which they are developed. A 1973 Overview of a Career Development Plan (ED 083 401) offers such a theory-based plan. Professor Donald E. Super's (1957) theoretical framework was chosen as basis. The Super framework treats career development as a life long process inextricably intertwined with physical, social, psychological, and intellectual aspects of development. The process goes through stages of growth (from birth through elementary school), exploration (including fantasy, tentative, and realistic phases extending from elementary school through the first years of employment), establishment (including trial and stable phases extending from first employment through five or six years of stable employment), maintenance, and decline. This framework does not regularly appear in the lives of each and every one of us. The stages overlap

in some instances; not all persons of the same age can be packaged neatly into one and only one of the stages; stages repeat themselves because of environmental and maturational changes. Nevertheless, the framework suggests the potential integration of a person's career concept as well as calling attention to the fact that the career concept develops.

The U.S. Office of Education has somewhat based its own model for career education on this theory. In the USOE model, career awareness is proposed as the goal of elementary programs of career education. Career exploration and tentative planning is expected in the middle school grades; and career selection and preliminary specialization is expected for secondary school and community college grades. This structure largely dictates the organization of this review.

Program Development. The fact that the subject of career should be attended to throughout education and in a diversity of ways requires quite extensive attention to many things in schools and communities as career education is introduced into a school district. The Center for Occupational Education of North Carolina State University, Raleigh was aware of this fact from the inception of career education and early commissioned a set of papers in which exemplary and successful career education practices were singled out, catalogued, and described. This series appeared in 1973 and includes the following titles:

1. A Manual for the Implementation and Administration of Career Education Programs by Mollie W. Shook and Robert L. Morgan (ED 076 752)
2. Elementary School Curriculum Guide by Robert W. Schreiber and Mabell Black (ED 076 753)
3. Middle School Curriculum Guide by R.T.Scherer and Joseph R. Clary (ED 076 754)
4. High School Curriculum Guide by Kenneth B. Hoyt and G.G. Wollard (ED 076 755)

5. Postsecondary Career Education by B.E. Childers and Charles Nichols (ED 076 756)
6. Career Guidance by Cliff E. Helling and Eldon Ruff (ED 076 757)
7. Placement and Follow-Up in Career Education by Lillian Buckingham and Arthur M. Lee (ED 076 758)
8. Professional Development by Gordon J. Swanson and Robert Jervis (ED 076 759)
9. Involving the Community in Career Education by Robert M. Isenberg and Joel Smith (ED 076 760)

The above titles indicate the considerable span of career education. The program must be organized and administered in the school as a whole because the subject must be taught in elementary, middle, and high school and in postsecondary education as well. Occupational clusters must be introduced into the curriculum at all levels and reflected in the functions of career guidance, placement, and follow-up at various times. The school and the community must be partners in the induction and progression of youths and adults in their careers. Teachers, counselors, and administrators must be helped to develop professionally so today's solution to yesterday's problem with potential for the future will become a reality. Integrating occupational clusters into career education is not an impossible task, merely an extensive one.

In 1972-73, The American Institutes for Research (AIR) conducted a project in similar vein to that of the Center for Occupational Education. The AIR project created a review of the literature on practical career guidance, counseling, and placement for noncollege-bound students, isolated and reported on thirteen exemplary projects offering such service for such students, and devised a model for integration of career guidance by noncollege-bound youths. The reports in this series are entitled:

A. Practical Career Guidance, Counseling, and Placement for the Noncollege-Bound Student: A Review of the Literature with Executive Summary by Laurie H. Ganschow and Others (ED 080 919).

B. Case Studies in Practical Career Guidance:

1. Baltimore Placement and Follow-up Program, Baltimore City Schools, Baltimore, Maryland by Laurie H. Bansch[illegible] (ED 076 927)
2. Career Development Center, Troy High School, Fullerton, California by Carol Ann Arutunian (ED 076 928)
3. Career and Educational Planning Program, Pioneer Senior High School, San Jose, California by Carol Ann Arutunian (ED 078 332)
4. Career Guidance Program, Hood River Valley High School, Hood River, Oregon by Thelma J. Scott (ED 078 333)
5. Computerized Vocational Information System, Willowbrook High School, Villa Park, Illinois by Carol Ann Arutunian (ED 078 334)
6. Coordinated Vocational and Academic Education, North Gwinnett High School, Suwanee, Georgia by Charles W. Dayton (ED 078 335)
7. Developmental Career Guidance Project: Detroit Public Schools Detroit, Michigan by Thelma J. Scott (ED 078 336)
8. Employability Development Team, Cleveland Public Schools, Cleveland, Ohio by Carolyn Helliwell (ED 078 337)
9. Job Development Program, Cleveland Public Schools, Cleveland, Ohio by Thelma J. Scott (ED 078 338)
10. Kimberly Guidance Program, Kimberly High School, Kimberly, Idaho by Carolyn Helliwell (ED 078 339)
11. Lenawee Vocational-Technical Center and Placement Program, Adrian, Michigan by Charles W. Dayton (ED 078 340)
12. Occupational Learning Center, Syracuse City School District, Syracuse, New York by Jurgen M. Wolff (ED 078 341)
13. Youth Career Action Program, San Jose Unified School District, San Jose, California by Laurie I. Hopkins (ED 082 078)

C. Planning, Structuring, and Evaluating Practical Career Guidance for Integration by Noncollege-Bound Youths with Executive Summary by G. Brian Jones and Others (ED 082 073)

The above titles reflect the extensiveness of career guidance which must be instituted in adequate career education programs.

Both the Center for Occupational Education and the American Institutes for Research projects illustrate the commitment which the United States makes to individual action by school systems in the implementation of career education. Both projects have singled out local adaptations of career education concepts which work because local school systems have invested themselves in the working of the concepts. These projects inform by example. Other projects inform by precept, but still offer process rather than product prescriptions. For instance, Phelps (1972, ED 073 252) gives a descriptive overview of the cluster-based occupational curriculum development model. The essential components of this model include: (1) an educational program which meets community needs and contributes to community development; (2) a curriculum which would have a close relationship between life in school and life outside of school; (3) a mechanism for analyzing and changing career needs, and for changing curriculum practices; and (4) the establishment of a functional relationship of the behaviors required by present and by future occupations. These process goals of career education emphasize the high hopes which all hold for it. Career education is an effort to make education relevant and responsive to individuals and their society as individuals evolve it.

A widely renowned needs-based career education program arose indigenously by the above mentioned processes in the Mesa (Arizona Schools). Genovese and others (1973, ED 079 539) report the process by which the Mesa curriculum was derived. The Mesa model consists of four levels: (1) career and self awareness (at the elementary level); (2) career orientation exploration (at the middle school level); (3) formulation of career plans (at the early high school level), and (4) career preparation and training (at the later high school level).

Arizona has issued a Career Education Matrix which lists specific student objectives in each of the following eight areas at each of the four periods:

1. Self awareness
2. Educational awareness
3. Career awareness
4. Economic awareness
5. Decision making
6. Beginning competency
7. Employability skills
8. Appreciations and attitudes

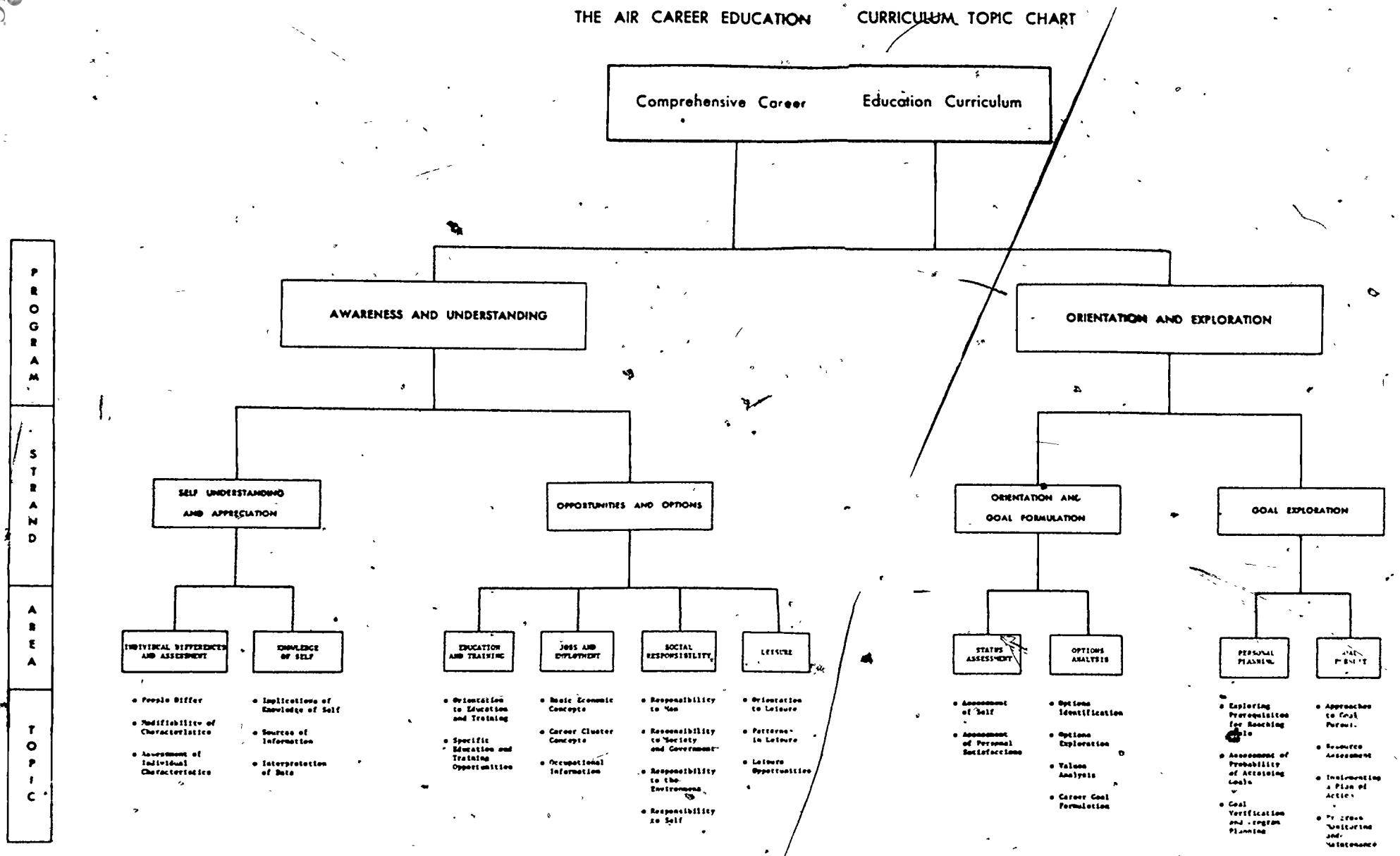
The David Douglas Public School System in Portland, Oregon employed similar processes to derive a program of vocational cluster education at the high school level. McCaleb (1973, ED 080 682) reports how the occupational clusters were developed and implemented in Oregon.

Inserting Occupational Clusters into Career Education

Career Awareness (Elementary and Middle School)

Several resources are available for the infusion of occupational clusters into career education in the elementary and middle school when the primary goal is arousal of career awareness as is recommended by Dull (1972, EJ 066 193). A quite extensive set of resources has recently been made available through work sponsored by the Bureau of Occupational and Adult Education at the American Institutes for Research (AIR). The AIR has developed and published a complete model for the development of an elementary and middle school curriculum in which career awareness is first aroused and career orientation is then provided. The AIR model is built on the assumption that no more than an additional $10-20 per classroom will be budgeted for career education. The AIR materials therefore primarily consist of a set of behavioral objectives from which local teachers can pick what they want for use within a basic model schematized as follows:

THE AIR CAREER EDUCATION CURRICULUM TOPIC CHART



The AIR materials include specific instructions by which teachers can build their own curriculum units following the basic model and selecting behavioral objectives from those suggested. Illustrations of developed units which include pre-tests, suggested objectives and strategies along with related materials appropriate for the unit, and post-tests by which mastery can be immediately tested are a part of the AIR publications. The AIR publication list for its career education model is as follows:

1. Proceedings of the National Advisory Panel (CE 003 539)
2. A Curriculum Design and Instructional Objectives Catalog (ED 080 763)
3. Career Choice and Development: An Annotated Bibliography for Career Education (CE 003 540)
4. Instructional Systems Options and Guidelines for the Dissemination and Implementation of Career Education (CE 003 541)
5. Evaluation Studies of the AIR Career Education Curriculum and Curriculum Products (CE 003 542)
6. Teacher's Guide to Career Education: Primary Grade (CE 003 543)
7. Teacher's Guide to Career Education: Upper Elementary Grades (CE 003 544)
8. Teacher's Guide to Career Education: Middle School Grades (CE 003 545)
9. Resource Book of Sample Lesson Units for Career Education (CE 003 546)
10. Resource Book of Low Cost Materials for Career Education (CE 003 547)

The AIR model incorporates the twelve Flanagan (1971, ED 053 395) career clusters listed in the previous section, not the fifteen USOE occupational clusters. The Flanagan clusters are primarily defined by educational, aptitude, interest, and personality similarity not by functional similarity as the USOE occupational clusters are.

Holstein (1971, ED 059 390) offers a rather comprehensive teacher's guide for infusing career education into elementary and middle school in rural areas. In grades 1-6, the Holstein teaching units cover such topics as: (1) wonderful world of work, (2) our community, (3) clothes of today,

(4) workers within our community, (5) opportunities in our state, (6) crafts of Appalachia, (7) careers in music, and (8) communicating through letters. For grades 1-8, (1) general objectives, (2) behavioral objectives, (3) teaching strategies, (4) evaluation techniques, (5) field trip information, and (6) a resource bibliography are included. The material in grades 7-8 relate to the occupational clusters of (1) manufacturing, (2) construction industry, (3) service, (4) transportation, and (5) business and related occupations.

A companion career development guide for West Virginia teachers has been published by Brown and others (ED 065 722). The document provides a rationale for the developmental program which is offered, discusses the world of work including the transition from school to work, conceptualized work, and trends, and provides general objectives, implementation techniques, and suggested activities and resources for grades K-12. The establishment of a placement service is also described.

Career Orientation, Exploration, and Planning (Middle School)

Consideration of Models. Ristau (1973, ED 078 180) has published a useful comparison of assumptions undergirding the several national models of career education which arose as the topic became a national priority. Ristau assumes that self concept theory should give direction to career education planning. He then closely examines two models. One of the two examined models is that of 8 themes and 13 grades which has been mentioned in the prior section as it has arisen from work in Mesa (Arizona) schools. The second examined model is termed the Wisconsin model because it has stemmed from work in cognitive development at the Center for Research and Development in Cognition at the University of Wisconsin. This model provides a scope and sequence chart for the following 16 basic concepts:

A. Concepts "... introduced in the primary grades, developed in the elementary grades, and emphasized in the junior high grades ...

1. "An understanding and acceptance of self is important throughout life.
2. "Persons need to be recognized as having dignity and worth.
3. "Occupations exist for a purpose.
4. "There is a wide variety of careers which may be classified in several ways.
5. "Work means different things to different people.
6. "Education and work are interrelated.
7. "Individuals differ in their interests, abilities, attitudes and values.

B. Concepts "... introduced at the elementary grades and developed in the junior high grades...

8. "Occupational supply and demand has an impact on career planning.
9. "Job specialization creates interdependency.
10. "Environment and individual potential interact to influence career development.
11. "Occupations and life styles are interrelated.
12. "Individuals can learn to perform adequately in a variety of occupations.
13. "Career development requires a continuous and sequential series of choices.
14. "Various groups and institutions influence the nature and structure of work."

C. Concepts "...introduced in grades seven through nine and developed in grades ten through twelve...

15. "individuals are responsible for their career planning.
16. "Job characteristics and individuals must be flexible in a changing society." (ED 078 180, pp. 5-6).

Ristau takes off from the Wisconsin model to zero in on the unique characteristics of middle school youth which give rise to the assumption that career orientation, exploration, and planning can be goals with this group of students. Ristau indicates that middle school students: (1) are moving from general skill acquisition of the elementary school toward the more specific preparation for adult life; (2) are in a period of rapid change with considerable variance in developmental level; (3) are beginning to develop abstract verbal skills, but still have a real need for concrete, action-oriented activities; and (4) experience intense feelings associated with their rapid growth. As a result of condition (1), career education in the middle school should be broadening and exploratory in nature and as a result of condition (2), it should embrace a wide variety of methods. A lack of understanding of the career development needs of youths on the part of teachers, counselors, and administrators along with a lack of adequate materials for developmental enlargement during the middle school years can stifle the appearance of career education in the middle school.

Career Orientation. A committee of educators for the Pacific area Department of Defense Schools has issued a handbook for helping middle school teachers integrate education on careers into their subjects (1973, ED 086 863). After reviewing the national model and its assumption that career awareness is goal in the elementary school and career exploration in the middle school, the report goes on to define the fifteen USOE clusters and list related jobs in each. A school operating according to the roles of a district career education coordinator, educational media specialists, principals, counselors and teachers which are specified in considerable detail can integrate instruction in the jobs of the 15 occupational clusters with expectation that students will become able to: (1) identify various occupations; (2) identify skills and talents of workers; (3) observe how occupations affect life study; (4) relate products and services with worker interaction; (5) recognize that

environments affect job location, and (6) ascertain how a worker gains dignity and satisfaction from a job well done. Specific activities are recommended for each of twelve academic disciplines based on the defined clusters and objectives.

A group of rather specific curriculum guides are available for occupational orientation in the middle school. One of these guides (ED 075 612) consists of a resource unit on using the occupational clusters in career orientation at grades 7 and 8. The guide can be used by all teachers in all subjects in planning and implementing career orientation activities. In using the guide, teachers encourage student participation which is important at this age in developing a positive self concept in relation to the many and varied roles within the occupational framework. This theme is carried throughout the guide in the form of recommendations for vicarious experiences (occupational literature, books, films, and filmstrips), simulated experiences (mock job or laboratory situations), and hands-on experiences. A systems approach to attaining exploration of occupational clusters is outlined which includes specification of process objectives, behavioral product objectives, teaching strategies, correlation of subjects, roles of the several positions in the middle school society, and evaluation. When this system is used, students can obtain a broad knowledge of the characteristics and functions of specific occupations within a spectrum of occupational families.

East Texas State University (VT 016 201) has provided a teaching guide for the investigation of a wide range of occupations. For each of the fifteen USOE occupational clusters, unit objectives, subject content, teaching procedures, and learning activities are correlated with resource lists.

Portland,Oregon's David Douglas Public Schools (VT 015 610), in their Project VIGOR, have their eighth grade students work with primary sources such as the Dictionary of Occupational Titles to acquire the conception of occupational classification. Instruction in locating, obtaining, and holding jobs

is also included. Self understanding is also emphasized through other activities.

The Toledo (Ohio) Public Schools have released a career orientation guide (VT 015 433) in which career education unit outlines are broken down into specific subject areas with each occupational cluster. The unit includes rationale, program objectives, descriptions of teachers' and coordinators' responsibilities, and suggestions for arranging field trips, resource speakers, and hands-on experiences.

Bowling Green State University has devised ten career orientation lessons for middle school grades which can be televised. These are on-location sound films of interviews which allow the student to observe workers interacting in their own natural work environment. Suggested teaching techniques include field trips, role playing, integrated activities, and use of resource material. Nine occupational clusters are described in all. The clusters picked emphasize newer careers and the many careers outside the professional area which are frequently ignored.

Career Exploration. A committee of administrators, supervisors, teachers, and counselors in Little Rock (Arkansas) Public Schools have published a curriculum guide for investigating career opportunities (VT 015 788, ED 072 308). Careers in the occupational clusters of business education, home economics, and industrial education are each explored in three extensive 12-week laboratory units. The course provides an overview of career opportunities, techniques for self appraisal, and help in choosing courses leading to the students' occupational goals. Teaching procedures are correlated with resource lists of transparencies and student hand-outs for each unit. Course rationale, student worksheets, time allotments, and detailed behavioral objectives are provided.

Career Planning. Delaware uses career clusters as a data base for school activities designed to increase student awareness of the variety of available career opportunities (1972, ED 085 557). [redacted] career oriented activities

in eight career development learning activities stimulate and encourage students to begin career planning. Students learn about various occupations related to subject material being taught and in this way are assisted in developing an appropriate balance between self concepts and career aspirations. Students begin to understand how people use mathematics, science, and other subjects at work. Action career activities are essential to the development of effective instructional programs at the middle school.

Continuing Career Exploration and Starting

Career Selection and Preparation (Secondary School)

Modelling and Planning. Further individualization of instruction is demanded by the career education model at the secondary school level and the imminence of going to college or work requires beginning specialization and much more relevant hands-on work experiences. Laboratory activity is considered very valuable for this aged student (Ressler, 1973, EJ 076 084) Krueck and Denton (1972, ED 075 574) describe the Skyline Career Development Center of the Dallas (Texas) School District which is particularly designed to meet individualized experiential needs. A flexible curriculum was developed to offer courses not available elsewhere and to enable students to perform at varying levels, terminating at different points in any of the courses. A new report card was designed to report student progress based on individual achievement, allowing a student to compare his growth with his own past performance. Stamps (1973, EJ 073 821), who participated in developing the Center, further describes its planning, community involvement, and problem solving.

Career concepts are changing college curricula as well as vocational curricula. The Winston Churchill High School designed a career cluster curriculum project which introduced two mini-courses on careers and developed out-of-school placements enabling students to explore career interests in functional settings. ED 084 377 reports the outlines of the two mini-

courses among other things. Eaddy (1971, EJ 037 612) describes a specific vocational model developed for grades 9-12 of schools having from 10 to 350 students in their vocational programs.

The career education changes required in secondary schools are frequently more complex than those required for elementary and middle schools simply because the bureaucratic structure of the secondary school is greater than that for the other two schools. Hence a guide for planning a career cluster approach for the secondary school has been published by the Oregon State Department of Education (Parnell, 1969, EJ 012 587; VT 016 529). Wolansky (1975, EJ 019 762) describes how the Oregon Board of Education devised this career cluster curriculum plan. The plan itself gives details about surveys, reports, and other data which will be needed. Sample resource materials to be compiled are given for each section, which includes community data, school data, a master career education plan, factors of implementation, and long-range planning sheets. A step-by-step procedure is provided for determining the specific career education needs for any given community.

Continuing Career Orientation. In the regular school organization, the efforts at career orientation need to be continued in correlation with instruction in the academic subjects of the secondary school. In this connection, Marchak (1973, EJ 083 465) presented the role of career education using five projects as illustration. Specifics are detailed for the role of the social studies teacher in introducing and orienting students to work.

Continuing Career Exploration. The career exploration initiated in the middle school portion of the career education program also has to be continued in the secondary school until it culminates in a career selection which is sufficiently fixed to warrant student preparation in one or more occupational clusters while in secondary school. In this vein, local coordinators in summer training in Georgia during 1969 and 1970, issued a Coordinator's Guide for Programs for Educational and Career Exploration (PECE) (VT 015 204).

The Guide is intended for career exploration in grades 7,8 and 9. Nineteen instructional units are suggested. Each unit lists behavioral objectives and provides a variety of learning experiences including field trips, surveys, classroom activities, and visual aids. Detailed orientation to PECE includes additional learning activities and materials. A 50-page occupational chart lists for each occupation (1) work roles (vocational), (2) work settings (places of employment) and (3) activities directly related to those occupations.

The Maryland career development model is also primarily a planning model (1972, ED 086 905). The Maryland career development program recommends for grades 7,8, and 9 that from each subject area, the guidance staff, and the administrative staff be formed to develop details. Program goals for students are to be the development of (1) self awareness, (2) knowledge of job skills and required levels of competence, (3) social and communication skills, (4) decision making skills, and (5) awareness of the student's own role in work. Students should first learn that many occupations are contained in occupational clusters, then explore several clusters. Teacher guides in physical education, science, art, and music contain suggestions of activities which emphasizes a certain career or job family in relation to the subject studied.

Springfield (Oregon) Public Schools in conjunction with Oregon State University developed a career exploration curriculum in two parts. Learning packages designed for grades 7 and 9 stress: (1) becoming employable; (2) management; and (3) occupations related to art, foods and nutrition, and clothing and textiles. Each learning package consists of : (1) a teacher section containing general information, suggested student evaluation, reference materials, and answer sheets; and (2) a student section containing a purpose, behavioral objectives, learning activities, and pre- and post-tests. Learning packages for introducing high school students to the cluster concept contain

behavioral objectives, information sheets, field trip report forms, assignments, and post-tests for the following occupational clusters: (1) health occupations; (2) mechanics; (3) forestry; (4) metals; (5) secretarial services; (6) marketing; and (7) agriculture.

Lincoln County has issued a career exploration guide for grades 9 and 10. Included are job interview techniques, employment application information, and the role of counseling and guidance in career exploration. Work opportunities and facilities are explored on field trips. Teaching strategies, learning activities, correlation of subjects, and questionnaires are presented for teacher utilization.

Pontiac (Michigan) City School District has prepared a guide for the introduction of career development into its 10th grade English course (VT 015 196). The 20-week course acquaints students with work by helping students: (1) understand the changing nature of career development; (2) comprehend structure and trends in the labor force; (3) develop decision-making skills; and (4) synthesize self-appraisal data and career information into a meaningful concept of self. Course details are furnished.

The Technical Education Foundation of Texas has made a Career Information Handbook (1973, ED 085 504) available which is sectioned into the fifteen USOE occupational clusters. Each division has: (1) a general statement describing the cluster; (2) comprehensive accounts of several career fields within the cluster, each with a bibliography of other sources; and (3) a dictionary of other careers within the cluster. A selected bibliography of general sources of information covering many careers follows the clusters. A more recent companion piece (CE 003 640) provides detailed occupational information for approximately fifty representative jobs for each cluster.

Preparation for an Occupational Cluster

Once an occupational cluster has been at least tentatively selected, preparation for work in the cluster starts. Two kinds of preparation are needed. One needed kind of preparation is in the concepts undergirding work in the cluster itself. The other needed kind of preparation is in the specifics of work in the cluster. We first remark upon the conceptual foundations of work in a cluster.

Academic Preparation. The Penn Hills School District of Pittsburgh, Pennsylvania has done an extensive job of assigning basic concepts in English, mathematics, science, and social studies to the several occupational clusters. Publications available include the following:

Occupational Services Academic Curriculum. English, Social Studies, Mathematics, Science, Grade 9. (VT 009 249)

Occupational Services Academic Curriculum. English Resource Book. Grade 9. (VT 009 240)

Occupational Services Academic Curriculum. Mathematics Resource Book. Grade 9. (VT 009 242)

Occupational Services Academic Curriculum. English, Social Studies, Mathematics, Science, Grade 10. (VT 009 238)

Occupational Services Academic Curriculum. Mathematics Resource Book. Grade 10. (VT 009 235)

Occupational Preparation. The U.S. Office of Education began to phase in the development of curriculum for the occupational clusters in fiscal year 1971 so that, with the funds made available in fiscal year 1974, all clusters are in one stage of readiness or the other.

The State of Oregon began their development of clusters as a delivery system for vocational education in the late 1960's and currently have guides completed for 13 cluster areas. While their initial intent was not to include the entire world of work, the Oregon clusters are compatible with the 15 suggested by USOE.

In working with the Skyline Career Development Center in Dallas, Texas, on curriculum beginning in 1971, R.C.A. used the cluster curriculum approach suggested by USOE in a previously cancelled RFP to develop the instructional program. They currently are ready to market, through Harper and Rowe Company, guides for 10 clusters out of a planned 28. As with Oregon, more than one of their clusters will fit under a single one of the suggested fifteen.

The Curriculum Development Branch of the Bureau of Occupational and Adult Education, U.S. Office of Education, was recently asked to assess the status of certain cluster curriculum efforts which are nearing completion and which might be deemed appropriate for demonstration in Exemplary Projects in Vocational Education over the next three year period.

The cluster curriculums are in various stages of development and testing; however, a sizeable investment has been made by the U.S. Office of Education. States and local school districts interested in the cluster structure as a delivery system for occupational preparation, cooperative education and work experience programs should be alert to their eventual, if not current, availability.

Over the past five years, the U.S. Office of Education, in addition to the broad 15 clusters suggested, has supported the development of several sub-clusters which may also be of interest to the field, particularly in instances where the overall cluster is not yet complete. A case in point is in the

Homemaking and Consumer Education occupational area. While the overall cluster is not complete, a sub-cluster in Child Care/Development Occupations is now available.

The U.S. Office of Education funding pattern for the 15 clusters has been as follows:

	FY 71	FY 72	FY 73	FY 74
1. Agribusiness, Forestry, and Natural Resources Protection	X	X		X
	FY 71	FY 72	FY 73	FY 74
2. Business and Office Occupations	X		X	X
3. Communications Media Occupations	X		X	
4. Health Occupations		X	X	X
5. Hospitality, Tourism and Recreation	X			X
6. Consumer and Homemaking Occupations	X	X	X	X
7. Construction Occupations	X	X	X	
8. Fine Arts and Humanities			X	X
9. Environmental Protection Occupations		X	X	
10. Marketing and Distribution Occupations		X	X	
11. Manufacturing Occupations	X		X	
12. Personal Services Occupations	X			X
13. Public Service Occupations	X		X	X
14. Transportation Occupations	X	X	X	
15. Marine Sciences Occupations				X

Approximate USOE dollar expenditures on the development of the occupational clusters including Fiscal Year 1971 has been as follows:

Agri-business and Natural Resources Occupations	504,245
Business and Office Occupations	1,056,670
Communications and Media Occupations	811,830
Environmental Protection Occupations	296,236
Fine Arts and Humanities Occupations	303,697
Health Occupations	1,240,000
Homemaking and Consumer Occupations	1,098,531
Hospitality Tourism and Recreation Occupations	380,238
Manufacturing Occupations	400,000
Marketing and Distribution Occupations	213,853
Marine Science Occupations	100,383
Personal Services Occupations	449,945
Public Service Occupations	1,315,669
Transportation Occupations	449,396
Approximately total expenditures Fiscal Years '71, '72, '73, and '74	9,105,184

Some products of the cluster development efforts have been entered into the ERIC system and are identified and sketchily described below. Other material is still under development. Information on such projects can be secured from the persons listed as "contractors" in the project descriptions recorded in Appendix A.

ERIC includes cluster curricular materials for occupational preparation in all but the Personal Services cluster of the following fifteen USOE clusters:

1. Agribusiness and Natural resources
2. Business and Office
3. Communication and Media
4. Construction
5. Enviroment
6. Fine Arts and Humanities
7. Health
8. Homemaking and Consumer Education
9. Hospitality and Recreation
10. Manufacturing
11. Marine Science
12. Marketing and Distribution
13. Public Service
14. Personal Service
15. Transportation

The curricular material which can be found by ED number in Resources in Education, by EJ number in Current Index to Journals in Education, and by VT numbers in Abstracts of Instructional and Research Materials in Vocational-Technical Education are tabulated by the specific categories of instruction which each includes (grade level(s),rationale,structure, objectives, learning activities, learning resources, and student evaluations) in each cluster in the ensuing pages. In each cluster, the cluster is also first described very generally, some of the occupations included in each are listed, and citations of general resources are identified by ED, EJ, or VT number when applicable.

CLUSTER: AGRIBUSINESS & NATURAL RESOURCES

DESCRIPTION: The Agribusiness and Natural Resources cluster is composed of farm and non-farm occupations. Agribusiness is a blending of agriculture and business and involves a wide range of subject and skill requirements such as biological science, economics, communications, business precedures and transportation. (ED079481)

OCCUPATIONS INCLUDED: Agricultural production, agricultural products, ornamental horticulture, agricultural supplies and services, agricultural mechanics, forestry, and natural resources.

GENERAL RESOURCES: ED073261, ED079481

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED059383	SECONDARY	NO	YES	YES	YES	YES	YES
VT005265	SECONDARY	YES	YES	NO	NO	YES	NO
VT012582	SECONDARY	YES	YES	YES PROGRAM COURSE	NO	YES	NO
VT008388	POST AND SECONDARY	NO	YES	NO	YES	YES	YES

CLUSTER: BUSINESS AND OFFICE

DESCRIPTION: The business and office cluster is for people who want to enter or advance in business.

The office section includes one or more of the duties assigned to office and business workers that aren't specialized in major subject areas such as accounting or personnel. (ED067474)

OCCUPATIONS INCLUDE: Accounting, computer, secretarial sciences, personnel, finance-insurance-real estate, and office (clerical).

GENERAL RESOURCES: ED073278

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
VT015450	SECONDARY	YES	YES	YES	YES	YES	NO
VT015959	SECONDARY	NO	YES	YES GENERAL & SPECIFIC	YES SIMULATION INCLUDED	YES	YES
VT016273	SECONDARY	NO	YES	YES GENERAL & SPECIFIC	YES	YES	YES
ED060197	11,12	YES	YES	YES	YES	YES	NO
VT015705	11,12	NO	YES	YES	YES	YES	YES
ED039365	SECONDARY POST-SECONDARY	NO	YES	NO	NO	YES	YES

CLUSTER: COMMUNICATION AND MEDIA

DESCRIPTION: This occupational cluster is for the individual with ideas to express or who is interested in helping others express their ideas.

History shows that mankind has continually sought better means of communicating--from cave paintings, through the printing press, telegraph, telephone, the advent of radio and television and now laser transmission. This communication explosion is what this cluster is all about. (ED067474)

OCCUPATIONS INCLUDED: Journalism, motion pictures, telephone and telegraph, recoring industry, radio and television broadcasting, and satellite and laser transmission.

GENERAL RESOURCES: ED073276, ED089005

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED039365	SECONDARY	YES	YES	YES	YES	YES	NO
VT003388	SECONDARY	YES	YES	NO	YES	YES	YES
VT008343	POST & SEC	NO	YES	NO	YES	YES	YES
VT008344	POST & SEC	NO	YES	NO	YES	YES	YES
VT008345	POST & SEC	NO	YES	NO	YES	YES	YES
VT008346	POST & SEC	NO	YES	NO	YES	YES	YES
VT008347	POST & SEC	NO	YES	NO	YES	YES	YES
VT008348	POST & SEC	NO	YES	NO	YES	YES	YES
VT008349	POST & SEC	NO	YES	NO	YES	YES	YES
VT008350	POST & SEC	NO	YES	NO	YES	YES	YES
VT008351	POST & SEC	NO	YES	NO	YES	YES	YES
VT008352	POST & SEC	NO	YES	NO	YES	YES	YES
VT008353	POST & SEC	NO	YES	NO	YES	YES	YES
VT008357	POST & SEC	NO	YES	NO	YES	YES	YES
VT008360	POST & SEC	NO	YES	NO	YES	YES	YES
ED089005	7	NO	YES	YES	YES	YES	NO

CLUSTER: CONSTRUCTION

DESCRIPTION: The construction cluster is an all encompassing occupational grouping of jobs ranging from unskilled to very sophisticated types of engineering. Jobs can be found for those with only a high school diploma up through the educational ladder to those with doctorate degrees.

All types of building occupations are covered in this cluster dealing with all types of materials such as woods, metals, glass, masonry; service occupations such as electricians, carpenters, plumbers, etc. These cover a wide range of processes such as excavation, fabrication and demolition.

OCCUPATIONS INCLUDED: Wood construction, metal construction, masonry construction, equipment operators, electrical construction, finishing, and engineering and support occupations.

GENERAL RESOURCES: ED016842, ED016841, ED016843, VT003492, ED073262

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED016842	11,12	YES	YES	YES	YES	YES	YES
ED016843	11, 12	YES	YES	YES	YES	YES	YES
ED016841	SECONDARY	YES	YES	YES	YES	YES	YES
VT020507	SEC & POST	NO	YES	YES UNIT AIMS	YES	YES	YES
VT020508	SEC & POST	NO	YES	YES	YES	YES	YES
VT020509	SEC & POST	NO	YES	YES	YES	YES	YES
VT020510	SEC & POST	NO	YES	YES	YES	YES	YES
VT020511	SEC & POST	NO	YES	YES	YES	YES	YES
VT020512	SEC & POST	NO	YES	YES	YES	YES	YES
VT020513	SEC & POST	NO	YES	YES	YES	YES	YES

CLUSTER: ENVIRONMENT

DESCRIPTION: The environment is one of two major components in the area of ecology. The other is the organism itself. Organisms, including mankind are controlled by the environment both in numbers and in activities.

The environmentalist is concerned with conditions as they presently exist and the preservation and maintenance of a representative amount of the natural environment. Training programs and job opportunities have been expanding rapidly in the last decade. Jobs are usually of the technician variety with three levels of technicians presently spanning a scope from non-degree to degree occupations.

OCCUPATIONS INCLUDED: Pollution prevention and control, disease prevention, environmental planning, and resource control.

GENERAL RESOURCES: ED086511, ED085486, VT016013

ENVIROMENT

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
EJ027961	SECONDARY	YES	YES	NO	NO	NO	NO

CLUSTER: FINE ARTS AND HUMANITIES

DESCRIPTION: The scope of the humanities encompasses those studies and activities concerned with the social, moral and aesthetic values of a culture and with the individual in light of his goals and his growth as a rational being as a responsible member of his community. The fine arts as apposed to applied arts, are concerned primarily with aesthetic expression. This cluster acquaints students with the historical development, the content and the careers related to drama and literature, music, dance, painting and crafts. Knowledge gained in this cluster may lead to interest and subsequent job choice in the arts. (ED067474, ED089006)

OCCUPATIONS INCLUDED: Visual arts, occupation in writing, performing arts, architecture, religion and theology, language and linguisties, and history and museums.

GENERAL RESOURCES: ED073260, ED073329, ED089006

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED089006	7	NO	YES	YES	YES	YES	NO

CLUSTER: HEALTH

DESCRIPTION: This occupational cluster includes jobs that are concerned with the physical and mental well-being of all individuals today. Due to the rising population and greater emphasis on obtaining health protection and health care, there is a tremendous need for more health workers to provide optimum services and facilities to maintain a high level of health for our citizens. The two fields of medicine and careers allied to it are inseperable and are covered in this cluster. We are witnessing a mounting interest among students of all ages in career opportunities in the health field (ED067474)

OCCUPATIONS INCLUDED: Mental health and mental health services, medical and biological science services, dentistry and dental science services, general hospital and medical office occupations, medical emergency services, and administration of health services. Also contained are: personal and community health services, pharmaceutical science and services, professional medical supportive personnel and the medical professions.

GENERAL RESOURCES: ED073280

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED069865	SECONDARY	YES	YES	YES	YES	YES	NO
ED069867	SECONDARY	YES	NO	NO	NO	YES	NO
ED075665	SECONDARY	YES	YES	NO	NO	NO	NO
VT016225	SECONDARY	NO	YES	YES	YES	YES	YES
VT016227	7 - 12	NO	YES	YES	YES	YES	YES

CLUSTER: HOMEMAKING AND CONSUMER EDUCATION

DESCRIPTION: This occupational cluster contains the growing field of home economics and consumer education. It has spread from the traditional homemaking skills to include the teaching of consumer skills all of which is consistent with the idea of inproving the family. This new scope includes the family and its welfare in consumption practices. Consumer education educates families to be able to make the most of the resources at their command and to enhance individual family and social wellbeing in the process. (ED067474)

OCCUPATIONS INCLUDED: Research and product, testing food specialist, housing and household equipment specialist, textiles and clothing specialist, family economics and home management, family relations and child development, and extension services of colleges or the state.

GENERAL RESOURCES: VT016486, VT012782, ED059382

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED089004	7	NO	YES	YES	YES	YES	NO
VT016486	8,9,10	NO	YES TIME BLOCKS	YES GENERAL & SPECIFIC	YES	YES	NO
ED059382	SECONDARY	YES	YES	YES	YES	YES	YES
VT010027	POST & SEC	YES	YES	NO	NO	YES	NO
VT012782	SECONDARY	NO	YES	YES	YES	YES	YES
VT008337	POST SECONDARY						

CLUSTER: HOSPITALITY AND RECREATION

DESCRIPTION: This occupational cluster is concerned with leisure. Although leisure is a little understood and an often maligned phenomenon there is a great need for leisure occupations. This field encompasses occupations pursued by persons meeting the needs of persons engaged in leisure time pursuits. As man becomes more leisure oriented due to population growth, increased free time, greater urban concentrations, more discretionary income, greater mobility, better education, and improved health, this cluster grows in occupational opportunities. (ED079538)

OCCUPATIONS INCLUDED: Recreation services, recreation resources, tourism, and amusement and entertainment.

GENERAL RESOURCES: ED073284

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED079538	SECONDARY	YES	YES	NO	NO	NO	NO
ED089013		NO	YES	YES	YES	YES	NO

CLUSTER: MANUFACTURING

DESCRIPTION; Manufacturing is a complex occupational cluster. It is expected that by 1980, 20 million people will be employed in this field. A modern definition of manufacturing would be the process of making wares or products by hand or by machinery. It might be on a large scale, producing huge quantities, or on a small scale where only a few hundred items are produced. Everything that is manufactured is usually classified as durable or non-durable goods, and may be finished or semi-finished. These products may range in size from earth-moving equipment, to the micro parts of an electronic instrument. Many times items are assembled from a number of different parts made in widely seperated manufacturing plants. Jobs range from skilled to the professions with skill and physical exertion having no exact correlation.

OCCUPATIONS INCLUDED: Management, scientists, engineers, technicians, craftsmen, skilled workers, semi-skilled workers, and unskilled workers.

GENERAL RESOURCES: ED073283, ED073285, ED016844

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifies	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED066555	JUNIOR HIGH	NO	YES	YES	YES	YES	YES
ED059385	SECONDARY	NO	YES	YES	YES	YES	NO
VT003492	SECONDARY	NO	YES	YES	YES	YES	YES
VT008666	SECONDARY	YES	YES	NO	YES	NO	YES
VT009176	SECONDARY	YES	YES	YES	YES	YES	YES
VT011238	SECONDARY	YES	YES	NO (COURSE OBJECTIVES)	YES	YES	NO
ED016844	11,12	VT004162	YES	NO	YES	YES	YES
VT008341	POST SECONDARY	NO	YES	NO	YES	YES	YES
VT008342	POST & SEC	NO	YES	NO	YES	YES	YES
VT008354	POST & SEC	NO	YES	NO	YES	YES	YES
VT008356	POST & SEC	NO	YES	NO	YES	YES	YES
VT008358	POST & SEC	NO	YES	NO	YES	YES	YES
VT008359	POST & SEC	NO	YES	NO	YES	YES	YES
VT008361	POST & SEC	NO	YES	NO	YES	YES	YES
VT016269	POST OR SECONDARY	YES	NO	NO	NO	YES	NO

CLUSTER: MARINE SCIENCE

DESCRIPTION: The marine science cluster includes those occupations directly related to large bodies of water. These large bodies of water include rivers, lakes, gulfs, seas, and oceans. Most of these occupations in the United States are near the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, Puget Sound and major rivers such as the Mississippi and the Columbia. Education and training for these jobs range from minimal to extensive. (ED080662)

OCCUPATIONS INCLUDED: Harbor construction and maintence, ship construction, merchant marine activities, tugboating, longshoring, fishing and fish forming, petroleum and natural gas extraction, and research.

GENERAL RESOURCES: ED080662

Available Curricular Materials Include:

Document Number	Grades	Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED080662		OCCUPATIONAL INFORMATION				YES	

CLUSTER: MARKETING AND DISTRIBUTION

DESCRIPTION: The career field of marketing is the system that directs the flow of goods and services from producer to consumer. Marketing activities take place between each of the stages in our economy--at the production, manufacturing, wholesale, retail and consumer levels. Occupations are almost unlimited in a variety of exciting jobs. Some of the occupations require ingenuity and responsiveness to the changing demands of customers; others offer an outlet for artistic talent or writing ability. Management positions make use of the art of getting along with people and organizing activities; and other jobs involve the performance of physical tasks such as storing and transporting merchandise.

OCCUPATIONS INCLUDED: Management, research, purchasing, sales promotion and training, selling, physical distribution, and the related business services.

GENERAL RESOURCES: ED073277

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifies	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
VT009295	SECONDARY	YES	YES	YES	YES	YES	YES
VT016379	SECONDARY	NO	YES	YES	YES	YES	YES
VT016676	SECONDARY	NO	YES	YES(BEHAVOR)	YES	YES	YES
ED043731	POST SECONDARY	YES	YES	YES	YES	YES	NO

CLUSTER: PUBLIC SERVICES

DESCRIPTION: Public service occupations are those civilian occupations, excluding those requiring an apprenticeship, pursued by persons accomplishing the missions of local, county, state and federal government. These missions reflect the services desired or needed by individuals and groups...and are performed through arrangements or organizations established by society, normally on a non-profit basis and usually supported by tax revenues. (ED079552)

OCCUPATIONS INCLUDED: Government agency management; social and economic services; resources management; urban, rural and community development; public safety, corrections, and judicial services; regulatory services and records; and transportation management.

GENERAL RESOURCES: ED073279, ED073281

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED089009	8	YES	NO	NO	NO	YES	NO
ED079552	POST & SEC	YES	YES	YES	YES	YES	NO

CLUSTER: TRANSPORTATION

DESCRIPTION: The transportation cluster is defined as the conveyance of human beings, and objects which are part of the domestic economy, from one place to another. Contrary to popular belief, transportation not only includes the passage of people and goods but it should be noted that products carried in pipelines also involve transportation. Necessary for survival, transportation carries the blood of industry; raw materials, fuel, workers, and finished goods. In addition, millions of people use the network in traveling for business and pleasure. (ED067474)

OCCUPATIONS INCLUDED: Highway transport, rail transport, airborne transport, pipeline transport, and water transport.

GENERAL RESOURCES: ED073286

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
ED089012	8	NO	YES	YES	YES	YES	NO
VT015941	SECONDARY	NO	YES	YES(BEHAVIOR)	YES	YES	YES
VT000701	ADULT VOCATIONAL	NO	YES	YES	YES	YES	YES
VT008339	POST & SEC	NO	YES	NO	YES	YES	YES
VT008340	POST & SEC	NO	YES	NO	YES	YES	YES
VT008355	POST & SEC	NO	YES	NO	YES	YES	YES
VT008362	POST & SEC	NO	YES	NO	YES	YES	YES

CLUSTER: PERSONAL SERVICES

DESCRIPTION: The cluster of personal services occupations is generally concerned with personal improvements, the care of a person, his apparel or possessions, and his physical appearence. The necessity for extensive person-to-person contact on the performance of these service functions tends to limit the impact of technological innovations on employment requirements. Although the adoption of automatic equipment may moderate employment growth in some areas, technological change is not expected to influence greatly or limit the demands of this industry. (ED067474)

OCCUPATIONS INCLUDED: Domestic services; lodging and related services; barbering, cosmetology and related services; dry cleaning, laundry, and apparel services; stewards, attendents and miscellaneous services; domestic animal care; and food and beverage preparation services.

GENERAL RESOURCES: ED071282

Document Number	Grades	Available Curricular Materials Include: Curriculum Development Process Specifics	Sequence Recommended	Specific Objectives	Specific Learning Activities Recommended	Learning Resources	Student Evaluation
NONE							

Continuing Career Selection and Preparation and Going to Work (Postsecondary Education)

Still further individualization of instruction and additional specification of duties and responsibilities ordinarily occur with the occupational education cluster programs for career education in postsecondary education. Childers and Nichols (ED 076 756) speak in general of the post-secondary model of career education. They also give illustrative innovative programs. Grede (1970, ED 073 269) also speaks to the growing acceptance in postsecondary education of responsibility for occupational preparation. Hill and Nunney (1971, EJ 044 869) describe the individualization of the instructional process which has been instituted at the Oakland (Michigan) Community College.

Facilities for Occupational Clusters

Occupational clusters bring new demands for facilities. The Oregon Board of Education has issued a Career Cluster Facilities Guide (1973, ED 085 538) designed to help administrators, school boards, teachers, and architects plan for the housing of occupational education. A resource center, support facilities, and a job simulation laboratory are all recommended for such facilities.

The Educational Facilities Laboratory has also issued a guide for planning space and station requirements for career education facilities (1973, ED 081 064). Flexible-use and shared-space facilities are recommended with consideration being given to the requirements for the various occupational clusters.

Grede (1970, ED 073 269) speculates on the demands which career education makes on community college facilities.

Developing the Needed Breed of Professionals for the New Career Education Era

Career education has been developed as today's answer to yesterday's problems which holds high promise for adequately empowering schools and colleges to meet tomorrow's problems as well. This review has specifically focussed on the nation's current readiness to incorporate the fifteen USOE occupational clusters into the nation's evolving career education. This readiness first simplifies job complexity by grouping a multitude of jobs into occupational clusters and then using the occupational clusters to facilitate career awareness in elementary school, career orientation and exploration in middle school, and career selection and preparation in secondary and postsecondary education. But knwledge of career development is needed to make career education work. So is a vision of education as a continuing arrangement of means by which individuals challenge their environments to make them speak back to them honestly. Systems knowledge is required. Management by objectives becomes an acutely needed technique. The technique must be adopted by administrators, spread to teachers, and passed on to students. Managing life by individually derived and pursued objectives is the desired end product of self initiated, self directed, and self corrected career comprehension.

Swanson and Jervis (ED 076 759) treat the problem of professional development for career education in its generality. This publication also describes current and successful practices in professional development of career education personnel. Gorman and Clark (1975, ED 074 206) have edited and published the papers of a four day seminar on the preparation of teachers in career education.

Stitt and Nystrom (1973, EJ 087 435) outline a preservice teacher education program for enabling teachers to offer the grades 7-10 unit on occupational orientation and exploration based on the five occupational clusters used in Illinois.

Maley directed a project (ED 016 841) which developed a series of course

outlines for the occupational clusters of construction, metal forming and fabrication, and electro-mechanical installation and repair. The second phase of each of these curriculum construction projects attended specifically to the problem of developing teachers who would be capable of implementing the developed pilot cluster concept programs. Major divisions of the course developed for teachers included (1) organization and administration, (2) teaching competency development, and (3) instructional materials development. Each division consists of units containing purpose, time, topics, procedures and activities, and resources. The curriculum guides to be used for the 11th and 12th grads in teaching each of the clusters can be located as follows:

Construction cluster (ED 016 842)

Metal forming and fabrication cluster (ED 016 843)

Elector-mechanical installation and repair cluster (ED 016 844).

The USOE Challenge for Immediate Implementation

In the Federal Register of 2 January 1975, the U.S. Commissioner of Education, with the approval of the Secretary of Health, Education, and Welfare, announced that his office will give priority in Fiscal Year 1975 to funding exemplary projects in vocational education which emphasize the implementation of occupational clusters. Specifically, the Federal Register of that date included the following announcement:

"A. Priority of Awards. In the granting of awards from funds available for the program (in addition to consideration of the criteria in 45 CFR 103.25 and 45 CFR 100a.26), the Commissioner has authority to give priority to applications which rank high on the basis of such criteria and which propose projects that involve, in one operational setting at the senior high school level, all of the following features:

"1. A strong emphasis on guidance, counseling, placement, and continuing follow-up services.

"2. A coordinated demonstration of the cluster concept for occupational preparation, utilizing at least five different occupational cluster programs which have been developed through previous local, State, and/or Federal research and development efforts. (The selected cluster programs should range from those dealing with public service and human service occupations through those dealing with manufacturing and construction occupations. The selected cluster programs should be implemented and demonstrated in such a way as to include a high level of involvement of educational, business, industrial, labor and professional organizations and institutions both in the classroom and in the provision of work experience and/or cooperative education opportunities.)

"3. Articulation with occupational awareness and exploration programs in feeder schools at the elementary and junior high school levels and with occupational preparation programs at both the secondary and the post-secondary levels.

"In addition to the three program requirements stated above, applicants may choose to include strategies designed to familiarize secondary school students with the broad range of occupations for which special skills are required and the requisites for careers in such occupations." pp. 8-9.

The projects begun in 1975 under the above authorization will represent an investment of approximately $1.3 million a year for three years and will provide demonstration projects in six states and two territories, California, Massachusetts, Michigan, New Hampshire, New Jersey, and New York, and the Virgin Islands and the Trust Territory of the Pacific Islands. In addition, the State of Vermont was added by a later amendment with an additional 104 thousand dollars per year.

References

The following citations are from the general literature

Arizona State Department of Education. Career education matrix. Phoenix, Arizona: The Department, undated.

McLaughlin, Donald H.; and Tiedeman, David V. Eleven-year career stability and change as reflected in Project TALENT data through the Flanagan, Holland, and Roe Occupational Classification Systems. Journal of Vocational Behavior, 1974, 5, 177-196.

Roe, Anna, Psychology of Occupations. New York: Wiley, 1956.

U.S. Employment Service. Estimates of Worker Trait Requirements for 4,000 jobs. Washington, D.C.: U.S. Government Printing Office, undated.

The following citations listed in order of ED number for convenience in locating them have been announced in Resources in Education and unless otherwise indicated by some other availability notation may be secured by ordering from Education Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210.

ED 089 009 Public Service Occupations: Grade 8. Cluster I. By Oliver H. Calhoun.

ED 013 963 Dictionary of Occupational Titles, 1965. Volume I, Definitions of Titles.

ED 016 677 Ends and Means--The Literature Course in the Junior College. By Gwin J. Kolb.

ED 016 841 The Preparation of Curriculum Materials and the Development of Teachers for an Experimental Application of the Cluster Concept of Vocational Education at the Secondary School Level. Volume I, Final Report for Phase II of the Cluster Concept Project. By Donald Maley.

ED 016 842 The Preparation of Curriculum Materials and the Development of Teachers for an Experimental Application of the Cluster Concept of Vocational Education at the Secondary School Level. Volume II, Instructional Plans for the Construction Cluster. By Donald Maley.

ED 016 843 The Preparation of Curriculum Materials and the Development of Teachers for an Experimental Application of the Cluster Concept of Vocational Education at the Secondary School Level. Volume III, Instructional Plans for the Metal Forming and Fabrication Cluster. By Donald Maley.

ED 016 844 The Preparation of Curriculum Materials and the Development of Teachers for an Experimental Application of the Cluster Concept of Vocational Education at the Secondary School Level. Volume IV, Instructional Plans for the Electro-Mechanical Cluster. By Donald Maley.

ED 039 365 Information Communication Occupations. A Suggested Curriculum Guide.

ED 043 731 Curriculum Guide for Marketing.

ED 044 082 The Academic Performance of Students Who Transfer After Two Years. By Murray Melnick and others.

ED 044 782 Man, Education and Manpower. By Grant Venn

ED 048 480 Career Education Now. By Sidney P. Marland Jr.

ED 053 395 Project TALENT: Five Years After High School and Appendix II. Final Report. By John C. Flanagan and others.

ED 059 382 Curriculum Guide for Food Service Occupations.

ED 059 383 Curriculum Guide for Agriculture.

ED 059 385 Curriculum Guide for Metals.

ED 059 390 Improving a Rural Area School Program with Expanded Vocational Education Services by Utilizing Comprehensive Career Orientation and Exemplary Activities. Interim Report. Volume III, Elementary School Project for Levels One-Six and Middle School Project for Levels Seven and Eight. By Herbert B. Holstein.

ED 060 197 Curriculum Guide for Clerical Occupations.

ED 065 722 A Career Development Guide for West Virginia Teachers. By Duane Brown and others.

ED 066 555 American Industry. Instructor's Guide. Level I, Parts 1 and 2.

ED 067 474 An Analysis of Fifteen Occupational Clusters Identified by the U.S. Office of Education.

ED 069 865 Introduction to Allied Health Careers. Teacher's Manual. Secondary School Pilot and Demonstration Project. By Doris Rosenthal and Phyllis Agran.

ED 069 867 A Comprehensive Careers Cluster Curriculum Model, Health Occupations Cluster Curriculum Project and Health-Care Aide Curriculum Project. By Richard F. Bortz.

ED 069 922 Working Papers on Career Education.

ED 072 308 Investigating Career Opportunities. Curriculum Guide.

ED 073 252 A Descriptive Overview of the Cluster-Based Occupational Curriculum Development Model (C-BOCDM). By Allen L. Phelps.

ED 073 260 Arts and Humanities: Occupational Cluster Series. Abstracts of Instructional and Research Materials. David H. Miller and Allen B. Moore, Compilers.

ED 073 261 Natural Resources: Occupational Cluster Series--2. By David H. Miller and Allen B. Moore, Compilers.

ED 073 262 Construction (Construction Process): Occupational Cluster Series. Abstracts of Instructional and Research Materials. David H. Miller and Allen B. Moore, Compilers.

ED 073 269 Concepts and Comments: Occupational Education and Community College Facilities. By John F. Grede.

ED 073 276 Communication: Occupational Cluster Series-5. David H. Miller and Allen B. Moore, Compilers.

ED 073 277 Trade (Marketing): Occupational Cluster Series-6. David H. Miller and Allen B. Moore, Compilers.

ED 073 278 Finance (Banking): Occupational Cluster Series-7. David H. Miller and Allen B. Moore, Compilers.

ED 073 279 Education: Occupational Cluster Series-8. David H. Miller and Allen B. Moore, Compilers.

ED 073 280 Health: Occupational Cluster Series-9. David H. Miller and Allen B. Moore, Compilers.

ED 073 281 Welfare: Occupational Cluster Series-10. David H. Miller and Allen B. Moore, Compilers.

ED 073 282 Personal (Human) Services: Occupational Cluster Series-11. David H. Miller and Allen B. Moore, Compilers.

ED 073 283 Product Services: Occupational Cluster Series-12. David H. Miller and Allen B. Moore, Compilers.

ED 073 284 Recreation and Entertainment: Occupational Cluster Series-13. David H. Miller and Allen B. Moore, Compilers.

ED 073 285 Manufacturing: Occupational Cluster Series-14. David H. Miller and Allen B. Moore, Compilers.

ED 073 286 Transportation: Occupational Cluster Series-15. David H. Miller and Allen B. Moore, Compilers.

ED 073 329 Meeting Our Enemies: Career Education and the Humanities. By S. P. Marland Jr.

ED 074 206 Implications of Career Education for Teachers' Preparation. Anna M. Gorman and Joseph E. Clark, Editors.

ED 075 572 Determining Occupational Emphasis for High School Program Design. Final Report. By Joseph P. Arnold and Edward T. Ferguson Jr.

ED 075 574 Product Evaluation at the Career Development Center. 1971-72 Final Report. By Thomas G. Krueck and William T. Denton.

ED 075 612 A Suggested Resource Unit for Levels Seven and Eight Using the Occupational Clusters in Career Orientation. Volume II of Volume I.

ED 075 665 Evaluative Report on Phase II of the Secondary Schools Project for an Introduction to the Allied Health Professions.

ED 076 752 A Manual for the Implementation of Career Education Programs. Mollie W. Shook and Robert L. Morgan

ED 076 753 Elementary School Curriculum Guide. By Robert W. Schreiber and Mabell Black.

ED 076 754 Middle School Curriculum Guide. By R. T. Scherer and Joseph R. Clary.

ED 076 755 High School Curriculum Guide. By Kenneth B. Hoyt and G. C. Wollard.

ED 076 756 Post-secondary Career Education. By B. E. Childers and Charles Nichols.

ED 076 757 Career Guidance. By Cliff E. Helling and Eldon Ruff.

ED 076 758 Placement and Follow-Up in Career Education. By Lillian Buckingham and Arthur M. Lee.

ED 076 759 Professional Development. By Gordon I. Swanson and Robert Jervis.

ED 076 760 Involving the Community in Career Education. By Robert M. Isenberg and Joel Smith.

ED 076 927 Case Studies in Practical Career Guidance, Number 1: Baltimore Placement and Follow-up Program, Baltimore City Public Schools, Baltimore, Maryland. By Laurie H. Ganschow.

ED 076 928 Case Studies in Practical Career Guidance, Number 2: Career Development Center Troy High School, Fullerton, California. By Carol Ann Arutunian.

ED 078 163 Project CAREER Process as It Relates Particularly to Project CAREER/Handicapped.

ED 078 180 Career Education at the Junior High Educational Level--A Time for Career Exploration Plus. By Robert A. Ristau.

ED 078 332 Case Studies in Practical Career Guidance, Number 3: Career and Educational Planning Program Pioneer Senior High School, San Jose, California. By Carol Ann Arutunian.

ED 078 333 Case Studies in Practical Career Guidance, Number 4: Career Guidance Program Hood River Valley High School, Hood River, Oregon. By Thelma J. Scott.

ED 078 334 Case Studies in Practical Career Guidance, Number 5: Computerized Vocational Information System Willowbrook High School, Villa Park, Illinois. By Carol Ann Arutunian.

ED 078 335 Case Studies in Practical Career Guidance, Number 6: Coordinated Vocational and Academic Education North Gwinnet High School, Suwanee, Georgia. By Charles W. Dayton.

ED 078 336 Case Studies in Practical Career Guidance, Number 7: Developmental Career Guidance Project Detroit Public Schools, Detroit, Michigan. By Thelma J. Scott.

ED 078 337 Case Studies in Practical Career Guidance, Number 8: Employability Development Team Cleveland Public Schools, Cleveland, Ohio. By Carolyn Helliwell.

ED 078 338 Case Studies in Practical Career Guidance, Number 9: Job Development Program Cleveland Public Schools, Cleveland, Ohio. By Thelma J. Scott.

ED 078 339 Case Studies in Practical Career Guidance, Number 10: Kimberly. Guidance Program Kimberly High School, Kimberly, Idaho. By Carolyn Helliwell.

ED 078 340 Case Studies in Practical Career Guidance, Number 11: Lenawee (Placement) Vocational-Technical Center and Placement Program, Adrian, Michigan. By Charles W. Dayton.

ED 078 341 Case Studies in Practical Career Guidance, Number 12: Occupational Learning Center Syracuse City School District, Syracuse, New York. By Jurgen M. Wolff.

ED 079 470 Career Cluster Concepts. By Nevin R. Frantz.

ED 079 481 Career Education: Agribusiness and Natural Resources Occupations Cluster. By Jasper S. Lee.

ED 079 506 Career Education: Alive and Well. By John R. Ottina.

ED 079 538 Career Education for Leisure Occupations: Curriculum Guidelines for Recreation, Hospitality, and Tourism. By Peter J. Verhoven and Dennis A. Vinton.

ED 079 539 Establishing Guidelines for Career Education K-12: A Summer Project, 1972. By Sandra Genovese and others.

ED 079 552 Orientation to Public Service Occupations: Career Education Curriculum Guide.

ED 080 662 Career Education: The Marine Science Occupations Cluster. By Maxwell Farning.

ED 080 682 Project VIGOR: Vocational Cluster Education, Integrated and Articulated Grades 1 through 14 with Guidance Services, Occupational Exploration and Work Experiences Relevant to General Education, Final Report. By Omer McCaleb.

ED 080 763 Career Education: A Curriculum Design and Instructional Objectives Catalog. By James A. Dunn and others.

ED 080 919 Practical Career Guidance Counseling, and Placement for the Noncollege-Bound Student: A Review of the Literature. By Laurie H. Granschow and others.

ED 081 064 Career Education Facilities: A Planning Guide for Space and Station Requirements. A Report. By Alan P. Woodruff.

ED 082 073 Planning, Structuring, and Evaluating Practical Career Guidance for Integration by Noncollege-Bound Youths. Final Report. By Brian G. Jones and others.

ED 082 078 Case Studies in Practical Career Guidance, Number 13: Youth Career Action Program, San Jose Unified School District, San Jose, California. By Laurie I. Hopkins.

ED 083 401 Career Development Plan, 1973: Overview.

ED 083 457 A Functional Classification of Occupations. By Donald Bruce McKinlay.

ED 084 377 Development of a Pilot Career Cluster Curriculum for all Students in a College Preparatory Oriented High School. Final Report. Part I: Curriculum Development.

ED 085 486 Employment Opportunities and Job Analysis for Selected Environmental Occupations. By Thomas R. Stitt.

ED 085 491 Development and Validation of the Occupational Analysis Inventory: An "Ergometric" Approach to an Educational Problem. By J. W. Cunningham.

ED 085 493 Affective Correlates of Systematically Derived Work Dimensions: Validation of the Occupational Analysis Inventory. Ergometric Research and Development Series Report No. 7. Center Research Monograph No. 10. By Thomas C. Tuttle and J. W. Cunningham.

ED 085 504 Career Information Handbook.

ED 086 511 An Annotated Bibliography for Environmental Educators. By Thomas R Shiit

ED 085 538 Career Cluster Facilities Guide.

ED 085 557 Delaware's Occupational-Vocational Education Model: Career Development Learning Units: Midle School.

ED 085 569 The Career Data Book: Results from Project TALENT's Five-Year Follow-Up Study. By John C. Flanagan and others.

ED 086 828 Bibliography on Career Education.

ED 086 863 Keep Careers in Mind: Middle School Career Education.

ED 086 905 Maryland Career Development Project (K-Adult). Career Exploration Model. Grades 7-9.

ED 087 909 Canadian Occupational Groups. By Stuart D. Conger.

ED 089 004 Consumer and Homemaking: Grade 7. Cluster I. By Olivia H. Calhoun.

ED 089 005 Communications and Media: Grade 7. Cluster II. By Olivia H. Calhoun.

ED 089 006 Fine Arts and Humanities: Grade 7. Cluster III. By Olivia H. Calhoun.

ED 089 009 Public Service Occupations; Grade 8. Cluster I. By Olivia H. Calhoun.

ED 089 012 Transportation: Grade 8. Cluster IV. By Olivia H. Calhoun.

ED 089 013 Hospitality, Recreation, and Personal Service Occupations: Grade 8. Cluster V. By Olivia H. Calhoun.

ED 090 467 Job Clusters as Perceived by High School Students. By Pathe S. Vivekanathan and Larry J. Weber.

The following citations listed in order of EJ number for convenience in locating them have been announced in Current Index to Journals in Education: (Articles identified can be read in the journal in which they were originally published).

EJ 004 791 Holland, John. "An Empirical Occupational Classification Derived from a Theory of Personality and Intended for Practice and Research." ACT Research Reports. April 1969.

EJ 006 193 Keller, John E. "Program Budgeting and Cost Benefit Analysis." College and Research Libraries, 30 (March 1969), 156-60.

EJ 012 587 Barnell, Dale. "The Oregon Way; A State Plan for Applying Relevancy to Education." American Vocational Journal 44(December 1969). 14-17.

EJ 019 762 Wolansky, William D. "Oregon Musters A Statewide Commitment to Clusters." School Shop 29 (May 1970), 33-35.

EJ 027 961 Wolansky, William. "Structing an Interdisciplinary Approach to Strengthening Occupational Education." School Shop 30 (November 1970), 35-37.

EJ 037 612 Eaddy, Vanick S. "Modifying Vocational Education Programs." Agricultural Education Magazine 44(July 71): 18-19.

EJ 044 869 Hill, Joseph E.; Nunney, Derek N. "Career Mobility Through Personalized Occupational Education." American Vocational Journal 46(Oct. 71): 36-39.

EJ 066 193 Dull, Lloyd W. "The Cluster Concept in Career Education" Educational Leadership v30 n3 pp215-21, Dec 72

EJ 073 821 Stamps, B. J. "Dallas Skyline Center from Conception to Reality." NASSP Bulletin 57 (Mar 73): 82-8.

EJ 076 084 Ressler, Ralph. "Prescription for K-6." School Shop 32(April 73): 73-75.

EJ 076 091 Alexander, William F. "Careers by Cluster." NJEA Review 46(Dec.72): 22-3.

EJ 080 258 Seymour, George E., and others. "Clustering 34 Occupational Groups by Personality Dimensions." Educational and Psychological Measurement 33(Summer 73): 267-84.

EJ 083 465 Marchak, John P. "Career Education: What's Happening Across the Nation?" Social Education 37 (Oct. 73): 488-499.

EJ 086 511 Etzioni, Amitai. "Educational Institutions as a 'Guidable' System." Library Quarterly 43(Oct. 73): 339-356.

EJ 087 435 Stitt, Thomas R.; Nystrom, Dennis C. "A Proposed Occupational Orientation and Exploration Teacher Education Program." Journal of the American Association of Teachers Educators in Agriculture 14 (Nov. 73): 17-23.

EJ 093 859 Conroy, William G., Jr. "Statement of Introduction." Journal of Research and Development in Education 7(Winter 74): 3-7.

EJ 093 868 Buzzell, Charles H. and others. "An Assessment of Misoe." Journal of Research and Development in Education 7(Winter 74): 145-60.

The following citations listed in order of VT number for convenience in locating them have been announced in Abstracts of Instructional and Research Materials in Vocational-Technical Education: (The ED number by which each VT document can be located in an ERIC set as announced in Resources in Education is also noted at the end of each of the VT citations.)

VT 000 701 Basic Hydraulics, Learner's Manual. By Walter J. Sparrock and Robert S. Smilges. ED 032 434.

VT 001 392 Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School. First Quarterly Technical Report. By Edward J. Morrison. ED 024 749.

VT 003 388 Radio and Television Servicing, A Course of Study Designed for Cooperative Part-Time Students Employed in Radio and Television Servicing. By B. H. Campbell and Vincent Oxley. ED 020 442.

VT 003 492 A Basic Plan for the Organization and Management of Instruction in Vocational Metal Trades. ED 020 442.

VT 003 804 Guidelines for Preparatory Programs, Trade and Industrial Services. ED 031 587.

VT 005 265 Forestry, Conservation and Outdoor Recreation. Guidelines for Developing Programs in Vocational Agricultural Education in Vermont. By Carry R. Bice and George M. Dunsmore. ED 030 770.

VT 007 991 The development, implementation and field evaluation of the cluster concept program in vocational education at the secondary school level. By Walter S. Mietus. ED 039 370.

VT 008 124 Bibliography No. 13, Job Cluster Concept and Addenda 1-7. ED 045 860.

VT 008 337 Technical Cluster IV. Technical Services. Volume A: Building Maintenance and Sanitation Services. ED 045 856.

VT 008 338 Technical Cluster IV. Technical Services. Volume B: Landscape Services. ED 045 856.

VT 008 339 Technical Cluster IV. Technical Services. Volume C: Automotive Services I. ED 045 856.

VT 008 340 Technical Cluster IV. Technical Services. Volume D: Automotive Services II. ED 045 856.

VT 008 341 Technical Cluster IV. Technical Services. Volume E: Air Conditioning and Refrigeration Services I. ED 045 856.

VT 008 342 Technical Cluster IV. Technical Services. Volume F: Air Conditioning and Refrigeration Services II. ED 045 855.

VT 008 343 Technical Cluster III. Electronics Technology. Volume A: D.C. Electrical Applications. ED 045 856.

VT 008 344 Technical Cluster III. Electronics Technology. Volume B: A.C. Electrical Applications. ED 045 856.

VT 008 345 Technical Cluster III. Electronics Technology. Volume C: Basic Electronics and Communications. ED 045 856.

VT 008 346 Technical Cluster III. Electronics Technology. Volume D: Special Communication Circuits. ED 045 856.

VT 008 347 Technical Cluster III. Electronics Technology. Volume E: Semi-Conductors. ED 045 856.

VT 008 348 Technical Cluster III. Electronics Industry. Volume F: Television. ED 045 856.

VT 008 349 Technical Cluster II. Graphic Arts. Volume A: Orientation to Graphic Arts. ED 045 856.

VT 008 350 Technical Cluster II. Graphic Arts. Volume B: Screen Processes, Intaglio, Papermaking. ED 045 856.

VT 008 351 Technical Cluster II. Graphic Arts. Volume C: Relief Printing. ED 045 856.

VT 008 352 Technical Cluster II. Graphic Arts. Volume D: Bookbinding, Packaging and Finishing. ED 045 856.

VT 008 353 Technical Cluster II. Graphic Arts. Volume E: Offset Lithography and Photography I. ED 045 856.

VT 008 354 Technical Cluster I. Aerospace Technology. Volume A: Orientation to the Aerospace Industry. ED 045 856.

VT 008 355 Technical Cluster I. Aerospace Technology. Volume B: Power Technology. ED 045 856.

VT 008 356 Technical Cluster I. Aerospace Technology. Volume C: Wood and Plastics Technology. ED 045 856.

VT 008 357 Technical Cluster I. Aerospace Technology. Volume D: Electronics in Aerospace. ED 045 856.

VT 008 358 Technical Cluster I. Aerospace Technology. Volume E: Metal Technology I. ED 045 856.

VT 008 359 Technical Cluster I. Aerospace Technology. Volume F: Metal Technology II. ED 045 856.

VT 008 360 Technical Cluster I. Aerospace Technology. Volume G: Graphic Arts in Aerospace. ED 045 856.

VT 008 361 Technical Cluster I. Aerospace Technology. Volume F: Metal Technology II. ED 045 856.

VT 008 362 Technical Cluster I. Aerospace Technology. Volume I: Hydraulics, Pneumatics and Power Devices. ED 045 856.

VT 008 666 Diversified Metals Occupations. Final Report. ED 039 370.

VT 009 176 Coordinated Vocational-Academic Education Metal Trades Program. (Basic Metalworking, Welding, Sheet Metal Fabricating, Ornamental Iron Working.)

VT 009 235 Occupational Services Academic Curriculum. Mathematics Resource Book, Grade 10. ED 037 585.

VT 009 238 Occupational Services Academic Curriculum. English, Social Studies, Mathematics, Science, Grade 10. ED 037 585.

VT 009 240 Occupational Services Academic Curriculum. English Resource Book, Grade 9. ED 037 585.

VT 009 242 Occupational Services Academic Curriculum. Mathematics Resource Book, Grade 9. ED 037 585.

VT 009 249 Occupational Services Academic Curriculum. English, Social Studies, Mathematics, Science, Grade 9. ED 037 585.

VT 009 295 Distributive Education in Merchandise Handling Occupations: A Program of Instruction.

VT 009 360 Four Years of Research, Development and Training: A Bibliography. DOVER Projects completed between July 1, 1964 and June 30, 1968. ED 039 370.

VT 010 027 Management Services. A Training Guide for Out-of-School Youths and Adults. Home Economics Occupational Education. ED 041 177.

VT 011 238 Metals, Curriculum Guide. ED 052 390.

VT 012 582 Curriculum Guide for Constructing Courses in Vocational Agriculture for Florida Schools. ED 053 339.

VT 012 782 Training Program for Food Service Occupations. By Anne C. Hayes. ED 053 339.

VT 015 196 System-wide Career Development Program (Secondary School Section). Introduction of Career Development in 10th Grade English Course. By Carol Irish and others. ED 067 490.

VT 015 204 Coordinators' Guide for Programs for Educational and Career Exploration (I.E.C.E.). ED 067 490.

VT 015 433 Career Orientation 7-8. ED 067 490.

VT 015 450 Steno-Secretarial Curriculum Guide. ED 069 919.

VT 015 610 Career Education for Gilbert Middle School Students., Eighth Grade Teacher's Guide. By Susan Broadbent and others. ED 069 919.

VT 015 705 A Workshop Report on a Program for General Clerical Occupations Curriculum Guide (A Trial Report). ED 069 919.

VT 015 788 Investigating Career Opportunities for the Future. Curriculum Guide (tentative). ED 067 490.

VT 015 941 Vocational Education Program of Studies. Transportation Cluster, Volume I-VII. ED 067 490.

VT 015 959 Secretarial Cluster Program. By Genevieve Piiuso. ED 067 490.

VT 016 013 Technicians and Specialists for Environmental Control. By Walter Biorking. ED 070 816.

VT 016 201 Tentative Basic Course Outline for Occupational Investigation in Career Education. ED 067 490.

VT 016 225 Health Occupations--An Exploratory Course. ED 069 919.

VT 016 227 Health Occupations Exploratory Module. An Introduction to Gainful Employment in Health Occupations for Junior High and High School Students. ED 069 919.

VT 016 269 Content Universe Structure of Polymer Technology with Implications for Industrial Arts. Staff Development Report. By Donald Peck. ED 070 816.

VT 016 273 Office-Clerical Cluster Program. By Duane E. Hartman. ED 069 919.

VT 016 379 Distributive Education. Authorized Course of Instruction for the Quinmester Program. ED 069 919.

VT 016 486 Home Economics Education Course of Study for Occupationally Oriented Classes. Grade 8, 9, and 10. ED 069 919.

VT 016 529 A Guide for Planning Career Education in Oregon's Secondary Schools. ED 069 919.

VT 016 676 Marketing Cluster Program. By Stuart L. Boos and Robin M. Bergstrom. ED 075 668.

VT 020 507 Construction Cluster Volume I. Wood Structural Framing. Vocational Education Program of Studies. ED 083 481.

VT 020 508 Construction Cluster Volume II. Masonry Work. Vocational Education Program of Studies. ED 083 481.

VT 020 509 Construction Cluster Volume III. Plumbing. Vocational Education Program of Studies. ED 083 481.

VT 020 510 Construction Cluster Volume IV. Concrete Work. Vocational Education Program of Studies. ED 083 481.

VT 020 511 Construction Cluster Volume V. Electrical. Vocational Education Program of Studies. ED 083 481.

VT 020 512 Construction Cluster Volume VI. Air Conditioning and Refrigeration. Vocational Education Program of Studies. ED 083 481.

VT 020 513 Construction Cluster Volume VII. Heating and Ventilation. Vocational Education Program of Studies. ED 083 481.

The following citations listed in order of CE number for convenience in locating them will be announced in Resources in Education in the near future and may be ordered from the source indicated in each case:

CE 003 539 Proceedings of the National Advisory Panel. Career Education: Volume I. 74.

CE 003 540 Begle, Elsie P.; And Others. Career Choice and Development: An Annotated Bibliography for Career Education. Career Education: Volume III. Sep74.

CE 003 541 Hall, Douglas C.; and Others. Instructional Systems Options and Guidlelines for the Dissemination and Implementation of Career Education. Career Education; Volume IV. Sep74.

CE 003 542 Dunn, James A.; And Others. Evaluation Studies of the AIR Career Education Curriculum and Curriculum Products. Career Education: Volume V. Jul74.

CE 003 543 Plumley, Deborah L.; Dunn, James A. Teacher's Guide to Career Education: Primary Grades. Career Education: Volume VI. Sep74.

CE 003 544 Plumley, Deborah L.; Dunn, James A. Teacher's Guide to Career Education: Upper Elementary Grades. Career Education: Volume VII. Sep74.

CE 003 545 Plumley, Deborah L.; Dunn, James A. Teacher's Guide to Career Education: Middle School Grades. Career Education: Volume VIII. Sep74.

CE 003 546 Dunn, James A.; Steel, Lauri. Resource Book of Sample Lesson Units for Career Education. Career Education: Volume IX. Sep74.

CE 003 547 Egan, Jay; and Others. Resource Book of Low Cost Materials for Career Education. Career Education: Volume X. Sep74.

CE 003 640 Choice: Career Handbook of Occupational Information by Clusters for Educators. c74.

APPENDIX A

STATUS OF OCCUPATIONAL CLUSTER CURRICULUM DEVELOPMENT

U. S. Office of Education
Bureau of Occupational and Adult Education
Division of Research and Demonstration

January 3, 1975

Excerpt from a paper prepared by Joyce Cook for use by potential applicants under the Federally-Administered Part D Program, Exemplary Programs and Projects in Vocational Education, Fiscal Year 1975.

Status of Cluster Curriculum Development

U. S. Office of Education

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AGRIBUSINESS AND NATURAL RESOURCES

Curriculum Effort: Curriculum Guides in Agribusiness

Date Available: July 1, 1976

Contractor: Dr. Max McGhee, Project Director
Ohio State University
2120 Fyffe Road
Columbus, Ohio 43210
(614) 422-6321

U.S.O.E. Project Monitor: H. Neville Hunsicker

Availability to local districts: Some costs for reproduction have been built into the project. When complete, copies will be made available to each State Department of Education. In addition they will be offered by the Government Printing Office for duplication and sale. A copyright is not anticipated.

Status of Field Test: Currently being field tested under the direction of Dr. J. Robert Warmbrod and Dr. Max McGhee of Ohio State University.

Products available and/or Anticipated: Ten curriculum guides have been developed to cover grades K-6, 7-9, and 10-12. They are designed to facilitate the processes of career awareness, orientation, exploration, and preparation at the appropriate grade levels.

Curriculum guides to be available from this project will include:

Career Awareness in Agribusiness, Natural Resources and Environmental Protection: A Curriculum Guide for Grades K-6.

Career Exploration in Agribusiness, Natural Resources and Environmental Protection: A Curriculum Guide for Grades 7-9.

Career Preparation in Agricultural Production: A Curriculum Guide for High School Vocational Agriculture..

Career Preparation in Agricultural Supplies and Services: A Curriculum Guide for High School Vocational Agriculture.

Career Preparation in Agricultural Equipment and Mechanics: A Curriculum Guide for High School Vocational Agriculture.

Career Preparation in Ornamental Horticulture: A Curriculum Guide for High School Vocational Agriculture.

Career Preparation in Agricultural Resources: A Curriculum Guide for High School Vocational Agriculture.

Career Preparation in Forestry: A Curriculum Guide for High School Vocational Agriculture.

Career Preparation in Environmental Protection: A Curriculum Guide for High School Vocational Agriculture.

Career Preparation in Agricultural Products (Food Processing): A Curriculum Guide for High School Vocational Agriculture.

Curriculum Effort: Career Education in Natural Resources

Date Available: Currently Available

Contractor: The Pennsylvania State University

U.S.O.E. Project Monitor: H. Neville Hunsicker

Availability to local districts: May be secured from State Department of Education or purchased from the Government Printing Office at approximately $1.25 per copy.

Products available and/or Anticipated: The project involved the development of curriculum guides, plans for teaching facilities, references and related instructional materials in natural resources K-14. One guide was prepared for the post high school level.

The following guides are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Title	GPO Stock No.	Price
Natural Resources & Career Awareness	1780-01256	$1.50
Exploring Occupations in the Natural Resources	1780-01257	1.40
Occupational Preparation in The Natural Resources	1780-01258	1.15
Natural Resources Technologies	1780-01259	1.40

BUSINESS AND OFFICE OCCUPATIONS

Curriculum Effort: Career Education Curriculum Development in Business and Office Occupations

Date Available: June 30, 1975

Contractor: Dr. Harry Huffman, Project Director
Colorado State University
Department of Vocational Education
Fort Collins, Colorado
(303) 491-5267

U.S.O.E. Project Monitor: James Wykle

Availability to local districts: Contractor is willing to add additional test sites in any school districts wishing to sponsor teachers using the materials.

Status of Field Test: Materials produced by the BO-CEC project will be field tested in six cities (4 states) throughout the United States. Additional test sites will be established in any school district wishing to sponsor teachers using these career education materials.

Workshops will be held for junior high school teachers of English, Mathematics, and Social studies to acquaint them with the business and office curriculum materials and the comprehensive plan for evaluation.

Availability of Research design and instruments for evaluation: Information not yet available

Appropriateness for a Demonstration Project: Should be quite appropriate

Products available and/or Anticipated:

1. A curriculum guide that incorporates business and office career concepts into classroom activities for use by any elementary school teacher at the career awareness level.

2. The major product of the BO-CEC project is to develop career education curriculum guides for junior high teachers of English, mathematics, science, and social science. These guides contain teaching materials which allow students to explore business careers in all occupational clusters and at the same time apply the knowledge they acquire in the core subject areas to simulated career situations.

3. The project's objective at the 10-14 level is to develop a bibliography of instructional materials that will articulate with the technical and skilled levels, grades 10-14.

Curriculum Effort:	Small Business Ownership (10-12)
Date Available:	June 30, 1976
Contractor:	Mrs. Judith Springer Project Director The Athena Corporation Suite 445 7735 Old Georgetown Road Bethesda, Maryland 20014 (301) 652-7020
U.S.O.E. Project Monitor:	James Wykle
Availability to Local Districts:	Contract terminates June 30, 1976 at which time a limited number of copies will be delivered to the Office of Education. At this time, no plans have been established for broader publication and dissemination. Will be placed in ERIC, however.
Status of Field Test:	Developmental field testing now occurring; that is, testing units or parts as the materials are being developed. More formal testing will take place in the fall of 1975 in at least three sites. Student achievement of objectives will be tested as well as installation mechanisms.
Availability of Research Design and Instruments For Evaluation:	Not available at this time. When completed and implemented, contractor would be in a position to share information.
Appropriateness for a Demonstration Project:	Does not contemplate limited copyright at this time. Would like to see material used in demonstration projects, especially as components of any or all cluster treatments.
Products Available and/or Anticipated:	A curriculum guide for Small Business and Management appropriate for grades 10-12. The project also will produce a simulation game to accompany the guide.

Curriculum Effort:	Development of a Pilot Model Curriculum for Computer Science
Date Available:	Complete and available
Contractor:	Philip R. Swartz Project Director Central Texas College Kileen, Texas 76541
U.S.O.E. Project Monitor:	James Wykle
Availability to Local Districts:	Available from each State Department of Education
Appropriateness for a Demonstration Project:	Should be appropriate, if it is desired at local level.
Products Available and/or Anticipated:	This project assesses the present and future requirements for personnel in computer science at the secondary and postsecondary levels. The project identified the characteristics of the jobs in computer science technology and correlated those with recognized job standards. Also, certain other requirements were identified, such as: instructional and laboratory facilities; teacher qualifications; library requirements; instructional materials; and minimum standards in these areas for using the core sequential curriculum. Two documents were developed by this project: Computers and Careers: A Suggested Curriculum for Grades 9-12, and Data Processing Technology A Suggested 2-Year Post High School Curriculum.

COMMUNICATIONS AND MEDIA OCCUPATIONS

Curriculum Effort:	Job Cluster Curricula for Communications Media Occupations at the High School Level
Date Available:	September 30, 1975
Contractor:	Mr. Lee Foust 102 Batcheller Hall Oregon State University Corvallis, Oregon 97331 (503) 754-1161
U.S.O.E. Project Monitor:	Otto Legg
Availability to Local Districts:	Will be available after September 30, 1975, from the Government Printing Office.
Status of Field Test:	Field Tests are now in progress in Utah, California, and Oregon
Availability of Research Design and Instruments for Evaluation:	Different evaluation procedures have been an integral part of this project from the start--evaluation procedures on the use of the materials and procedures at test sites is under development.
Appropriateness for a Demonstration Project:	Probably highly appropriate.
Products Available and/or Anticipated:	1. The CMO Field Test Information System(FTIS) and the associated Career Program Planning System(CPPS). 2. Career education materials from other projects are being included in this project--Career Education...A New Emphasis for Utah Schools--; Guide for Implementation of Career Education in a Local Education Agency; AAPS: Local Attendance Area Planning for Career Education and the Users Guide; and adaptation of Graphics Communication Curriculum initially developed by Printing Industries of the Carolinas Association (PICA) and Clemson University. 3. The project has developed a procedure for reclustering Communication and Media Occupational Families.

CONSUMER AND HOMEMAKING OCCUPATIONS

Curriculum Effort:	Curriculum Modules for Child Care/Development Occupations
Date Available:	Currently Available
Contractor:	Mrs. Irene Rose Project Director Atlanta Public Schools 892 Vedado Way, NE. Atlanta, Georgia 30308
U.S.O.E. Project Monitor:	Bertha King
Availability to Local Districts:	Available in 1975 through the Government Printing Office
Status of Field Test:	The testing of curriculum modules involved 2,142 students and 111 teachers at 67 schools in 13 different States.
Appropriateness for a Demonstration Project:	Probably highly appropriate.
Products Available and/or Anticipated:	This grant was awarded to prepare a continuum of curriculum modules for use in training persons entering employment or already employed in occupations related to child care and to child growth and development. The modules are competency based and designed for non-sequential use; that is, they are designed as separate, self-contained units which may be used singly or in combinations. Pre- and post-assessment strategies are a part of each module, allowing students to begin at their level of competency and progress at their own rate. Most modules contain components for two levels of employment. The first level addresses the entry level worker, whereas the second level addresses the more advanced worker. As a result of this project, 25 teaching modules have been developed. In addition, a module for administrators has been developed, containing a rationale and guidelines for 13 different components of a program for child care/development occupations. The modules are being published through the Government Printing Office and will be available in 1975 for mass dissemination to the States and local education agencies.

Curriculum Effort: Fashion Industry Series

Date Available: Currently Available from the Government Printing Office

Contractor:
Mrs. Jeannette Jarnow
Project Director
Fashion Institute of Technology
227 West 27th Street
New York, New York 10001
(212) LA-4-1300

U.S.O.E. Project Monitor: Bertha King

Availability to Local Districts: Presently available from the Government Printing Office. Examination copies are available in State Vocational Education Offices.

Status of Field Test: Presently being used at Fashion Institute of Technology, New York City.

Appropriateness for a Demonstration Project: The Contractor hopes that the series could be implemented as a "cluster" in some demonstration projects.

Products Available and/or Anticipated: Government Printing Office

	Price	Stock No.
Series No. 1 - Career Exploration in the Fashion Industry	1.15	1780-01263
Series No. 2 - Apparel Design & Production	1.40	1780-01178
Series No. 3 - Textile Design	1.60	1780-01262
Series No. 4 - Fashion Merchandising	1.50	1780-01260
Series No. 5 - Dry Cleaning & Laundering	1.20	1780-01261

CONSTRUCTION OCCUPATIONS

Curriculum Effort:	Job Cluster Curricula for Construction Occupations at the High School Level
Date Available:	February 28, 1975
Contractor:	Mr. William Fitz State Board for Vocational Education 201 East 11th Street Austin, Texas 78701 (512) 475-2407
U.S.O.E. Project Monitor:	William Dennis
Availability to Local Districts:	Information available from Contractor.
Status of Field Test:	A grant extension to February 1975, provides for continuing the original project for the purpose of validating the materials in a number of representative school systems. During the validation period the Instructor Guides and student materials will be tested and modified if necessary before final printing and dissemination of these products. In addition to the validation period, the new proposal for extension and continuation includes materials to be developed for grades 7 and 8, an inservice training guide, inservice training for all instructors in selected pilot schools and the collection of information concerning the construction curriculum project. This information will be used in the development of a postsecondary articulation guide covering each of the five original cluster areas.
Research Design and Instruments for Evaluation:	No yet available.
Appropriateness for a Demonstration Project:	Probably highly appropriate.
Products Available and/or Anticipated:	The Instructor's Guides for Phases III (grades 9 and 10) and IV (grades 10 through 12) utilize a similar format which emphasizes behavioral objectives, suggested activities for students and instructors, sources of information, and related academic theory. Both guides will provide illustrated examples for lesson plan development.

The specific objectives for each phase, however, differ considerably.

Phase III, with its in-depth exploratory approach, introduces the student to construction occupations in seven broad areas: wood, metal, masonry, electrical, finishing, heavy equipment operations, and engineering and support services. Whereas the student is exposed to all seven areas in Phase III, a choice for skill development within one of the seven constitutes the emphasis of the Phase IV guide.

The Phase III Student's Resource Manual will focus upon occupational information of the construction industry. This document will essentially support a guidance program and will assist the student in examining his or her own personality patterns, aptitudes, and interests in relation to occupations in the construction industry.

Each occupation listed will include a description of the work, necessary training and qualifications required, advancement possibilities, description of working conditions, employment outlook, potential earnings or salary ranges, and a listing of sources for additional occupational information. The purpose of this document is to enable the student to establish a broad base of information about occupation within the construction industry from which reasonable career decisions can be made.

The Student's Resource Manual for Phase IV will provide the basic technical information to coincide with and supplement the development of psychomotor skills relevant to the specific job family within the related occupational field. The informational content will supplement the subject materials of the Phase IV Instructor's Guide and will include information on tools and equipment; materials; methods of application; assembly or construction processes; safety requirements; and a glossary of terms that relate to each respective job family. Greater depth of detail and information must be obtained through additional references, texts, and instructor demonstrations.

HEALTH OCCUPATIONS

Curriculum Effort:	Development and Validation of Curriculum for Allied Health Occupations
Date Available:	Currently available
Contractor:	Dr. Melvin Barlow, Project Director and Miles H. Anderson Division of Vocational Education University of California 405 Hilgard Avenue Los Angeles, California 90024
U.S.O.E. Project Monitor:	Present contact person: Glee Saunders
Availability to Local Districts:	The post-secondary segment of the Allied Health Occupations Curriculum is available from W. B. Saunders Company. The Secondary segment has been furnished each State Vocational Education Research Coordinating Unit for within-state distribution.
Status of Field Test:	Complete.
Availability of Research Design and Instruments for Evaluation:	Available in ERIC.
Appropriateness for a Demonstration Project:	Probably highly appropriate.
Products Available and/or Anticipated:	The Allied Health Professions Curriculum Project is concerned with the development of curricula for 26 different allied health occupations. Task inventories were completed for all 26 occupations, occupational analyses on a national basis were completed for 16 occupations, and curricula and instructional materials were either completed or partially completed for seven programs. The greatest impact has been in nursing, medical records, clinical laboratory, prosthetics-orthotics, dental, hygiene, and the Secondary Schools Allied Health Occupations Project. The impact of the task-oriented nursing curriculum on education in this professional field has been the greatest because of the large numbers of workers involved, and the crucial role of nursing in health care. The basic curriculum has been published by W. B. Saunders Company, and the two volumes have

gone through three printings of 20,000 each, and have been adopted by approximately 350 nursing education programs nationwide, as of July 1973. As of May 1974, this figure is estimated by Saunders to have doubled. Similar impact has occurred in medical records, clinical laboratory, dental hygiene, and the secondary school program. Sales of materials published by UCLA Allied Health Professions Project from May 1972 to February 1974, total $72,845. Sales by four private publishers of instructional materials developed by the project are, of course, much greater. (Funding of post-secondary phase under Part C, secondary phase under Part I. Monitoring of entire project assumed by Curriculum Branch when NCERD was phased out.).

The K-9 Health Care Occupations Career Guidance Curriculum draws heavily on the factual materials on tasks performed contained in the occupational analyses, but will deal with clusters of jobs and the functioning of the health care system rather than specific task skills.

The secondary-level guides, which are in the public domain, and are available from each State Vocational Education Research Coordinating Unit are:

1. Program Guide: A Guide for Development and Operation of a Secondary School Allied Health Career Program
2. Student's Manual
3. Teacher's Manual
4. Trainer's Manual: Clinical Instructor Training Program
5. Task Inventories: Allied Health Professions Project
6. Survey of Careers in Health Services and Occupations Programs in California Secondary Schools
7. Evaluative Report on the Secondary Schools Project for an Introduction to the Allied Health Professions.

HOSPITALITY AND RECREATION

Curriculum Effort:	Curriculum Development in Hospitality and Recreation Occupations Cluster, Grades 7-12
Date Available:	June 30, 1976
Contractor:	Ms. Benaree Wiley Contract Research Corporation 25 Flanders Road Belmont, Massachusetts 02178 (617) 489-3150
U.S.O.E. Project Monitor:	Edwin Nelson
Availability to Local Districts:	Contract terminates June 30, 1976 at which time published materials will be available through the Government Printing Office. Limited distribution will be made by contractor with stock maintained by GPO for sale. Unit price unknown at this time.
Status of Field Test:	The materials developed under this contract will be field tested at three sites in the fall of 1975 following a dissemination conference during the summer of 1975.
Availability of Research Design and Instruments for Evaluation:	Would be made available upon request when completed for the field test. Anticipates pre- and post-tests administered to field test and control groups.
Appropriateness for a Demonstration Project:	While resources limit field testing to three sites, contractor would like to select those sites which involve more than one cluster in the school's curriculum, especially at the exploratory level. Contractor willing to discuss possibilities of extending field test sites to selected demonstration project sites. Contractor would welcome the use of the material in a demonstration site, although a limited copyright is desired and will be negotiated during the coming year.
Products Available and/or Anticipated:	a. Curriculum guide for Exploration, appropriate for grades 7-9. b. Curriculum guide for skill preparation, appropriate for grades 10-12. Based upon State-of-the-Art study, only selected occupations will be represented in the curriculum guide. Student information sheets will be included.

MANUFACTURING OCCUPATIONS

Curriculum Effort:	Job Cluster Curricula for Manufacturing Occupations at the High School Level
Date Available:	Spring, 1975.
Contractor:	Mr. Cameron Buchanon Fairleigh Dickinson University Office of Doctoral Studies Teaneck, New Jersey 07666 (201) 836-6300, Ext. 406
U.S.O.E. Project Monitor:	William Dennis
Availability to Local Districts:	May be purchased in the Spring of 1975 from the Government Printing Office.
Status of Field Test:	Scheduled for completion, January 1975.
Availability of Research Design and Instruments for Evaluation:	Research design and instruments for evaluation will be available after field test is complete.
Appropriateness for a Demonstration Project:	Should be quite appropriate.
Products Available and/or Anticipated:	The purpose of this effort is the development of a nationally applicable high school level curriculum for use at grades 9 and 10, 11 and 12 in the manufacturing occupations. The project uses an integrated model, which delineates manufacturing functions, processes and products. The model provides a useful design for teaching manufacturing at the four successive phases of career education. The curriculum is designed to address the manifold behavioral characteristics to be acquired or expanded upon by the student in the affective, cognitive and psychomotor domains and which are applicable to his or her career profile. Teaching guides include learning activities, learning objectives, materials/media, and means of evaluation as well as guidance information. Student resource manuals are designed for the exploratory and preparation levels and provide preparation for job entry, postsecondary training, or higher education. The manuals also include means for student self-assessment. The curricula developed by this

project are articulated within the grade levels and can be readily articulated to other grades by use of the general models and teaching vehicles.

Grades 9-10

1. Exploring Manufacturing Careers--Instructor's Guide

2. Exploring Manufacturing Careers--Student Resource Manual

Grades 11-12

1. Career Preparation for Manufacturing Careers--Instructor's Guide

2. Career Preparation for Manufacturing Careers--Student Resource Manual

MARKETING AND DISTRIBUTION OCCUPATIONS

Curriculum Effort:	Development of Curricula in the Marketing and Distribution Cluster
Date Available:	June 30, 1975
Contractor:	Ms. Alice K. Gordon Contract Research Corporation 25 Flanders Road Belmont, Massachusetts 02178 (617) 489-3150
U.S.O.E. Project Monitor:	Edwin Nelson
Availability to Local Districts:	Contract terminates June 30, 1975, at which time published materials are scheduled to be available. At the present time, manner of publication and dissemination are being negotiated--to move from GPO to private publisher. Unit price cannot be established at this time.
Status of Field Test:	The exploratory curriculum guide is presently being field tested in Rockland, Massachusetts; Richmond and Chesterfield County, Virginia; and Toledo, Ohio. Scheduled for completion by January 30, 1975.
Availability of Research Design and Instruments for Evaluation:	Would be made available upon request. Includes pre- and post-tests administered to field test and control groups; also forms for collecting information on students.
Appropriateness for a Demonstration Project:	The contractor would welcome the utilization of the materials in demonstration projects.
Products Available and/or Anticipated:	This effort, begun in 1973, is designed to prepare two resource guides, which will provide guidance for the inclusion of the marketing and distribution occupational cluster within the framework of career education. One guide will provide a general conceptual framework for the implementation of curriculum development, K-Adult. The other will be a curriculum guide, including all aspects of curriculum presentation for exploratory experiences in the middle school years. Fundamental to the development of materials for this project is the review of literature, programs, projects, and

U.S.O.E. occupational clusters relating to career education and distributive education.

1. Exploration for Career Planning in Marketing and Distribution, a completed self-contained curriculum guide appropriate for grades 7-9 that can be used within variable time frames.

2. Conceptual Framework: A Roadmap for Educators in Career Education in Marketing and Distribution, a document displaying marketing and distribution concepts appropriate for each level of career development: awareness, exploration, skill development; and strategies for their introduction.

PUBLIC SERVICE OCCUPATIONS

Curriculum Effort:	Job Cluster Curricula for Public Service Occupations at the High School Level
Date Available:	April 30, 1975
Contractor:	Dr. Patrick J. Weagraff Voc-Tech Curriculum Lab State Education Building 721 Capitol Mall Sacramento, California 98514 (916) 332-2330
U.S.O.E. Project Monitor:	James Wykle
Availability to Local Districts:	Copies of the curriculum guidelines will be available through the Superintendent of Documents U.S. Government Printing Office, Washington, D.C. during the spring of 1975.
Status of Field Test:	Phase II, III, and IV guidelines were pilot tested during 1973-74 in several sites across the country.
Availability of Research Design and Instruments for Evaluation:	Information not yet available.
Appropriateness for a Demonstration Project:	Probably quite appropriate.
Products Available and/or Anticipated:	The scope of the project involves: A national search for exemplary public service programs and instructional materials, development of teachers' guides for the four phases of career education, pilot testing of these guides, preparation of an articulation component between senior high and postsecondary institutions, and the development of a "coordinator's implementation guide" for use by local school district staff. In the 16 months of the project, the following activities have been completed: (1) an analysis of the public service occupations; (2) establishment of liaison channels with over 80 organizations and/or groups; (3) delineation of the parameters of public service and content that should be

included in the guide; (4) inclusion of over 500 people from 21 States on either developmental tasks or validation committees; (5) development of the curriculum guidelines for Phase III-Orientation to Public Service; (6) limited pilot testing of these guidelines at two locations in California; (7) preparation of a matrix showing high frequency and key tasks common to public service for use in the Phase IV guidelines; (8) development of competency-based Phase IV teacher units - Preparation for Public Service Occupations; (9) preparing horizontal and vertical articulation components for the series of K-12 teacher guides; and (1) planning for full-scale pilot testing of the Phase II, III, and IV guidelines during the 1973-74 school year in at least two locations in California, three locations in New York and possible locations in Kentucky, Wyoming, and New Jersey. In the fall of 1973, Phase I (Awareness) and Phase II (Exploration) guides will be prepared. During this period, the remaining instructional materials will be pilot-tested and revisions made as required.

Curriculum Guidelines: The curriculum guidelines are organized around the eight major occupational groups and the thirty-nine job families. The first set of guidelines designed to orient students to public service contains a separate section devoted to each major occupational group. A second set of guidelines designed to provide students with elementary job skills utilizes a "common core" of information. Both guidelines contain outlines of subject matter content, teacher management activities, student learning activities, and appropriate instructional resources.

Both sets of guidelines utilize a unit approach and are highly adaptable to various types of learning situations. Since each unit is self-contained, a teacher can readily select the objectives, content, and instructional materials required to meet local needs.

TRANSPORTATION OCCUPATIONS

Curriculum Effort:	Job Cluster Curricula for Transporation Occupations at the High School Level
Date Available:	Summer of 1976 through private publisher.
Contractor:	Mr. Edwin Petrie State Board for Vocational Education 85 East Gay Street Suite, 798 Columbus, Ohio 43215 (614) 466-2484
U.S.O.E. Project Monitor:	William Dennis
Availability to Local Districts:	Contractor would like to consider making materials available to federally-funded demonstration projects.
Status of Field Test:	Field tests are in progress with two sites in California, two in Ohio, and one in New York, New Jersey and Tennessee.
Availability of Research Design and Instruments for Evaluation:	These are available.
Appropriateness for a Demonstration Project:	Probably quite appropriate.
Products Available and/or Anticipated:	1. Orientation to Transporation Careers - Instructor's Guide. 2. Orientation to Transporation Careers - Student Resource Manual. 3. Exploratory Experiences in Transportation - Instructor's Guide.. 4. Exploratory Experiences in Transportation - Student Resource Manual. 5. Career Preparation for Transportation Careers - Instructor's Guide. 6. Career Preparation for Transportation Careers - Student Resource Manual. 7. Articulation Guide to Postsecondary Institutions