DOCUMENT RESUME

ED 064 469 VT 014 705

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TITLE	Review and Synthesis of Research Concerning Adult Vocational and Technical Education.
INSTITUTION	Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
REPORT NO	Inf-Ser-58
PUB DATE	Apr 72
NOTE	69p.
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Adult Vocational Education; *Advisory Committees; Bibliographies; Community Colleges; Curriculum Development; Educational Objectives; Minority Groups; Program Administration; *Research Needs; *Research Reviews (Publications); Secondary Education; State of the Art Reviews; *Technical Education

ABSTRACT

In response to the increasing need for information relating to adult vocational and technical education, this state-of-the-art paper presents a review, summarization, analysis, and synthesis of significant literature in the area. Special attention is given the role of the public secondary schools and community colleges in contributing to adult vocational and technical education. Specific sections of the report deal with advisory committees and the research concerning the facilitation of adult learning. A summary of research and developmental activities identifies the significant trends, points up imperative needs, and recommends important research priorities. The four problem areas in the greatest need of research are identified as: (1) program evaluation and accountability, (2) organization, administration, and supervision, (3) integration of general and vocational education, and (4) strategies for working with minority groups. (Author/JS)

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review and synthesis
of research concerning

ADULT VOCATIONAL AND TECHNICAL EDUCATION

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Information Series No. 58
VT 014 705

REVIEW AND SYNTHESIS OF RESEARCH CONCERNING ADULT VOCATIONAL AND TECHNICAL EDUCATION

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April 1972

The material in this publication was prepared pursuant to a contract with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

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PREFACE

This paper is a direct response to the increasing need for information relating to adult vocational and technical education. It is mainly concerned with reports of activities occurring during the 1960's and 1970's.

Special attention is given the role of the public secondary schools and community colleges in contributing to adult vocational and technical education. Curriculum planners, teachers, administrators, and researchers will appreciate this "state of the art" report. The discussion of advisory committees will be particularly useful to those preparing for adult leadership.

An important section of this report concerns the research selected by the author concerning the facilitation of adult learning in this area.

The profession is indebted to Dewey Allen Adams, Virginia Polytechnic Institute and State University, for his scholarship in the preparation of this report. Recognition is also due Duane Andrews, Oregon State University, and Hollie Thomas, University of Illinois, for their critical review of the manuscript prior to final revision and publication. Wesley E. Budke, information specialist at The Center, coordinated the publication's development.

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INTRODUCTION

Prominent national events of the first two years of the seventies spotlight the necessity of a major renewal of effort in adult vocational-technical education. A dramatic rise in unemployment and underemployment, the shortages of critically needed personnel in many technical, semiprofessional and trade occupations, continuing high rates of school dropouts, frustrations in migrant employment, in conjunction with a doggish inflation rate of nearly six percent (State Advisory Council on Vocational Education, 1971; News and Observer Editorial, 1971; Cardenas, 1970) point up the need for new thrusts in the occupational development of young and older adults. As professional educators and lay leaders reexamine some of the nation's long-neglected occupational education needs, demands for fresh approaches in job preparation and development are being heard. One of the demands made most often in occupational education as in most other fields of education is greater relevancy (Ofiesh, 1969). Nowhere is relevancy more meaningful and its need more apparent than in vocational-technical education of the mature. With this need apparent, the educational climate inviting, and the professional commitment to give adults a new opportunity for the good life through vocational development at an all-time high, the chances of a significant breakthrough in adult vocational-technical education appear greater in the seventies than at any other time since the passage of the Smith-Hughes Act of 1917. This research review will tend to reveal a convergence of interest and activity upon a new "frontier" of adult education.

Purpose of This Report

The major purpose of this report is a review, summarization, analysis, and synthesis of significant literature on adult vocational-technical education. Most prominent developments in research and theory are identified and obvious gaps in past and current efforts are pointed up as a basis for recommended future research and program development. The report should be viewed as a state-of-the-art paper and should find its greatest utility as a benchmark for future effort in adult vocational-technical education.

Scope of the Report

A state-of-the-art paper of this type has numerous limitations. Literature on the subject dates to the early part of the century and includes an overwhelming mass of literature written during the fifties and sixties. Selectivity is essential and the selectivity of the writer excludes literature which some would feel essential. Generally the review has been limited to developments during the decade of the sixties and early part of the seventies.

Most references cited deal with developments considered primarily within adult vocational-technical education but several references are made to literature tangential, but contributing to this field. Almost all of the literature included is available through the ERIC system.

No efforts beyond the experience and perception of the writer are made to assess the quality of individual research. This task is left by and large to the reader. While a significant number of references cited would not qualify as research in the strict sense, they are developmental and/or theoretical and in the opinion of the writer contribute importantly to the review.

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REVIEW AND SYNTHESIS OF RESEARCH CONCERNING ADULT VOCATIONAL AND TECHNICAL EDUCATION

DEFINITION, PHILOSOPHY, AND OBJECTIVES OF ADULT VOCATIONAL-TECHNICAL EDUCATION

Definition

The great variety of organizations and agencies claiming important roles in adult vocational-technical education, the wide range of approaches in program development, the disparity of opportunity available to potential students, and the lack of consensus among professional educators tend to make the process of defining adult vocational-technical education an experience in futility (Smith, *et al.*, 1970, and Venn, 1964). Efforts to define adult education have been directed at the *process* of adult education, the person or *adult learner*, the *content*, and the *program*, but no single definition appears to have enjoyed widespread acceptance and usage in the field (Venn, 1964). One recent effort contrasted pedagogy with androgogy: the former dealing with the teaching of youth and the latter the helping of adults to learn (Knowles, 1971). One salient difference between these two arts and/or sciences appears to concern the adult student's active *role* in planning and directing the learning process.

Any definition of adult vocational-technical education is thus arbitrary, tentative, and must serve only as a general notion of parameters to the field. A definition which has provided some general direction for the field assumes adult vocational-technical education to be those "occupational education experiences, systematically selected and planned for persons whose major concern is no longer full-time participation in formal school." (American Vocational Association, 1969.) Two important related propositions explaining this definition are: (1) participants in adult vocational-technical education are generally beyond 18 years of age, gainfully employed, and pursuing education on a part-time basis; and (2) both preservice and in-service training may be important aspects of adult vocational-technical education although the greater portion of participation appears to be of an in-service education nature.

Philosophy

The enactment of the Vocational Education Act of 1963 was as revolutionary as the Smith-Hughes Act of 1917 in providing a new philosophy of "total" vocational education across the nation (Arnold, 1966). With the subsequent passing of the 1968 amendments to the 1963 Vocational Education Act, vocational education was given a major boost toward the realization of a new philosophy of life-long learning for every adult. Through this philosophy appropriate

education is provided for every adult who "needs it, wants it, or can be led to want it." Vocational education becomes a developmental and sequential process from elementary school through post-secondary and adult programs.

Perhaps nowhere has the emerging philosophy of "total" education been more succinctly stated than by Dr. Dallas Herring (1968-69), Chairman of the North Carolina State Board of Education, in referring to the philosophy of North Carolina's system of post-secondary education:

> The only valid philosophy for North Carolina is the philosophy of total education: a belief in the incomparable worth of all human beings, whose claims upon the state are equal before the law and equal before the bar of public opinion, whose talents (however great or however limited or however different from the traditional) the State needs and must develop to the fullest possible degree. That is why the doors to the institutions in North Carolina's System of Community Colleges must never be closed to anyone of suitable age who can learn what they teach. We must take the people where they are and carry them as far as they can go within the assigned function of the system. If they cannot read, then we will simply teach them to read and make them proud of their achievement. If they did not finish high school but have a mind to do it, then we will offer them a high school education at a time and a place convenient to them and at a price within their reach. If their talent is technical or vocational, then we will simply offer them instruction, whatever the field, however complex or however simple, that will provide them with the knowledge and skill they can sell in the marketplaces of our State, and thereby contribute to its scientific and industrial growth. If their needs are in the great tradition of liberal education, then we will simply provide them the instruction, extending through two years of standard college work, which will enable them to go on to the university or to senior college, and on into life in numbers unheard of in North Carolina. If their needs are for cultural advancement, intellectual growth, or civic understanding, then we will simply make available to them the wisdom of the ages and the enlightenment of our times and help them on to maturity.

Implicit in this philosophy of "total" education is the need to "dignify" occupational education for youth and adults. Rowe (1970) suggested that this can be accomplished through a broader philosophy of vocational-technical education, encompassing the belief that education for work is relevant, dignified and essential. It is especially important to convey this philosophy through teacher-training programs to present and prospective leaders of adult vocational-technical education.

Shoemaker (1971) notes that in spite of the "hue and cry" for relevancy in education today, the subject-centered approach to education continues to roll merrily along. Such a subject-centered approach tends to work against the ideal of total education, tending to divide and segment general and vocational-technical education. The current United States Commissioner of Education, Sidney P. Marland (1971) has declared war upon general education and urged a major expansion of vocational education across the country. While the major

theme of his concern appears to be career education for youth, the developmental framework for lifelong career education would include the continuing vocational-technical education of adults.

One cogent statement of philosophy applicable to adult vocational-technical education focuses upon the necessity of a goal-centered program, student goals being related to preparation for and advancement in employment (Shoemaker, 1971). Such a program to be of maximum benefit to the adult student must consider:

1) the nature of society and culture -- from which the adult comes, in which the instruction is to be provided and into which the adult will return;
2) the different types and levels of interest of adult students;
3) the climate (including facilities and equipment) in which learning is to occur; and,
4) the important experience which the adult learner brings to the teaching-learning situation and the active role he will perform in planning, directing, and evaluating his own learning.

Swanson (1971) in delineating criteria for effective vocational education suggested three requirements which seem to highlight the important consideration of maintaining close relationships between the working world and the program of adult vocational-technical education.

1) The content of vocational programs must be realistically related to the requirements of the labor market.
2) The number of persons in vocational training programs must be related to the number of positions available in business, industry, commerce and government.
3) Vocational education must involve business, labor, industry, and government.

Strategies For Implementation of "Total" Adult Vocational-Technical Education. The literature on adult vocational-technical education, especially that of a theory and research nature, appears to be more replete with approaches for the implementation of the philosophy of "total" adult vocational-technical education than of investigations of the nature of the philosophy. Certainly there are evident in a review of such strategies numerous aspects of the underlying philosophy.

One current trend in implementing the concept of "total" education in adult vocational-technical programs might be characterized as an "integrative" approach (Gregory, 1969). Four strategies in the integrative approach include: fusing of occupational and general education; co-sponsorship of vocational-technical education; provision of practical work experience with academic study; and the meaningful involvement of student and community in program development.

Brazziel (1966) studied the effects of general education combined with technical education in the performance of two groups of graduates in a manpower

program. The group having combined general and technical education surpassed the group having only technical education in terms of employment (95 percent versus 74 percent), average weekly wages ($83 versus $71), promotions on the job (31 percent versus 25 percent), occupational mobility, variety of means to seek employment, and rapid gains in academic and technical ability.

Gregory (1969) discussed the value of combining technical education and/or job training with adult basic education as a means of promoting the educational participation of the functionally illiterate, hard core unemployed. He concluded that the motivation barrier could be overcome and that rapid literacy training and general educational progress (leading in turn to higher aspirations for self and family) could be realized in an occupational training situation.

H. Miller (1963) studied what teachers actually do to liberalize their vocational courses in order to consider the possibility of expanding liberal adult education by introducing liberal goals into vocational courses. He found that liberalizing activities fell in the major dimensions of: (1) relating the vocational discipline to other subject areas to see the total context of a field of work, (2) placing emphasis on an element of growth in the individual which transcends the particular skills or insights necessary to practice the vocation efficiently, and (3) placing emphasis on an element of growth in the individual for socially-oriented change.

Gleazer (1968), in discussing occupational education in the two-year community college, suggested that such college efforts ought not pose the alternative of technical or general education, but rather bring the two together. One national advisory committee has suggested:

> Time must be provided even in the two-year curriculum for at least basic courses in languages, arts and social sciences. The technicians of the future must be inoculated against the malady of over-specialization, a condition from which many professionals of the past suffered. They must not be forced to concentrate so narrowly on technology that they cannot be useful citizens or cannot accommodate to change in their own specialties. (American Association of Junior Colleges, 1964.)

Much of the success of lifelong learning depends on the availability of education, training, and retraining throughout the life of the individual. Such an open-ended system of learning, with many alternative experiences, can be realized through the coordinated efforts of public schools, community colleges, vocational schools, universities, and employers. Through such coordinated efforts where the mode tends to be cosponsorship of educational programs for adults, adult vocational-technical educators can reach a greater number of persons and provide more effective instruction by responding to a variety of social, economic, civic, and psychological needs of adult clientele (Adams, 1966).

Kleis (1967) reported a study of representative citizens of the Muskegon Area Intermediate School District as a basis for proposing an adult education system to assure access to continuing education for local adults and out-of-school youth. The need for a coordinative approach to education for adults is reflected in their recommendation for an area system of continuing education encom-

passing public schools, community colleges, community agencies, and councils. A master plan for occupational education in metropolitan Denver reflects similar concern for community-wide coordination by its stress upon the need for vertical articulation -- the planning of a sequence of programs from high school through junior college, senior college and university (Metropolitan State College, 1968).

Practical experience has long been an important aspect of vocational-technical education, especially in youth programs (U.S. Chamber of Commerce, 1963). Currently there appears to be a renewal of interest in practical experience and in education programs for the more mature. Such experience appears to be viewed more as a part of the total adult education experience than as a way of applying classroom theory. The Vocational Education Amendments of 1968, the Economic Opportunity Act, and Education Professions Development Act give emphasis to the important principle of fusing training and work experience for the adult in order to reduce the real barriers between study and the world of work (Evans, 1971). An important effort in such fusion has been labeled "Co-operative Education" and describes a joint venture of the educational institution and a cooperating employer (Brown, 1971). Cooperative education involves a mutually-benefitting relationship among student, employer, and educator. Studies have shown that such relationships provide better preparation and more meaningful roles in society for the adult student (Wilson and Lyons, 1961).

A review of strategies for implementing the emerging philosophy of adult vocational-technical education would be incomplete without reference to the important role of student and community in planning, developing, and evaluating training programs. In discussing an orchard and vineyard growers' educational program in northern California, Lawrence (1970) called attention to community-oriented adult education in which both growers and workers were involved in planning and evaluation. Involvement improved communication, enhanced understanding, and encouraged self-directed, continual learning. The Model Cities approach to education and manpower training employs the strategy of extensive citizen participation in planning and implementing programs (National League of Cities, 1968). Model Cities appears to be one of the better alternatives for solving the urban dilemma.

Objectives

Objectives should reflect the primary mission of an educational program, identifying the desirable change, the target population or clientele, and specifying the general content area in which the clientele are to change (Boone and Quinn, 1967). The primary mission of adult vocational-technical education appears to be summarized in the phrase: to equip the adult for a more productive life through a process of continual occupational training. Among the more commonly accepted objectives of adult vocational-technical education, relating to this statement of mission are for:

1) Out-of-school young adults with or without jobs, to advance in their current jobs, train for new jobs more in keeping with interest and ability, or to enter the working world in an area and at a level of sophistication compatible with interest and ability (Law, 1967);

2) Adults who are or have been at work and are motivated to continue their education to update or upgrade their present knowledge and skill or learn new knowledge and skill (Swanson, 1971);

3) Disadvantaged adults to prepare themselves through remedial courses to enroll in more advanced vocational or technical courses leading to immediate job placement or more advanced education (Wiley, 1970); or to ready themselves to begin employment at entry-level jobs and to continue skill and general education for advancement (Riessman, 1967);

4) Hard core, disadvantaged adults to change social and economic attitudes, skills, and understandings in order that they can make a beginning in career development (Luce, 1969);

5) Migrant workers to develop communication skills, citizenship and community commitment, work attitudes, job skill in mechanics and repair service, and nutrition, home management, and health understandings which will enable them to control more usefully their transitory environment (Texas Education Agency, 1966);

6) Deviant and/or handicapped adults to develop self-acceptance, ability to relate to others, and skills in occupations which will enable them to be more self-reliant (Katz, 1968);

7) Inmates to learn basic communication, health, computational, and manual skills to increase their ability to return to acceptable patterns of behavior upon their release from prison (Endwright, 1967);

8) Women to gain job information, occupational counseling, assistance in job identification and selection, initial job skills, updating in refresher courses, assistance in job adjustment, and assistance with family problems while in training (Pace, 1966);

9) Young farmers to increase their knowledge and skill in planning, decision-making, mechanization, leadership, management, community development and in some cases off-farm employment to supplement limited farm income (Crawford, 1969);

10) Established farmers and managers to update their knowledge of business management, human relations, motivation, personnel management, and group instruction (Woodul, 1970);

11) Senior citizens to update their work skills and social understandings in keeping with societal changes and occupational trends (Belbin, 1966);

12) Military personnel to train themselves for increased success in military life and/or job entry and advancement in later civilian life (Evans, 1971).

Certainly additional objectives could be formulated for adult vocational-technical education such as those related to teacher in-service education, education for unwed mothers, education for special minority groups, and job train-

ing for adults displaced by mechanization. Those which have been identified are exemplary of the ones most often cited in the literature and appear to be representative of those in operation in the field of occupational education. Of prime concern is the worthy goal of providing ample educational opportunity for every adult to prepare for a new job or increase and/or update skills needed in a current one (State Advisory Council on Vocational Education, 1971).

THE STATUS OF ADULT VOCATIONAL-TECHNICAL EDUCATION

Forces at work in the American economy during the past decade have greatly reshaped manpower requirements and turned the spotlight upon vocational-technical education as a lifelong process. Automation, space exploration, advances in science and technology, higher standards of living -- all these and other like forces have mandated that the nation's work force be better educated and more technically skilled than at any previous time in man's history (U.S. Office of Education, 1957). This mandate has directed more emphasis and importance to adult education, giving it greater visibility and patronage. Though much remains to be done in making the case for lifelong learning for every citizen, the case probably now enjoys its greatest support in the history of the education profession. An examination of selected literature on the rationale, the role and the clientele of adult vocational-technical education will reveal several factors most relevant to this current support.

The Rationale

The rationale for adult vocational-technical education appears to have been established more upon the nature of changing society, the needs of an economy in crisis, and the anguish of many for equality of opportunity than upon the logic of adult learning. The seven principles which follow tend to substantiate this trend in the evolution of support for adult vocational-technical education and perhaps somewhat account for the more extensive historical support for adult education of an occupational nature.

Modern man lives in an environment of revolutionary change, his world is one of crisis, and change seems to accelerate telescopically (U.S. Office of Education, 1957). Even if man had received an ideally effective education in his childhood and youth, it would not be adequate to meet his needs today. Nowhere are changes of greater significance and concern than in the technical and vocational fields where keeping up-to-date is the investment one must make just to maintain one's job. Venn (1964) suggested "a life of continuing occupational adjustment will mean a life of continuing education to meet changed or additional educational requirements."

Adults did not receive as children the adequate education we now believe they should have received. In one southern state, North Carolina, for example, the average adult 25 years of age or older received about 8.5 years of schooling (U.S. Census Bureau, 1960). Similar situations exist in other states of the nation. About four percent or eight million adults in America are illiterate or possess less than five years of formal schooling (U.S. Census Bureau, 1960). It is probable that the school programs of many adults were of rather inferior quality, and in-

cluded very limited if any occupational education. The great number of remedial and make-up programs across the nation tend to support this hypothesis of inferior education.

Adults are living longer and devoting a greater number of their senior years to productive work and community services. The average life expectancy in the United States is about 70 years compared with 52 at the beginning of the century (U.S. Office of Education, 1968). Adult vocational-technical education will enable many to learn new trades and professions and/or upgrade their skills in order to make more useful contributions to society. Those nearing retirement cannot just be "placed upon the shelf." They deserve, and rightly so, a place of significant service, a long life of continuing growth and development. Continual, lifelong learning is essential to both these desires.

Societal problems require the attention of adults. Current economic, social, and political problems of society require the immediate consideration of those adults who control decision-making power in their communities. Most problem solutions cannot wait for today's youth to become educated. Even if society could wait, there are no indications that their decisions would be better. Children tend to become like their adult parents (Hamlin, 1962) and it is not likely that they would be better able to deal with society's most vexing problems.

Adults can and do learn. Research has shown that adults can learn and do change many aspects of behavior (Lorge, 1965). Adults have remarkably demonstrated that they do learn and most of them will learn even if only moderately good learning climates are provided. Certainly all adults must learn if they are to survive in the twentieth century.

"Equality of opportunity" has become a household term in American society. Adult education appears to be one of our most successful equalizers (Hamlin, 1962). Though opportunity for the "good" life seems available, it cannot be realized unless the adult is dynamic, growing, and creative. Adult education can bridge existing educational gaps and allow opportunities for full participation in the good life to be realized by all adults. Modesto Junior College conducted a study to determine the effectiveness of its pre-unemployment program for undereducated adults (Pearce, 1966). The study found that student earning power was significantly improved and job retention low and turnover high, indicating that many in the program were able to relocate in better jobs. Castine reported 90 to 100 percent success in job placement for the disadvantaged in the Skill Center Program for adult education in the Los Angeles City Schools (Castine, 1969). Johnson (1967) reported successful job placement of trainees in the Manpower Development Training Program conducted at Tuskegee (Alabama) in 1965.

An important aim of American democracy is to enable every citizen to become a fully-functioning, self-actualizing person. Youth education does not complete but merely initiates this process of growth toward a fully-functioning human being. Many of the opportunities for growth come after completion of or withdrawal from formal schooling. Many of the contributions to good mental health and personality development can be made by post-secondary or adult

education. The broadening of adult vocational-technical education to meet this need of "total development" can lend added support to the rationale for lifelong adult learning (Arnstein, 1965).

The Role

Paul Essert (1951) in his book, *Creative Leadership of Adult Education*, suggested five criteria for adult education which enable the adult to become more fully functioning. These five criteria essentially encompass the role of adult vocational-technical education as it appears to be developing across the United States.

Man is essentially an achieving creature. He seeks growth and development in emotional security, the intellect and the aesthetic. He seems to possess an inner driving force to come to grips with himself, to achieve maturity in all spheres of his life (Essert, 1951). Implied in this drive for achievement is the need for learning about oneself, other people and the surrounding environment. There is the need for learning the scientific process of problem solving, to become an active problem solver. Adult vocational-technical education plays a vital role in education for problem solving, helping man to fulfill himself in occupational achievement.

Man has an insatiable appetite to know more about and understand his environment. He strives to find answers to questions of what, how and why. He seeks to understand his world of rapid change, revolution, and crisis (Essert, 1951). His quest for knowledge penetrates the economics, social, political, technical, scientific, and spiritual. Adult vocational-technical education contributes most to the economic, technical and scientific, but also contributes to the social, political, and spiritual.

Man searches for ideal self-government and the ideal in self-discipline. He seeks to become the model of citizenship. To be this model man must be well informed, perceptive, creative, and highly self-reliant. Two assumptions undergirding American democracy are: (1) every human being is an individual of worth and dignity, and (2) every individual is a rationally-thinking creature (Essert, 1951). Both assumptions strongly imply an important role of adult vocational-technical education in the enhancement of democracy. Worth and dignity in the contemporary society are directly associated with job security and satisfaction, while rationality is inherent in all applied sciences such as occupational education.

Man desires close fellowship with members of society, his community, his work group, and his learning associates. Such fellowship in the working group has been noted by several researchers dealing with the small group (Olmsted, 1959). Small group learning such as one generally observes in adult vocational-technical courses tends to promote fellowship while enhancing continual learning.

Man searches for intermittent solitude, an opportunity to be alone with self, and close out much of the remaining world. During such solitude and reflection, man has tended to be at his creative best. Skills developed through vocational-technical education have tended to carry over in recreational and hobby activities and have served as the stimulus and setting for reflective thinking in the adult life.

The Clientele

The clientele served by adult vocational-technical education are almost as varied and complex as the nation's entire population. Groups of clientele which tend to appear more often in the literature are: the disadvantaged, young adults, young farmers, women, farmers and farm managers, migrants, inmates, senior citizens, handicapped, military personnel, American Indians, and rural young adults displaced by mechanization.

Disadvantaged. Perhaps more effort is currently exerted in vocational-technical education for disadvantaged adults than for any other clientele group. One might certainly conclude this from merely a cursory examination of the literature. The New Careers concept has been most popular as a means of encouraging the disadvantaged to help themselves by taking entry-level jobs along with the opportunity for additional training and advancement (Riessman, 1967). The most prominent feature of New Careers appears to be the novel hierarchy of training and advancement. The MDTA program at Tuskegee, mentioned earlier in this paper, is another noteworthy effort in vocational-technical education for the disadvantaged. Its chief components seem to be basic education, job training, counseling, and job placement for black males (Johnson, 1967). Tuskegee is a large, predominantly black private college in Alabama. Modesto Junior College's project of continuing vocational-technical education for the disadvantaged adult was also identified earlier in the review (Pearce, 1966). A most significant result of the occupational education experience for the disadvantaged in Modesto's program appears to be the increased earnings as compared with average earnings of the subculture from which the trainees come.

Washington State's cooperative area manpower plan exemplifies a number of such state plans to enhance the general well being and employability of the disadvantaged (Washington State Employment Security Department, 1970). Their plan envisions an integration of participating agency efforts at local, state, rural and urban levels in respect to job placement, vocational counseling, basic education, and occupational training. Yet another vocational-technical education project for the disadvantaged adult which appears often in the literature is the Model Cities approach which stresses agency coordination and comprehensive manpower and education development in the large urban centers of the nation (National League of Cities, 1968).

A salient feature of each program to provide vocational-technical education for the disadvantaged is the emphasis upon providing employment opportunities in conjunction with job training. Three other prominent features appearing to account for the high level of successful job training are visible opportunities for advancement, luxuriant counseling resources, and cooperative agency endeavor.

Young Adults. Although the literature on young adult vocational-technical education is not as replete as that for the disadvantaged, a considerable amount of effort is being exerted with this clientele group. Unemployed and underemployed young adults and youth were a major area of concern identified by the Panel of Consultants on Vocational Education and further reiterated in the 1968 amendments to the Vocational Education Act (Bottoms and Matheny, 1969).

Since the identification of this concern for young adult vocational-technical education, numerous training programs have been initiated which emphasize education for these clientele. Chicago's Jobs Project focused upon underemployed "functionally illiterate" inner city black youth (Gurin, 1968). An evaluation of the project clearly indicated that the creative relationship between job and instruction was the most significant factor in the success of the program. Similar job programs for out-of-work youth in Michigan and California were designed primarily to influence the attitudes of young adults toward work (National Committee on Employment of Youth, 1963). Basic problems identified as responsible for youth unemployment were automation, overall unemployment, discrimination, and inadequate educational preparation. Another similar project, Training Resources for Youth (TRY), was developed in New York State as a Demonstration Training Center for young adults 17 to 24 years of age (Sharar, *et al.*, 1969). Basic goals for young adult trainees were changed attitudes and behavior toward work and education, and greater social, personal, and vocational skills.

Two of the basic goals in the New York project, TRY, typify what appear to be the most indispensable objectives of the more successful young adult vocational-technical education programs across the nation: wholesome attitudes toward education and work and adequate social, personal, and vocational skills.

Young Farmers. Another young adult clientele mentioned often in the literature is the young farmer. The 1963 young farmer study was an assessment of selected training programs from 40 states. Among the more significant findings of the study were increased day enrollment and strengthened values of young farmers toward farming and rural life (Agan, *et al.*, 1963). Rawson (1970) stressed the importance of including young farmers in a "complete" program of vocational education. Properly planned and organized, a young farmer program can be an asset to the youth program, the high school, and the community. Beyl (1970) reported several distinct advantages for including young farmer clientele in the school program: they have a real desire to learn, are willing to discuss mutual problems, are interested in new technologies associated with farming, and tend to continue their education in adult farmer classes. Juergenson (1969) identified several similar advantages: young farmer groups can be excellent resource persons for high school youth, can serve as advisory councils for Future Farmers of America, and can provide program resources for high school groups.

Typical research and developmental activity dealing with young farmer clientele tend to emphasize the benefits of young farmer education as opposed to strategies for instruction, designing programs, and generating participation. Most frequently mentioned benefits deriving from young farmer education programs are: strengthened young farmer values toward agriculture, added support for the high school youth program, and improved community-school relations.

Women. Venn (1964) called for serious attention to the education of women. Cutting across several occupational clusters is the need for updating, training, and retraining programs for females. Numerous public and private groups have been cognizant of the untenable position of women with respect to occupational training and employment and many serious attempts have been made to improve the situation. One impressive effort to improve the depressed position of women

household workers was described by Rubak (1971). Seven pilot training projects in seven eastern and midwestern urban cities were funded and administered under the MDTA by the U.S. Office of Education and the U.S. Department of Welfare. Supervision of the seven projects was provided by the National Committee on Household Employment (NCHE). Major aims of the project were to upgrade through intensive skill training, orientation, counseling, and management, the attitude and occupational status of women household workers, enabling them to obtain substantial increases in earnings and raise their occupational status. Perhaps the most significant training aspect of the pilot projects was dealing with the tenuous factors of morale and dignity, requiring a multiplicity of approaches. Painstaking effort was exerted to assure that every woman knew that someone cared about her plight and sincerely wanted to be of help beyond the offering of training and education.

Increases in the number of women employed outside the home are sure to continue. There is a complexity of reasons for women returning to work. The Canadian Association for Adult Education (1969) reported four reasons:

1) Mechanization in the home;
2) Rising standard of living;
3) Social barriers to women employment have lessened;
4) Fundamental changes have occurred in the life style of families Example: people marry younger, children are born earlier in married life, and couples tend toward smaller families.

Bookman (1968) suggested opportunities for training in occupations which may offer employment to women. Among the job opportunities she identified were several technician-level occupations, the training for which many community colleges and technical institutes are currently providing.

Riverside City College, California, conducted a study of its 225 mature women (25 years of age or older or married) students attending day classes to determine what major problems these clientele faced (Sensor, 1964). Findings from Riverside's comprehensive study generally suggested that the most pressing problem was a lack of time for both home duties and educational study. The study recommended that:

1) More classes be scheduled between 10:00 A.M. and 2:00 P.M. to encourage mature women to return to school;
2) The college develop a program of instruction in nursery school methods, to provide assistance in child care to qualified women enrolled;
3) The college activate an organization for mature women to provide them with some sense of identification with the campus; and,
4) Specific scholarship be set aside for mature women students.

Black women have been identified as one subgroup needing vocational-technical training and updating. Consultations sponsored by the President's Commission on the Status of Women (1963) included discussions on black family

patterns, employment opportunities, vocational guidance, community services and participation, and adult education. Conclusions generally were that black women have the same problems and hopes as white women but they cannot take the same things for granted -- status, position in the community, and equitable opportunity.

Most frequently mentioned concerns of adult vocational-technical education programs for women appear to be counseling, societal attitude toward occupational status of women, work attitudes of women, status of black women workers, problems of the working mother, and opportunities for employment. Programs which appear to be more successful, such as the Riverside City College's program of education for mature women, tend to give serious attention to alleviating the difficult problems many women face in taking advantage of educational opportunity, as well as making appropriate educational courses available. One excellent example of such dual responsibility in responding to the needs of adult women is the provision of a nursery service along with strategically scheduled occupational courses in order that the mother of small children can participate.

Farmers and Farm Managers. Probably one of the oldest adult vocational-technical education programs in America is adult farmer education. A few adult farmer education programs can be traced to the nineteenth century, just after the Civil War (Stimson and Lathrop, 1942). Most of the well-organized programs, however, are of recent origin and there is a current resurge of interest in adult farmers as clientele for adult vocational-technical education. Lawrence (1970) reported on some 75 adult farmer programs conducted in California for better labor management. Much of the instruction centered around labor-management relationships. Both workers and managers were involved in planning, conducting, and evaluating instruction. In a three-year action research project (1963-1966) ideas for a farm business instructional program were formulated by a group of young Ohio farmers and vocational agriculture teachers (Boucher, 1964). Major input for the formulation of ideas for the instructional program originated from an extensive survey conducted by young farmers under the leadership of teachers of vocational agriculture. Ninety percent of the farmers surveyed indicated wives should be enrolled in the instructional program since they occupy central roles in managing the farm business.

Since the 1954 Federal Extension Appropriation authorized the inception of a personal contact, family unit approach in working with the adult farmer (Mayer and Rieck, 1967), whole family units are included in training contacts and programs. During most of the first 10 years of the program's operation, there was marked improvement in decision-making, greater interest in farming and keener ability in analyzing the economic aspects of typical farm decisions.

Three crucial aspects of emerging adult farmer and farm management education programs seem to stand out in much of the literature.

1) *Management* concepts and principles tend to be chosen as topics for instruction most often by clientele.

2) Programs which involve actively the *whole farm family* tend to be more desirable.

3) Increasingly programs are established through a meaningful level of *involvement* of adult farmer clientele in identifying needs, planning and conducting instruction, and evaluating outcomes.

Migrants. National concern about the plight of many migrant families who have experienced insecurity and uncertainty due to mechanization, crop failures, price-cost squeezes, and lack of skill, has sparked new interest in and resource allocation to the education of these clientele (Cardenas, 1970). One unique program designed to improve educational opportunities for migrant workers in a multi-county Washington area, Central Washington Adult Education for Migrants, was made possible by a $700,000 grant from the Office of Educational Opportunity (Harlacher, 1969). This five-year program (1967-1972) is being conducted by Big Bend Community College, Moses Lake, Washington, in cooperation with four other colleges and a public school district. Three major activities of the program are counseling, pre-vocational education, and vocational education. The Texas Office of Opportunity has devised an educational program to meet problems and needs of migrant workers (Texas Education Agency, 1966). Through basic education, counseling, job training, and financial assistance, the program has created much enthusiasm among migrants and program workers.

Another innovative educational program for migrant clientele features the programmed, mobile-unit vocational education program designed to focus attention upon basic communication, business, and computational skills (Utah Research Coordinating Unit For Vocational and Technical Education, 1969). These skills were considered essential for qualification of the migrant to enter the field of office occupations. Greater gains appeared to be made in those skills which allowed for manipulation and self-discovery in this programmed approach than in the traditional lecture method.

It is interesting to note the importance which has been attached to pre-vocational education in several adult vocational-technical education programs for migrants. This activity, which has not been in great evidence in programs for other adult clientele undoubtedly plays an important role in migrant occupational training. Another noteworthy innovation in the development of adult vocational-technical education programs for migrants is the use of mobile units for instruction. Perhaps the concept of mobile classroom coupled with the concept of programmed learning has its greatest promise in migrant education.

Inmates. Many educational efforts started in correctional institutions initially emphasized adult basic skills of reading, writing, computation, and health care. Current efforts have been expanded to include offerings in trades and other vocational areas. The North Carolina Community College System (North Carolina State Department of Community Colleges, 1970) served more than 5,500 inmates in 1970 with basic education and job training programs. Florida has devised a program for the expansion and development of education departments in the Division of Corrections (Endwright, 1967). Prime attention is devoted to comprehensive program offerings, staff development, and accreditation of technical, vocational and adult programs.

Major national efforts have been made to provide coordination, guidance, and support for local endeavors in vocational-technical education for adult inmates in pre-release manpower training. One such recent effort was sponsored by Manpower Administration (1968), U.S. Department of Labor, and it included the dissemination of significant results of experimental, demonstration, and research projects all aimed toward more effective job training activity for inmates.

The trend in prison management currently appears to be shifting from that of containment and punishment to that of rehabilitation and education. This recent shift in philosophy accounts in part for the seeming pausity of research on the occupational education of inmates. Furthermore, almost all of the research reviewed dealt chiefly with survey reports of major activities included in programs as opposed to research on strategies for occupational education or outcomes of training.

Senior Citizens. Efforts in senior citizen education during the 1940's and 50's appeared to be concentrated upon avocational activities to provide for more enjoyable use of leisure time in retirement. More recent attention is directed toward occupational education for older adults. Oakland Community College, Michigan, through its project SERVE (Stimulate, Educate, Reassess, Volunteer, and Employ) offers counseling and placement for its senior citizens in need of additional income (Harlacher, 1969). The project also includes a volunteer placement bureau to assist the community in utilizing the talents of older adults, and short courses in vocational subjects tailored to the needs of these citizens. Gartner (1969) warns that most existing vocational-technical programs lack realistic educational opportunities for older people who work. He urges that new efforts be exerted to make education life-long and include programs in vocational development to enable senior adults to upgrade their work skills.

Of interest to persons engaged in the education of senior citizens will be Western Europe's programs for continual training of older adults (Belbin, 1966). Programs in Britain, France, and Sweden include such activities as: financial encouragement of industry to participate in the training of older adults, retraining to meet specific shortages in the work force, training for future industrial needs, and provision of training allowances.

A national conference, sponsored by the National Council on the Aging (1966) focused on educational problems of the 45 plus age group. Significant ideas appearing throughout the recommendations of participants in the conference were: the need for agency coordination and cooperation, the need for expanded programs of job training and retraining, and the need for occupational planning and counseling with adults as their near retirement.

Possibly the most significant trend in contemporary education programs for senior citizens is the shift in many programs from activities of a purely avocational nature to those importantly concerned with vocational-technical development. While research doesn't reveal the basic causes of the shift in senior citizen education, one might speculate about such variables as man's longer working life, the contribution of occupational-type education to self actualization, and the relationship between work and good physical and mental health.

Handicapped and Adults with Special Problems. One of the more prominent experiments in reaching and training the uneducated adult with special problems is the Norfolk State College Program for the Hardcore. Labor Secretary, Willard Wirtz, called it "one of the most important and critical experiments going on in the United States today." Several factors appear to be related to its popularity: (1) its pilot nature which allows flexibility, (2) its team sponsorship and interdisciplinary nature, (3) its meshing of general and vocational education, (4) its special techniques in recruiting and training the hard core adult, (5) its holding power of students, and (6) its successful job placement and student follow-up (Brooks, 1966).

Numerous efforts in vocational-technical education for the mentally handicapped adult have been reported. Two such efforts have demonstrated that with persistence, vocational counseling, individual job development, continual training and placement, even extremely retarded adults can contribute to themselves and the community through gainful employment (Frank and Johnakin, 1969; McCarter, 1970).

Military Personnel. Technical training in the military is possibly the largest vocational and technical education program maintained by any single organization in the world (Evans, 1971). Between 10 and 15 percent of the personnel of the Armed Forces in the United States are receiving formal education in a school. Over 4,000 resident courses are offered in the military, preparing people for almost 2,500 different jobs. Clark and Sloan (1964) estimated that if all the schools of military personnel were placed together, the area covered would probably exceed that now occupied by the three largest cities in the United States -- New York, Chicago, and Los Angeles.

Clientele in the military appear to have several distinct advantages over civilians in the pursuit of adult vocational technical education. One study (Robinson, 1966) of basic studies students revealed these five distinct advantages.

1) Motivation is exceptionally high since advancement is directly related to continuing education.
2) Control over learning is greater due to military control over total life of the student.
3) Financial support for education of military personnel is almost unlimited.
4) Large reservoirs of instructional personnel are available through the military service.
5) Instructors appear to have more time and teaching resources to devote to preparation and teaching than their counterparts in civilian life.

American Indians. Attention to the educational needs of the American Indian has increased greatly during the decade of the sixties. An excellent example of this increased concern was shown in the work of the Office of Economic Opportunity during the mid-sixties when educational programs under the

auspices of OEO were in operation on more than half of the reservations in the United States (Office of Economic Opportunity, 1965).

Pope (1969) described a unique family education program for adult American Indians at the University of Montana. Now in its fourth year of operation, the program is especially designed to give basic education and pre-vocational orientation for 100 trainees annually, provide family life education for wives when applicable and day care centers for pre-school children. Students and families live in university housing during their training period.

Another innovative program involving American Indian clientele in vocational-technical education is described by Conklin (1967). The program, developed by Rough Rock Demonstration School in Arizona's black mountains, features a community control approach among the Navajos. The key concept utilized in the program is involvement, working with, not on the adult student. This community-based, community-controlled program could hold unusual promise for poor, uneducated people in other parts of America.

Rural Young Adults Displaced by Mechanization. Prior to the deliberations of the Panel of Consultants on Vocational Education in 1961 and 1962, attention to the education of rural young adults displaced by mechanization was pitifully inadequate. Since the panel's recommendations and the subsequent enactment of the Vocational Act of 1963, the situation has begun a slow improvement. A major conclusion of the panel was that rural schools have given far too little attention to the occupational needs of students who migrate to urban centers (Essex, 1968). Following up the progress accomplished in vocational-technical education since 1963, the 1968 National Advisory Council on Vocational Education, in recommending the expansion of effort in rural America, noted the rapid out-migration of the rural population. Four associated problems were cited.

1) Educational attainment level of the displaced rural person is lower than for the total population.
2) Low economic level and tax base adversely affect the number and kinds of school facilities and educational offerings.
3) Sparse populations multiply the problems of providing comprehensive educational programs due to small numbers of students and transportation problems.
4) Lack of rural business and industrial employment fosters out-migration especially into larger cities. A serious problem is caused by rural America's inability to offer occupational training to this segment of the population for large city occupations (Essex, 1968).

Griessman and Densley (1969) have completed a major review and synthesis of research on vocational education in rural areas. While their conclusions in respect to probability of success in meeting the vocational education needs of the rural adult were rather pessimistic, one must commend the thoroughness of their treatment of the subject. The reader who wishes to investigate further the nature of the vocational education problem of the rural adult is encouraged to examine more fully their manuscript.

The identification of 12 clientele groups served by adult vocational-technical education and the subsequent program reviews do not exhaust the clientele which might be relevant. The treatment does, however, deal with the groups which are currently receiving preferential treatment in the literature and are undoubtedly representative of the major efforts underway in the field of adult vocational-technical education.

DETERMINING NEEDS AND INTERESTS IN ADULT VOCATIONAL-TECHNICAL EDUCATION

Communications is the major problem and the initial step in assessing needs and interests of adults in vocational-technical education. Communications between the institution providing education and the local community will insure that all people are informed of the capabilities of the institution. Communications between the institution and the business and industrial interests of the service area will keep the institution aware of current skills required by business and industry. The 1968 North Carolina Governor's Conference on *Community College System Meeting the Manpower Challenge of an Industrializing and Urbanizing Society* made the following recommendations in respect to communications.

Communications between the institutions and the people in their local communities must be improved by:

1) The institutions placing increased emphasis on publicizing the training and educational programs available . . . and on the development of promotional material to inform . . . and to involve . . .
2) Communities causing a greater involvement of civic clubs, churches, and other agencies in the development of "outreach programs" . . .
3) Institutions placing greater emphasis upon visiting and counseling students . . .

Communications between the institutions and business and industry be improved by:

1) Business and industry taking a greater interest in the institutions. . . learning their capabilities . . . informing the institutions of skills required today and those needed in the future;
2) Institutions increasing their efforts to maintain close contact with business and industry to learn their training requirements;
3) Greater and more active use of advisory committees to establish close contact between institutions and business and industry. (North Carolina Governor's Conference, 1968.)

Advisory Committees

Advisory or consulting committees have been important to vocational-technical education for many years, but in recent years have become indispensable in job-training programs for adults (American Vocational Association, 1969; Riendeau, 1967; Wilber, 1966). For the vocational-technical program to serve such a diverse population as the clientele indicated earlier in this paper, it must be established through the meaningful involvement of a large number of

citizens including the students themselves. A consulting or advisory committee structure offers one time-tested alternative for meaningful involvement (Hamlin, 1967). Shoemaker (1965) suggested that involvement of a community in vocational education is not just a nice gesture; it is a matter of life and death to a truly sound program. He further identified several groups that must be involved. Four of these which appear to have greater relevance to adult education are school administrative personnel, labor and management segments of business and industry, labor organizations, and students. Woodall (Woodall and Frazier, 1971) reported success in getting at needs of unemployed adults through Monongalia County's (West Virginia) "total approach" program, dealing with a wide range of problems through the cooperation of community action. CAMPS (Cooperative Area Manpower System), Employment Security, extension, and Economic Opportunity. The extensive involvement of many relevant groups and individuals apparently accounted for the outstanding achievement of the project.

Selecting Advisory Committee Members

Hamlin (1962) noted that consulting committees are no better than and can function no better than their members. Thus it is important to exercise discretion in the selection and appointment of membership. Among the more apparent important characteristics of the highly desirable members of the consulting or advisory committee are these:

1) They are able, intelligent people.
2) They are public-spirited people, willing to contribute to the betterment of the community.
3) They possess outstanding personal qualities of responsibility, integrity, open-mindedness, cooperativeness, and insight.
4) They are representative of all elements of the community or special program interests they serve. Consideration is given to sex, age, experience, religion, politics, and organizational affiliation.
5) Finally, if they represent a special program area, they bring the needed expertise and interest to the committee. Of special importance is the keen interest and insight into their specialty. (Hamlin, 1962; Wilber, 1966)

No process is more important to the success of the advisory committee than the selection and appointment of its membership (Hamlin, 1957). If a committee is to serve the public, it seems proper that the public have a hand in its selection. One practical way to share this process with the public is the use of a screening committee and appointment by an official body (Hamlin, 1957).

Two Major Types of Advisory Committees

Hall (1968) has dichotomized advisory or consulting committees into two types: general and specialized. General committees for vocational-technical education usually deal with study and evaluation of broad program areas and advise on general requirements and priorities. Specialized committees function more as expertise groups, dealing with rather specific programs or curricula in

the institution. Their memberships appear to be comprised most often of business and industrial leaders and workers. Both the general committee and the specialized committee deal with studies of adult needs and interests.

The specialized committee for vocational-technical education has also been referred to as an occupational advisory committee (Riendeau, 1967). Hall (1968) noted that some of its special functions are to:

1) Serve as a communications channel between colleges and community occupational groups;
2) List the specific skills and suggest related and technical information for the course;
3) Recommend competent personnel from business and industry as potential instructors;
4) Help evaluate the program on instruction;
5) Suggest ways for improving the public relations program of the college;
6) Assist in recruiting, providing internships, and in placing qualified graduates in appropriate jobs;
7) Keep the college informed on changes in labor market, specific needs and surpluses;
8) Provide means for the college to inform the community of occupational programs; and,
9) Assess program needs in terms of the entire community.

The general advisory committee is often utilized in the community occupational survey. Harris (1964) identified two techniques for making such a survey: the team of experts approach or the "citizens' participation" approach. If several agencies are willing and desire to participate, the team of experts approach is probably the best. Often the team will be led by a representative of a major consulting firm or educational institution. If on the other hand the community survey is primarily designed to provide information to use directly in educational programs, the citizens' participation approach can be most productive. Every segment of the community should be represented and team consultants and an experienced team director are of great value, enhancing the citizen's ability to be perceptive of community education needs.

The community survey will provide a much needed wealth of information as the basis for planning educational programs which maximize fulfillment of adult occupational needs. Among the types of information which have resulted from community surveys are: number of employees by industry, number of employees in training, employment practices by industry, new jobs to open, levels of skill required, opportunities for cooperative programs, attitude toward education, areas of student interest, and rates of employee turnover (Shoemaker, 1965; Nava, 1969).

The importance of thorough and continuing study of the community as a basis for program planning in adult vocational-technical education is becoming increasingly apparent. Adult educators are finding that the degree of participa-

tion in and support of adult vocational-technical programs depends heavily upon the extent to which such programs are geared to real life problems, interests, and needs of the clientele which they serve (Neylan and Verner, 1966).

CURRICULUM DEVELOPMENT IN ADULT VOCATIONAL-TECHNICAL EDUCATION

Curriculum development, especially in vocational-technical education areas, is a very dynamic and complex process. It tends to be subjected to the personalities and peculiar behavioral patterns of those involved in its development, implementation, and evaluation. MacDonald (1971) stressed its relationship to tradition and social and cultural pressures of the times and circumstances. He intimated the three sources of goals or objectives in curriculum development which appear more often in current literature: culture, society and personality.

The Curriculum Development Process

Tyler (1966) identified five major sources from which we may draw objectives for the curriculum:

1) The learner;
2) Life outside the school;
3) Suggestions from subject matter specialists;
4) Philosophy; and,
5) Psychology.

Other curriculum experts have generally accepted these sources of teaching-learning objectives. Boone and Quinn (1967, pp. 7-13) in considering the Adult Basic Education Program identified four such sources of educational objectives: (1) study of the uneducated adult as a potential learner, (2) analysis of his culture, (3) analysis of contemporary life, and (4) recommendations of subject-matter specialists.

Exemplary Studies on Sources for Objectives. Tyler (1966) suggested that education is a process of changing the behavior patterns of people. Such behavior patterns may include in the broadest sense thinking, feeling, and overt acting. All three are important behaviors in programming occupational education for adults. Consideration in behavior changes gives rise to the concept "needs" (Tyler, 1966; Bloom, *et al.*, 1956). Numerous investigations have been carried on in education to determine needs of potential students. Among the better known studies are: Bloom, *et al.* (1956), *Taxonomy of Educational Objectives, Handbook One: Cognitive Domain;* Krothwohl, *et al.* (1964), *Taxonomy of Educational Objectives, Handbook II: Affective Domain;* Mager (1962), *Preparing Instructional Objectives;* and Mager and Beach (1967), *Developing Vocational Instruction.* A salient recommendation prevading each study appears to be the emphasis upon the "total needs" approach of studying and planning for the learner. Boone and Quinn (1967) suggested that needs should concern those of

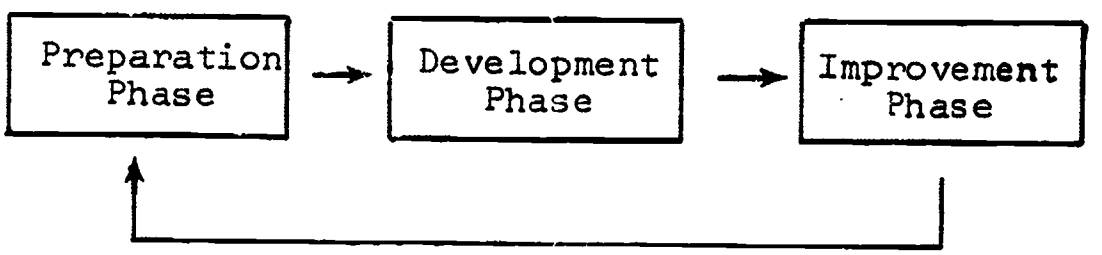
health, equilibrium, knowledge, attitudes, and skills. Needs also include understanding and learning to use one's environment in the social and economic world (Boone and Quinn, 1967). Mager (1962) stressed designing a course of vocational study upon the characteristics of the potential clientele. Some of the categories he considered were physical characteristics, previous education, motivation, interests, attitudes, biases, and prejudices. Of chief concern is what the student should be able to do at the conclusion of study which he cannot now do.

Perhaps some of the best known and carefully developed studies of behavioral change in adult learners have grown out of recent work with the disadvantaged. Monge and Gardner (1970) in describing the Syracuse University Adult Development Study suggested that the degree to which adults can be effectively and efficiently retrained depends in large measure upon an understanding of their intellectual resources and learning abilities. The findings of the study tended to support the notion that adults do continue to learn throughout life.

One of the more comprehensive studies of the disadvantaged adult learner was done on a statewide basis in West Virginia and was reported by Divita (1969). Data were gathered on potential adult students in respect to personality, culture, and education. The completeness of the study, the utility of its results in charting West Virginia's Adult Basic Education (ABE) program, and the usefulness of the student personal data to the teachers in preparing educational objectives for adults support the need for such comprehensive clientele studies.

A Strategy for Curriculum Development in Adult Vocational-Technical Education. Mager (1962 , pp.3-6) has designed a three-phase strategy which might serve as a guide for the curriculum planner in adult vocational-technical education. The three phases are shown in Figure 1.

FIGURE 1
THE PHASES OF COURSE DEVELOPMENT



The preparation phase of course planning includes job description, task analysis, course objectives, criterion examination, target population, course prerequisites, and prerequisite test. The order of phases overlap and may be shifted with student and instructor needs. The development phase includes unit outlining, sequencing, content selection, procedures selection, sequence and lesson plan completion, and course tryout. Finally the improvement phase includes comparison of performance with objectives, comparison of objectives with job, and revision and tryout.

Examples of Curricula in Adult Vocational-Technical Education

Curricula in vocational-technical education for adults cover the spectrum from the "shoeing of horses" to the highly technical field of computer technology. Harris (1964) identified three kinds or levels of technical education that might be recognized:

1) College-level semiprofessional technical education for business, industry, health, agriculture, and public service fields;
2) Technical education for highly skilled technicians in industry and other fields; and,
3) Technical training programs for industry and business with courses for employed adults aimed primarily at job upgrading; or for unemployed adults aimed at retraining.

This third level coupled with skilled and semiskilled courses for adults, is of prime concern for the development of vocational-technical curricula for adults. Some examples of such program areas (Virginia Department of Community Colleges, 1971) are:

Technical Programs	Vocational Programs
Accounting Technology	Auto Body Repair
Agricultural Business	Auto Mechanics
Fire Science	Stenography
Registered Nurse	Cosmetology
Police Science	Drafting
Secretarial Science	Merchandising
Textile Management	Machine Shop
Traffic and Transportation	Masonry
Horticulture Technology	Practical Nursing
Business Administration	Sheet Metal
Electronics	Printing
Hotel-Motel Management	Welding

THE FACILITATION OF ADULT LEARNING IN VOCATIONAL-TECHNICAL EDUCATION

The improvement of teaching and learning is a continual process involving the interaction of the teacher and the student in a learning climate. In this modern age of social and economic interdependence, both student and teacher fulfill key responsibilities in shaping the learning climate and thus facilitate the maximum growth of each, the teacher in reality being also a learner. As one examines the interaction between student and teacher, three considerations for facilitating adult learning in vocational-technical education come to mind: (1) creating the learning climate, (2) improving the student self-concept, and (3) planning for meaningful learning experiences (Adams, 1969).

Creating the Learning Climate

The outstanding learning climate is one in which the learner feels safe to grow. In the language of Rogers (1969), there is "freedom to learn." Arthur Combs (1965) and others at the University of Florida investigated the perceptual differences between good and poor professional workers in teaching, counseling, and the ministry. From these studies came 10 characteristics which tend to contrast the good and poor professional. It appears that when teachers and others associated with the educational program tend to have an internal rather than an external orientation, the positive learning climate is enhanced. The "good" teacher would tend to possess these 10 frames of reference in regard to self, students, teaching, learning, and the learning situation.

1) Internal over external--sensitive to and concerned with how things seem to others with whom he interacts and uses this value as a basis for his own behavior.

2) People over things--concerned with people and their reactions rather than with things and events.

3) Meanings over facts--sensitive to how things seem to people rather than being exclusively concerned with concrete events.

4) Immediate over historical--seeks the causes of people's behavior in their current thinking, feelings, beliefs, and understandings, rather than in objective descriptions of the forces exerted upon them now or in the past.

5) Able over unable--perceives others as having the capacities to deal with their problems as opposed to doubting their capacity to handle themselves and their lives.

6) Friendly over unfriendly--sees others as being friendly and enhancing, not threatening, but well intentioned rather than evil intentioned ("on our side").

7) Worthy over unworthy--tends to see other people as being worthy of our respect. They are seen as possessing dignity and integrity which must be respected, rather than being seen as unimportant.

8) Internal over external motivation--tends to see people and behavior as developing from within rather than as products of external forces. People are seen as dynamic, creative, rather than passive and inert.

9) Dependable over undependable--tends to see people as basically trustworthy and dependable in the sense of behaving in a lawful way.

10) Helpful over hindering--tends to see people as being potentially fulfilling and enhancing to self rather than impeding or threatening. Tends to regard people as important sources of satisfaction rather than sources of frustration and suspicion. (Combs, 1965).

These frames of reference or beliefs have important implications for teachers of adults, especially those who are concerned with occupational subjects. Harris (1964, p. 52, 57-59) urged the involvement of administration in technical programs in order that such programs take on as much prestige as academic or college-related programs. Several questions bear the teacher's consideration:

1) Are good students equated with general education and poor ones with vocational-technical education?

2) Are we giving our best efforts in orienting students and other educational leaders to the important role of occupational education for adults?

3) Do we identify good teachers with job related training?

4) Are facilities and resources supportive to a prestigious program of adult vocational-technical education?

Barlow (1965) in considering the improvement of instruction in vocational-technical education, recommended several guides for the secondary school principal who wanted to improve the curriculum and instruction processes in the trade and technical program. Among these recommendations were:

1) Examine his own attitude about vocational education and occupational preparation as part of the total program of education.

2) Make generous use of advisory committees, representative of labor, management, education, and other groups as appropriate. This keeps the instructional content up-to-date, among other things.

3) Organize faculty groups to study certain problems in order that the school may have objective evidence upon which to base program development.

Improving the Student Self-Concept

Self-concept is not a new idea but its importance in teaching and learning in adult education situations is just now being established (Bills, 1960). To ex-

amine more fully the teacher's role in improving the self-concept of the adult learner in vocational-technical subjects, we need a review of research on the adult learner. Larson (1970) in a major review of recent research on the adult learner, found that adults differ from the young in many respects. They have different body characteristics, learning histories, reaction speeds, attitudes, values, interests, motivations, and personalities.

Adults who return to school appear to be motivated by two distinct sets of factors: (1) those with less than 12 years of schooling appear to be motivated by economic factors, and (2) those having more than 12 years of schooling appear to be motivated by the drive toward self actualization. Larson (1970) summarized nine factors concerning the adult learner which are worthy of consideration in curriculum and instructional development.

1) Intelligence does not decline after age 30 or 35 but continues relatively unchanged until about age 65.
2) Adults do slow down in reaction time as they mature. Hearing and eyesight decline.
3) Chronic physical and health problems such as heart disease, diabetes, and hypertension slow down the learning power.
4) Adults may have problems unlearning some things but are capable of doing so.
5) If new materials are based upon their past experiences, adults learn faster than do children.
6) Adults tend to dislike competitive class situations or disciplinary measures.
7) Adults work better in cooperative, non-competitive, non-evaluative settings.
8) Many adults come to class with a great deal of insecurity and anxiety.
9) Anxiety and feelings of insecurity must be reduced if learning is to be maximized.

From these and other findings (Verner, *et al.*, 1965; Bergevin, 1967; Hamlin, 1962), it must be concluded that adults can and do learn. They certainly must continue to learn in the world of work. Adult learners do differ from child learners and if teachers are aware of, understand, and respect this difference, self-concept can be improved and greater learning can take place.

In identifying some of the psychological characteristics of adults, Fay (1966) reinforced this importance of the adult self-concept. By the time an adult matures, he has come to regard himself as a certain kind of person. He usually recognizes strengths and weaknesses and usually tries to maximize strengths and improve weaknesses. A few, such as the hardcore unemployed and the greatly disadvantaged seem to be unable to accept themselves and therefore remain in a constant state of frustration. Many of the antipoverty programs have recognized this self-concept problem early in the program's development and have sought strategies to overcome it (Pearce, 1966; L. Jones, *et al.*, 1966; Office of Manpower, Automation, and Training, 1970). Haggstrom (1965) described one

large city experiment in which needs for education by the poor were obvious, interests were expressed, but participation was extremely poor or missing. Low regard for self, in turn causing a communications barrier, was concluded to be one of the chief obstacles to participation.

Botwinck (1970), in reviewing gerontological research, concluded that much of the older adult's apparent learning deficit may be an unwillingness to show what one does know for fear of being wrong and seeming incompetent. Fear of being wrong may often stem from low regard for one's ability and worth.

Peters (1969), in a study of internal-external control, learning, and participation in occupational education, found that internal subjects retained more information than external subjects and a greater proportion of internal subjects participated in occupational education. Internal control refers to an individual who perceives positive or negative events as being consequences of his own actions. External control pertains to an individual who believes that what happens to him in certain situations is unrelated to his own efforts. (Peters' study dealt with adults in a correctional institution.) Control and self-concept appear to be very similar concepts and are used interchangeably in some of the literature.

In another study of adult participation, London and Wenkert (1965) found that stereotypes of the poor held by adult educators and their inability to understand lower class life situations forestalled imaginative and successful programs.

Perhaps, as intimated throughout the foregoing section, self-concept of the adult learner can be improved through these actions by the instructor:

1) Studying and understanding the adult, especially understanding how he differs from the youth;
2) Understanding the educational level of the adult in order to relate difficulty of content and learning goals to adult's interests and motivations;
3) Providing more time for learning (Bloom [1968] suggested that most students, perhaps over 90 percent can learn what we have to teach them if we provide time and the appropriate learning climate and experience);
4) Relating new learning experiences to the adult's past experience and emphasizing the importance of the adult's experience to the learning situation (Adams, 1969);
5) Giving greater emphasis to cooperative, self-evaluative activity as opposed to competitive, instructor-evaluated activity; and,
6) Emphasizing achievement and success in learning to reduce insecurity and anxiety—stressing things which the adult can accomplish.

Planning for Meaningful Learning Experiences

Much has been discussed and written concerning teaching methods, techniques, and devices, especially in working with adults. The great amount of interest, however, appears to have made little impact on the improvement of the teaching-learning process. Hayes, *et al.* (1966), noted that there are as many teaching methods as there are teachers and the effectiveness of any single method

appears to vary with the teacher, the student, and/or the teaching-learning situation. Perhaps the greatest usefulness of any treatise on method or technique is the range of alternatives which it opens up for consideration by teacher and student. This suggestion is offered by Carpenter (1969) in his review of 24 group methods and techniques in adult education. He encourages variety in program presentation to heighten audience interest and promote active participation. Since learning is a *personal* activity in which the adult student is *meaningfully* involved, procedures which tend to heighten student participation would be desirable. Bradford (1965) offered the teacher of adults three strategies through which participation may be enhanced.

1) When efforts to secure people's participation are in areas of *concern* to them, participation is heightened.
2) When feedback processes are developed, so that the individual adult or group sees the *consequences* of his action and *how* his action achieved the consequences, participation tends to be heightened.
3) When channels for further action are provided and kept open, participation tends to increase.

Perhaps the teacher's most important responsibility in the teaching-learning transaction is to maintain person to person or adult to adult relationships which give top priority to the role of the adult student in deciding and planning his own learning experiences (Bradford, 1965). Educators were reminded a few years back by McGlothlin (1952) and again in 1971 by Knowles (1971) that the chief contrast between the teacher of adults and the teacher of youth is that the adult's teacher tends to *assist* his students in learning whereas the youth's teacher tends to *direct* the learning of his students.

Bearing in mind the important role of the adult in his own learning and considering the important responsibility of the teacher as a facilitator of learning through assisting with meaningful learning experiences, we shall review a cross-section of strategies or procedures which appear to offer promise in adult vocational-technical education. A few generalizations on learning experience precede the review.

Generalizations about Meaningful Learning Experiences

Tyler (1966), Boone and Quinn (1967), suggested nine generalizations about selecting meaningful learning experiences.

1) Motivated students tend to learn more rapidly than non-motivated.
2) Ease of learning seems to vary directly with the meaningfulness of the material presented.
3) Learning is an active process on the part of the learner.
4) Repetition or practice enhances over-learning of skills.
5) Experiences which occur together tend to reoccur together.
6) Relearning changes the knowledge, beliefs, and expectations of the learner.

7) Readiness is the stage at which the learner can most easily learn and tends to appear at different times for various students and various types of learning.

8) Learning process and achievement of results are related closely to individual differences among learners.

9) Learning proceeds best when the learner can see results.

These nine generalizations concerning meaningful learning experiences tend to "spotlight" the learner. They tend to confirm the necessity of viewing the structure of the learning experience from the standpoint of the learner and not from the standpoint of someone already in command of the things to be learned. (Tyler, 1966). Knowles (1971) offered two guidelines for selecting the best technique or strategy to serve as the "vehicle" for the adult learning activity: match the technique to the objective and choose the technique involving the student in the most active participation. Since two major objectives of adult vocational-technical education are importantly related to changes in work attitude and job skill, strategies which tend toward actual work experience would appear to be obvious in occupational training situations.

On-the-Job Training

On-the-job training is a strategy for combining instruction with actual work experience. It has long been a highly desirable practice in vocational-technical education (Evans, 1971; Venn, 1964; U.S. Chamber of Commerce, 1963). Each year in the United States more than two million employees participate in some type of work experience-training activity. One of the current types of on-the-job training is known as "cooperative education." (U. S. House of Representatives, 1968). Brown (1970) urged that we commit ourselves to education which prepares the student for real life experiences he will later encounter and offered cooperative education as the vehicle for this relevancy. While cooperative education, as offered by Brown, is generally seen as a strategy for post-secondary institutions such as technical institutes and comminity colleges, it has long been an important learning strategy in secondary school programs of vocational education. Brown (1971, pp. 6-7) suggested three distinctive advantages of cooperative education.

1) It offers the student the advantage of applying his knowledge in a practical work situation. It thus bridges the gap between theory and practice and allows the student to raise questions and test his suitability for particular job areas.

2) It offers the college or technical institute several financial benefits -- use of expensive equipment, freeing of financial aid for other students, increased use of regular school plant for other students, and more flexibility in course scheduling.

3) It offers the employer the opportunity to influence students to to choose his line of work as a career. Students have a beneficial effect on co-workers in the industry. The industry profits from the excellent publicity it gains through good relationships with the educational institution.

Wilson and Lyons (1961) concluded that cooperative education tends to increase the student's motivation to study, his ability to get along with others, and his orientation to the world of work and to his chosen career.

The apprenticeship is another long-standing method of gaining experience on the job. While this method does not always require participation in related instruction, many apprentices do participate in organized instruction. One survey conducted in New Jersey (New Jersey State Department of Education, 1966) indicated that 94.8 percent of the apprentices in 1966 participated in related instruction provided by public schools and industrial firms.

In reporting on basic problems and issues in related instruction, Strauss (Somers, 1967) recommended that the present trend of more emphasis upon the schooling phase was healthy as more thorough, well rounded training was desirable in apprentice work. Some trades may now require pre-apprentice education a requirement which Strauss endorsed. (Strauss was reporting to a group of vocational educators attending a conference on "Research in Apprenticeship Training," sponsored by the Center for Studies in Vocational and Technical Education, University of Wisconsin.) During this conference, McCauley (Somers, 1967) described the advantages of pre-apprentice education. These were:

1) The beginning apprentice would measure up to standard;
2) The pre-apprentice education would assist the apprentice in deciding the extent of interest in the occupational area;
3) The pre-apprentice education would aid in building a basic foundation for gaining skills on the job;
4) The pre-apprentice education would help minority group members score higher on admission-to-apprenticeship exams.

Special Institutes, Short Courses, and Evening Classes

Stevens (1970) reported on the growth of the National Young Farmer Institute, a modern strategy in farmer education. The Institute has grown from 11 young farmers from eight states in 1967 to 130 from 18 states in 1969. The Institute provides for exchange of information, sharing of fellowship, and development of leadership.

C. Jones (1967) studied factors related to effectiveness of teachers of short-term adult vocational courses. He found that verbal and manual skills were correlated with teacher's knowledge of subject; teacher's educational level was negatively correlated with student satisfaction; and years of trade experience were negatively correlated with persistence.

Neylon and Verner (1966) reported on a study of attendance in adult evening classes in a British Columbia urban school. Their chief concern was upon changes in attendance in various types and lengths of courses. Declines in attendance in courses of academic education nature and persistence in attendance of courses of more immediate application, indicated that courses with immediate benefit to the adult are best attended. Occupational and selected general education courses usually fall in this category. As course sessions lengthened beyond 10, attendance tended to decline.

Programmed Instruction

Hull and McClay (1965) reported on a comparative study of programmed learning and lecture discussion in adult vocational agriculture departments in five northeastern states. Results show lecture-discussion superior to programmed learning in respect to total knowledge gained. Lecture-discussion consumed more teacher time and when time was controlled, there was no significant difference between the two methods. Meredith (1969) suggested in reviewing the PI (Programmed Instruction) program at Draper that there were several advantages in using programmed instructions:

1) The learner is able to do something specific;
2) Material for learning is presented in a logical sequence and broken into single learning steps;
3) Learner must respond actively to each step and must apply information after each step;
4) Learner receives immediate feedback;
5) Student learns at his own rate;
6) Teacher is permitted to handle a variety of problems in the classroom;
7) Programmed instruction can be used in a variety of ways: reviewing previous subjects, supplementing classwork, and making up work.

One fascinating, modified Programmed Instruction approach to adult learning is the Mobile Training program for Arkansas' unemployed and low income earners (Reno School Planning Lab, 1967). The program, which grew out of a feasibility study, provides such clusters of occupations as (1) Household Appliance Repair, (2) Garment and Dry Cleaning, (3) General Manufacturing Mechanic's Helper, (4) Small Gasoline Engine Repair, (5) Farm Equipment Maintenance, (6) Motel, Hospital, and Nursing Home Housekeeper, and (7) Service Station Attendant.

Plots and Group Projects for Adult Farmers

Demonstration plots have been used to enhance learning by adult farmers. Jenkins (1970) called attention to the use of such learning resources and shared several recommendations for their effective use:

1) Use questions and problems of farmers as a basis for demonstration plot establishment;
2) Design and develop a top-notch plot;
3) Provide adequate information for farmer learning from the plot;
4) Maximally utilize the plot for learning.

Group projects, such as growing and marketing cooperatives, have served as real learning activities for total farm families. Schilling (1970) described one such group project, a small fruit and vegetable growing industry, designed especially to save the family farm. The project, organized in Minnesota, featured community improvement, organized instruction and agricultural expansion.

Results indicated a high level of success due to keen interest of farmers, excellent leadership, and cooperation among agencies.

Mass Media as an Adult Education Strategy

Television has been used extensively in general education endeavors but appears to have had limited utility in vocational-technical programs for adults. Supervisory development training seems to be one notable exception. Schaefer and Strong (1959) tested the hypothesis that the medium of television is an effective and efficient method of providing programs for supervisory development. In a study conducted in Columbus, Ohio, they used four classes of 10 to 16 students and the method of observation-inference to test the hypothesis. It was concluded that the use of television has real possibilities in training supervisory personnel in industry.

Howell (1970) described the use of television in university extension adult education programs. He identified major advantages and disadvantages of the use of TV in an extension program and made several recommendations for its more effective utilization for adult learning. One major advantage is the ability to communicate with a large, distant, and dispersed audience. A couple of major disadvantages are the high operating cost and the lack of immediate feedback. Howell recommended that attention be directed to:

1) Providing for feedback mechanism;
2) Using local people in program development;
3) Using extension worker group leaders; and,
4) Continuing evaluation for improved use.

ORGANIZATION AND ADMINISTRATION OF ADULT VOCATIONAL-TECHNICAL EDUCATION

Current projections of educational enrollments indicate that we shall have by 1974, for the first time, more adults engaged in vocational and continuing education than young people attending all other levels of formal education (Weldon, 1969). New demands by adults for opportunities in vocational-technical education place a severe strain on existing resources, organizations, administrative leadership, and facilities, prompting public review and evaluation of current efforts in the field. In an effort to ease the strain upon existing resources, many have advocated the specialized area vocational school.

Comprehensive Institutions Versus Specialized Area Institutions

Two very notable trends in organization of post-secondary occupational education are the simultaneous moves toward area programming and comprehensive institutions. McDowell (1965) reviewed the area vocational school approach in Kentucky, the trend toward state-level support, and suggested seven advantages of the area-type specialized organization.

1) Quality programs in all types of occupational training can be made available to more citizens.
2) A broader range of occupational programs can be provided.
3) There is more flexibility in starting new programs and stopping old ones.
4) Training needs in remote parts of the state can be met.
5) More of an industrial atmosphere can be provided in the area school.
6) Emergency training programs are easier to initiate.
7) Singleness of purpose can be provided in the area school.

A typical example of many such developments across the country was the vocational-technical needs study and community college-area vocational school development in Shiarvassee County, Michigan. Young (1966), in reporting on this citizen study and program development, pointed up the critical need for vocational-technical education at the post-secondary level which could be fulfilled by the area approach.

Regional education centers, authorized by California in 1967, have been popular area centers to meet burgeoning training needs of large cities. Dellefield (1969) reviewed five important features of such area centers.

1) Courses are established upon comprehensive study of adult needs.
2) Industrial experts serve on advisory committees, assisting with content selection, course length, and course standards.

3) Industrial leaders assist with financial support.

4) Instructors are chosen from industry where the skills currently in demand are available.

5) Evaluation of each course is closely related to local industry.

C. Miller (1969) reported on a county-wide vocational agriculture program for adults in Union County, Kentucky. Notable features of the program were: superintendent's involvement, advisory council utilization, challenging course of study, good teaching, and extensive on-farm follow-up of instruction.

Georgia's area teacher program for providing specialized courses for adult farmers has attracted national attention. The program was started with 10 teachers in 1955. Chapman's (1970) description of the program indicated that it operates much like the Agricultural Extension Program in many southeastern states in that area teachers serve as subject matter specialists in strategic content areas.

Area approaches in providing adult vocational-technical education are obviously related to the emerging need for comprehensive programming--the philosophy of total education described in the opening section of this review. Such a philosophy of education requires a unified system of comprehensive institutions responsive to humanitarian and economic needs of a community, a state, a nation, and a world. Herring (1968-69) stresses the newness of such an approach.

> It is innovative; it is exploratory; it is revolutionary; but it is fundamental in its goals. And its ideal is as old as the ideal of man and man's belief in education, that is, the right of every individual to have the opportunity to develop his full talents whatever they be.

Institutions and Organizations Involved in Adult Vocational-Technical Education and Efforts in Program Articulation

In describing the emerging organization of adult vocational-technical education, one approach is the identification of the multitude of organizations and institutions now involved in the field and the recognition of some which appear to have assumed major responsibility in the occupational education of adults. Fourteen institutions and agencies involved in the continuing education of adults were identified in the 1970 *Handbook of Adult Education in the United States* (Smith, *et al.*, 1970). These were: colleges and universities, community colleges, public schools, public libraries and museums, cooperative extension service, armed forces, labor unions, businesses and industries, health and welfare agencies, religious institutions, correctional institutions, hospitals, proprietary schools, and independent and residential schools (Smith, *et al.*, 1970). While each of these organizations and institutions appear to be involved importantly in adult vocational-technical education, one--the community college--seems to be the emerging leader in such endeavors for continuing education. Furthermore, it appears to be the ideal center for coordinating and providing a unified approach to lifelong learning for adults (Smith, *et al.*, 1970).

A study of adult education needs by representative citizens of the Muskegon, Michigan school district (Kleis, 1967) included the recommendations for an area system of continuing education encompassing public schools, community colleges, and community agencies and councils. Chief concern appeared to be the articulation of job-related programs for adults. A master plan for occupational education in metropolitan Denver was based upon 12 criteria for relating the specific occupational need to a specific level in the total public educational program (Metropolitan State College, 1968). The most desirable outcome of the master plan is the articulation and proper sequencing of programs from high school through junior college and four-year college.

Previous reference has been made to on-the-job training and numerous cooperative adult education arrangements between public education agencies and business and industry. Perhaps herein lies one of the most essential organizational relationships of this decade for enhancing adult vocational-technical education. Gates (1969) has suggested that the growth of educational technology has placed educators in a new kind of partnership--a new chain of relationships with the businesses and industries that produce and thrive upon the new technology. A meaningful dialogue must be established and continually strengthened between education and industry, for one is now dependent on the other.

Financial Resources and Facilities

Each state is responsible for guaranteeing that all citizens are provided with opportunities for quality education, that opportunities are equally available to each individual without regard to residence, race, creed, or socioeconomic position, and that the resources of the state are allocated in such a way as to maximize educational development and economic efficiency. Recognition of such responsibility by state education leadership appears to be one major factor in the trend toward state-increased coordination, control, and financial support of new efforts in adult vocational-technical education.

Henderson (1966) suggested that perhaps one of the greatest new opportunities for the development of continuing education for adults would come from funds made available through the multitude of new and expanded federal acts supporting education at all levels. The enactment of the Vocational Education Act of 1963 and the subsequent amendments of 1968 have provided a new philosophy of and major financial support for vocational education resulting in a major redirection and expansion of occupational education in every state.

Other national legislation, such as The Adult Basic Education Act, Manpower Development and Training Act (MDTA), Economic Opportunity Act, and National Defense Education Act, has stimulated and supported innovative and creative ways to meet adult occupational needs, especially in the compacted areas of the nation (Schenz, 1969). Nadler (1969) described a new federal bureau, The United States Training and Employment Service (USTES), which combines the major programs of the U. S. Employment Service and The Bureau of Work-Training Programs. Assistance is provided through and with such services as on-the-job training through MDTA, New Careers, Neighborhood Youth Corps, Job Corps, and Operation Mainstream. Types of assistance include recruitment, counseling, testing, and placement.

An important factor in the effective administration of adult vocational-technical education is the provision of adequate facilities conducive to maximum learning. Kenosha Technical Institute is considered an outstanding example of the importance of providing top facilities for vocational and adult training programs (Kenosha Technical Institute, 1968). This school, which has been recognized by the Education Facilities Laboratory, has exerted every effort to dispel the traditional "shop image" and replace it with a "prestige college" atmosphere vital to community acceptance and student participation. Through his description of the positive learning atmosphere of DeKalb Area Technical School near Clarkston, Georgia, Russo (1966) pointed out that this comprehensive school serves as a model in methods of developing curricula and facilities for comprehensive occupational programs. Vocational courses and facilities for adult occupational courses are flexible and especially tailored to community industrial needs. Russo also described the Vocational-Technical Adult School in Milwaukee, Wisconsin, which stresses the community adult education approach and has its largest enrollment in the adult school section. Emphasis is placed on flexible, multi-purpose facilities with extensive use of audiovisual aids and television instructional facilities. Of particular interest are the flexible and extensive facilities for parking, food service, and handicapped students, all designed with the adult in mind.

One community college in North Carolina stresses facilities planning for vocational-technical education which are exceptionally inviting to the adult craftsman or technician as he seeks opportunity for continuing education.* Nothing speaks as loudly for the dignity of occupational training as the presence of an attractive, well-designed and well-maintained shop building in a conspicuous place on campus, rather than in an out-of-the-way, corner-of-the-campus location.

Adminsitrative Leadership

Soule (1966) admonished that the success of the vocational education program is dependent upon the kind and quality of leadership given to the program. The role of the person giving leadership is no small responsibility, especially in time of large scale activity such as that of vocational-technical education for the adult worker of today. A relatively recent development in leadership of vocational-technical education is the provision of local (administrative unit) directors of vocational-technical education (Morgan, 1971). The limited available literature on the position of local director might be summarized by the following generalizations:

1) Local directors need training in the newer principles of administration in order to function effectively as administrative leaders of broad and comprehensive programs;
2) The internship is considered ideal for the preparation of a local director;

*Observations of personal visit to Rockingham Community College, Wentworth, North Carolina, July, 1970.

3) Further research is needed on the role of the local director, especially in relation to his administration of adult vocational-technical programs. (Soule, 1966; Morgan, 1971).

Recent developments in community and junior colleges include the establishment of positions of Dean, Director, and/or Head of Vocational-Technical Education (Cohen and Rouche, 1968). Some institutions have also established positions of administrative leadership for adult and continuing education and have included programs of adult vocational-technical education as part of the responsibility of the person occupying one of these new leadership positions (Harlacher, 1969).

A continuing trend in the administration of programs of adult vocational-technical education is the utilization of part-time teachers. While this practice has facilitated the participation of thousands of adults who could not have been served with the limited full-time teachers available, it has also multiplied problems of quality instruction, student morale, and teacher retention. Beck (1965) dealt with the study of retention of part-time adult education teachers. The study revealed that such things as freedom in the classroom, opportunity to seek and impart knowledge, and political values were considered important by part-time teachers. It was recommended that adult education directors use these values of freedom, opportunity for professionalism, and political involvement as well as monetary considerations in recruiting part-time faculty. In-service education pertaining to social and theoretical values was also encouraged.

Evaluation

Evaluation of adult vocational-technical education appears to be extensive but little research on the evaluation process has been found in the literature. Two of the most recently emerging organizations for evaluation of vocational-technical education are state advisory committees and state coordinating units for occupational research and development (Harlacher, 1969). Both are beginning to contribute to our understanding and use of evaluation as well as to the development of more effective programs of vocational-technical education.

Evident throughout one research summary by the California Coordinating Unit for Occupational Research and Development (California RCU, 1967) was the feeling of urgency for continual evaluation of current programs of occupational education to the end that every person completing a program of training could be capable of entering his chosen career and continuing to advance on the job. The need for research and evaluation of job persistence and progress of the graduate of occupational education was stressed.

Numerous efforts have been made to design evaluative instruments for vocational-technical education. Squires (1969) reported on one such instrument developed in Arizona for the evaluation of Manpower Development and Training Programs. Program elements which might be evaluated by the instrument include: (1) curriculum, (2) clientele or trainees, (3) staff, (4) supervision and administration, (5) facilities, (6) supplies, (7) equipment, (8) instruction, (9) instructor training, (10) guidance and counseling, and (11) student placement and follow-up.

A research project has been funded at Virginia Polytechnic Institute and State University to develop an evaluation system for vocational education (Lewis and Oliver. 1970). Five types of evaluation are to be included in the system.

1) Evaluation to meet accountability requirements. Data will be collected on program enrollments, quality and accessibility, student characteristics and status, and information for later student follow-up. A communications system will include feedback to keep state and local program leaders informed.

2) Evaluation of instructional programs. Educational programs in selected schools will be described in terms of behavioral objectives and tests designed to measure these objectives will be used on a pre-test and post-test basis to determine extent to which objectives were reached.

3) Evaluation of process and product. Study of programs in selected schools will determine the relationship between what the student experiences within the planned instructional program and the occupational skills and abilities he possesses as a result of his learning experiences.

4) Evaluation of cost and effectiveness. Through the determination of instructional costs in selected schools and the allocation of these costs to program objectives, alternative costs of achieving program objectives can be examined.

5) Evaluation of the system. The system of evaluation will be examined carefully to determine its effectiveness in meeting its stated objective.

Carroll and Ihnen (1966) compared Gaston (North Carolina) Technical Institute graduates with a matched set of high school graduates for the purposes of determining:

1) estimated costs and returns of technical education;

2) private and social rates of return on the investment in technical education; and

3) rate of return on investment in technical education as compared with that of general education and/or that of investment in tangible capital.

Graduates, matched according to high school records, were all male and all white. Carroll and Ihnen concluded that the investment in technical education at Gaston Technical Institute yielded a favorable rate of return relative to investment in general education and tangible capital.

Evaluation of adult vocational-technical education also occurs through efforts associated with regional accreditation. Especially through self study for accreditation, the institution contributes much to its own evaluation and improvement. One is cautioned, however, by Ward (Selden, 1971) of the major transformations required by regional accreditation if it is to serve realistically the needs of occupational education. Ward indicated the need for major transformation when he identified nine factors which complicate accreditation of occupational education:

1) Failure to determine whether program accreditation, institutional accreditation or both are at issue;

2) Inability to determine what vocational-technical education includes;

3) Diversity related to the fact that some occupational education programs are part of the comprehensive high school, separate institutions, or the community college program, and are supported publicly, privately, or by a variety of proprietary institutions;

4) Recognition that accreditation in America has historically been a voluntary and jealously guarded relationship between an institution and an accrediting agency, which in the minds of many, is threatened by the involvement of governmental agencies;

5) Allegations that federal funding threatens the traditional freedom of institutions;

6) Unresolved issues of creating 50 state accrediting systems or maintaining existing regional accrediting;

7) Confusion regarding program approval versus institutional approval;

8) Indecision regarding development of additional accrediting agencies or expansion of existing ones to cope with specialized educational programs;

9) Disagreement on accrediting programs at the two-year level.

As in much of the other literature reviewed concerning adult vocational-technical education, that related to evaluation seems to dwell upon the importance of delineating, stating and measuring behavioral objectives. Perhaps this rather sudden preoccupation with behavioral objectives explains both the education profession's past reticence with respect to evaluation and its current frenzy to get on the assessment. Behavioral objectives offer promise in giving emphasis to evaluation as a tool for improving learning and thus the vocational education profession.

Tyler (1966) stated that the purpose of evaluation in education is to improve learning; therefore, we need to state our objectives in terms of (1) the learner, (2) the specific behavior change we desire, and (3) the content area in which behavior is to be affected so that evaluation can be based upon the extent to which objectives are met. Such procedures can be readily followed in adult vocational-technical education, where the learning goals are usually quite specific.

CONCLUSIONS AND RECOMMENDATIONS

A simple summary of the review of research and developmental activities in adult vocational-technical education seems tautological and of questionable value to the reader. Rather it seems of greater utility to identify significant trends, point up imperative needs and recommend important research priorities--purposing to contribute to clearer understanding of the issues and more productive effort in the profession.

Trends in Adult Vocational-Technical Education

1. Simultaneous establishment of comprehensive and specialized educational institutions.

The prevailing philosophy appears weighted in favor of the comprehensive institution (comprehensive high schools and community colleges); yet the practice includes the establishment of a significant number of specialized area vocational-technical schools. One might conclude that society is experiencing difficulty in implementing the philosophy of comprehensive educational programming.

2. Integration of formal education and work experience.

The practice of "learning by doing," about as old as vocational education itself, is making new inroads in adult vocational-technical education. Renewed emphasis upon cooperative education, work study, apprenticeship training, demonstration farms, and group field projects, especially in adult-type educational institutions such as community colleges and technical institutes provide ample evidence of current trends in work experience.

3. Accelerating efforts in program development for special clientele including the disadvantaged, prison inmates, senior citizens, women and migrants.

Many would identify federal financing as the chief impetus for massive attention to the education of special groups of clientele. More intensive study and examination of such educational efforts, however, might lead one to conclude that genuine interest in education by special clientele, equally sincere interest by vocational educators to reach special clientele and the recognition by an increasingly large portion of society that continuing adult vocational-technical education is an imperative for life are at least as important as the availability of federal resources.

4. Involvement of adult clientele in identifying needs, planning programs, conducting learning activities and evaluating outcomes of teaching and learning.

5. Preoccupation with the design and development of approaches and systems for program evaluation and public accountability.

The great stress upon educational relevancy and accountability has apparently given rise to a renewal process in involvement of clientele and subsequent evaluation and accountability. Though there seems to be much uncertainty in respect to the "how" of involvement and evaluation, the case for such appears to be well made and highly supported throughout much of the profession.

6. Proliferation of adult education organizations.

7. Cooperative organization endeavor in adult vocational-technical education.

Possibly the proliferation of adult education organizations is the catalytic element responsible for the trend in joint sponsorship of numerous education programs. While many organizations yet go their own way in planning and conducting educational programs for adults, a significant number appear to have realized that in the modern complex society, for many kinds of educational endeavors, cooperative effort not only pays off in more effective education, it also enhances the status of the co-sponsoring organizations.

8. Integration of vocational-technical and general education.

Commissioner Marland's recent stand on the need for more relevant education through career or occupational development for the majority of the nation's school youth reinforced a trend already underway in many parts of the United States. Many realized that the wall of separation between general and vocational education was never an intent of the founding fathers; indeed the intent must have been for one to complement the other. It seems now apparent to educational leadership that vocational-technical education (for all ages) can not only meet the manpower needs of society and increase the individual's work options, but also serve as a motivating force for the enhancement of general education.

9. Increased resources (especially federal for adult vocational-technical education.

10. Widespread acceptance of the concept of lifelong, adult continuing education.

Undoubtedly the rapidly increasing financial resources for adult vocational-technical education accounts for much of the new interest in and commitment to lifelong learning. However there is considerable evidence that the case for lifelong learning has been substantially supported by educational considerations. Adult learners have apparently discovered that they *can* continue to learn, that learning is enjoyable, and best of all that learning can contribute to improvement in their work and their work situations.

Needs of Adult Vocational-Technical Education

Every adult deserves the opportunity to educate himself for a new job or to improve in his present job. There was evidence of widespread acceptance of this right of opportunity for continuing education throughout the literature examined in the preparation of this review. Among the actions specified or intimated in the literature which might enhance this opportunity were:

1) Attention to new models of curriculum development and effective strategies of teaching-learning (instruction).

2) Extensive and meaningful involvement of adult education clientele through advisory committees, small group projects and special task groups.

3) Increased cooperation and integration of effort among secondary schools, technical institutes, community colleges, universities and other organizations which are significantly involved in adult vocational-technical education.

4) Integration of vocational-technical and general education to the extent that both are more relevant to the student and of greater benefit to society.

5) Stepped-up research and in-service education in all aspects of adult vocational-technical education.

6) New models for evaluation and accountability in vocational-technical education.

7) Reduction in school dropouts to the end that a greater portion of effort in adult vocational-technical education could be transferred from remedial to continuing educational activity.

8) Preparation of additional teachers and administrative leaders for areas such as health, technical education and public service where personnel shortages are critical.

9) Greater public awareness and understanding of adult vocational-technical education needs and prospects.

10) Increased and more effective use of work experience such as that gained through cooperative education and apprenticeship training.

Clearly there are other needs in adult vocational-technical education not included in this summary or touched upon in the review. Some needs not identified may be of higher priority than some identified in this treatise. Hopefully the selective treatment in this review will stimulate others to extend the effort to additional aspects of the field. Such a response by readers and critics will boost the morale of those responsible for the review, but more important will enhance the efforts of numerous researchers and practitioners active in advancing adult vocational-technical education and improving the life styles of adults across the nation.

Priorities for Research

Concern about research in adult vocational-technical education is a rather recent phenomenon. Within the past five years, it appears that more research effort has been exerted than in all the previous history of vocational-technical education. The needs of the field are numerous and the opportunities for real service are many. Some of the problem areas in which research appears to be most needed are:

1. Factors associated with the reentry of women into the world of work.
   a. Training and retraining needs.
   b. Care of young family members

c. Triple role of mothers.

d. Acceptance of women in traditionally masculine work areas.

2. Models and/or strategies for cooperative programming.

a. Internships and externships.

b. School and industrial cooperation.

c. Contractural Education.

d. College and secondary school cooperation.

e. Cooperative education.

f. Apprenticeship.

3. Alternatives for organization, administration, and supervision of adult vocational-technical education.

a. Area and/or regional development.

b. Multi-agency arrangements.

c. Extension.

d. Administrative leadership.

e. Local directors of occupational education.

4. Strategies for education of minority and/or special groups.

a. Black.

b. Migrant.

c. Hardcore.

d. Disadvantaged.

e. Inmates.

f. Senior citizens.

g. Rural youth.

5. Guidance and counseling of adults in respect to occupations and occupational development.

a. Coping with change.

b. Growing on the job.

c. Using leisure time.

d. Getting job information.

e. Government aid.

f. Social services.

6. Adult learning strategies and resources.

a. Nature of adult learning.

b. Literature for adult learners.

c. Adult learning climates.

d. Adult learning strategies.

7. Factors associated with organization and placement of adult vocational-technical education in the public education system.
   a. Placement of vocational-technical education in institutions.
   b. Integration of general and specialized education.
   c. Image of vocational-technical education.
   d. Articulation among institutions.
8. Curriculum development and program evaluation in adult vocational-technical education.
   a. Identifying needs.
   b. Planning
   c. Evaluating.
   d. Accountability.
9. Alternatives in clientele involvement.
   a. Advisory committees.
   b. Task forces.
   c. Small planning groups.
   d. Special consultants and consultant teams.
10. Models for organization and administration of university training programs in adult vocational-technical education.
   a. Integration of graduate-level programs.
   b. Organization for research and in-service.
   c. Relationships between programs in different colleges and/or universities.
   d. Replanning and updating existing courses in adult vocational-technical education.

One might conclude from a cursory review of the foregoing problems that research needs in adult vocational-technical education are overwhelming. A similar conclusion could be made in respect to the types of research needed. While most of the research in vocational-technical education to date has been of a status nature, some additional research of this type would serve quite well as a basis for other kinds of study. Other types of research needed include pilot studies, experimental research, historical research and interpretative studies.*

While each of the 10 problem areas and associated research topics appear to be of urgent concern to the field, it seems practical to point out that four problem areas are in greatest need of research:

1. Program evaluation and accountability.
2. Organization, administration and supervision.
3. Integration of general and vocational education.

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*Interpretative studies refers to analysis, synthesis, and application of research from the behavioral and natural sciences.

4. Strategies for working with minority groups.

The research output from studies dealing with these four problem areas and its subsequent application to on-going efforts in the field could be among the most significant contributions of this decade to adult vocational-technical education.

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