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This report, part 1 of a two-part research and development study on the education of adult educators, deals with the relationship of certain disciplines and fields of study to adult education. Material was obtained by reviewing and integrating recent adult education research with that cited in previous reviews, reviewing recent research in related disciplines and applied felds, interviewing 34 selected leaders in these fields and disciplines, considering statements by professors of adult education, and synthesizing recommendations from a work conference of leading adult educators. Findings pertained mainly to basic contributions of psychology and sociology in such areas as innovation, diffusion, adoption, aging, social class, leisure. adult learning, adult characteristics, motivation, educational methods, and educational political anthropology economics, Contributions from leadership. communications, public school and higher education, school administration, social work, vocational and military training, and library science were limited but potentially important. (The document includes 100 references.) (ly)



U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE OFFICE OF EDUCATION

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Educating the Adult Educator

Part 1.
Concepts for the Curriculum

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U.S. Department of Agriculture
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Cooperating

EXPERIMENT STATION UNIVERSITY OF WISCONSING

Foreword

THIS PUBLICATION is the product of a study sponsored by agencies and institutions interested in adult education curriculum and research. It was prepared while the author was on a joint assignment for the Federal Extension Service (FES) and the University of Wisconsin. The research was supported by the Cooperative Research and Adult Education branches of the U.S. Office of Education.

The project had the endorsement of the Commission of Professors, Adult Education Association. This publication is one of several resulting from the study, and is a companion piece to EDUCATING THE ADULT EDUCATOR, Part II—The Taxonomy of Research, being published by the U. S. Office of Education, Department of Health, Education, and Welfare.

Thirty-four people of national reputation in their respective scholarly disciplines or fields of work gave valuable time to a discussion of the research needs of adult education and the contributions and relationships of their field to adult education.

The documentary base for contributions to this study is a result of the loyal work of staff members and graduate students of the University of Wisconsin; Paul Butterfield, Evan Clingman, Ardyce Haring, James Long, Beatrice Loy, Dean O'Brien, and Charles W. Portal-Foster.

Of special note is the work of Mrs. Ludmilla Marin, who was responsible for the coordination of the project work on the Wisconsin campus, and Darcie Byrn, FES, for his critical review of the initial draft of both reports.



Educating the Adult Educator

Part 1. Concepts for the Curriculum

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Introduction

THIS STUDY is reported in two parts. Part I deals with the relationship of certain disciplines and fields of study to adult education. It also summarizes the research contributions of these fields and disciplines toward a deeper understanding of selected concepts associated with continued learning. Part II, published by the U. S. Office of Education, Department of Health, Education, and Welfare, establishes a framework for research in adult education and identifies the research areas needing attention.

The developing pattern of social and technical change in the United States is exerting great pressure on adults for retraining, continuous education, and new learning. This pressure, long predicted by those engaged in adult education, now calls for answers to questions still unresolved by practice or research. The need for solutions to pressing problems about the education of adults is recognized and immediate.

The Commission of the Professors of Adult Education of the Adult Education Association has been concerned about the paucity of sound basic research, as well as the limitations of applied research completed to date. Efforts of its members in preparing the 1964 volume, Adult Education; Outline of an Emerging Field of University Study, often were frustrated by lack of a research base to support the framework of the field.

The U.S. Office of Education has encouraged the undertaking of fundamental adult education research projects and the development of graduate programs.

The Federal Extension Service in the U. S. Department of Agriculture, in cooperation with state colleges and universities, is engaged in serious explorations of both research and training in Extension Service educational programs.

The University of Wisconsin, one of 26 institutions with an advanced degree program in Cooperative Extension and one of 15 with a doctoral program in adult education, has undertaken a number of applied research projects to resolve problems of the field level adult educator.

These four organizations—the U. S. Office of Education, the Adult Education Association, the Federal Extension Service and the University of Wisconsin—have joined forces to survey the contributions to adult education of research by selected disciplines and to determine the research needs of adult education.



Summary

THIS RESEARCH AND DEVELOPMENT study has been summarized and integrated presenting only representative concepts and highlights from the research literature.

The material was gleaned from a series of related efforts that involved (1) reviewing and integrating the recent research in adult education with that cited in previous reviews, (2) reviewing recent research in related disciplines and applied fields, (3) interviewing leaders in these disciplines and applied fields, (4) carefully reviewing communication by professors of adult education, and (5) synthesizing the recommendations emerging from a work conference in which leading adult educators appraised and criticized a preliminary report of needed research.

Adult education deserves attention from researchers in a number of disciplines and applied fields. Chief among these disciplines which can make substantial research contributions are sociology and psychology. The applied fields of communications, human relationships, and social work also are important in resolving other field problems. The total field of education also can make vital contributions to adult education.

There will be added contributions from the various disciplines and fields of study as the American society moves closer to the time when continuing education and retraining is the positive alternative to unemployment; to the time when the adult response to questions about his employment will elicit but three alternative responses, (1) "I have a job," (2) "I'm in retraining," and (3) "I'm retired." Within this framework there can be no "unemployment." It is then that the narrow walls of thinking about education must crumble; walls that have tended to confine elementary, secondary, and higher educational systems alike to an image of themselves and their institutional structures as terminal education facilities—a role assignment adult educators would have them abandon.



Chapter 1 The Research

The Problem

What does research in adult education and related disciplines tell about the education of the adult? What research findings are related and where can they be located? Is it possible to organize and catalogue the expanding volume of research? These questions are asked by organizers and teachers of adult education.

More than 50 million adults in the United States are studying individually or in organized adult education programs. Each year their ranks are swelled by another million adult learners. A current study by the National Opinion Research Center shows that more than 17 million adults enrolled in some edult education course or activity during the period from June 1, 1961, to June 1, 1962. Almost 9 million others were engaged in some form of systematic self-education and 2,650,000 enrolled as full-time students.

The organized programs available to those continuing learners are products of earlier social patterns far different from those of the 1960's. Too often programs are based on tradition, guess, or blithe assumption—rarely upon scientific study. One major problem is the tremendous diversity of content, methods, and agencies involved in activities labeled "adult education."

Participants may turn to the programs of voluntary agencies, community centers, the university Extension Services, or the public schools. In recent vears, vast new educational programs have burgeoned in connection with labor unions, the armed forces, political agencies, professional groups, and industrial firms. Impetus has been added by the increasing leisure time available to adults. More and different programs of adult education are resulting from activities of the Federal government, such as those conducted by the Agency for International Development, the Peace Corps, the Armed Forces, the Manpower Development and Training Act, and the recent Economic Opportunity Act. In addition, projected educational programs appear in several bills now before the U. S. Congress.

These mounting pressures of modern society for more and better means of educating adults underscore the limitations of research in this area. In general, reviews of research completed before 1960 find it scattered and lacking in both depth and focus. However, a recognition of the potential contributions of disciplines such as psychology, sociology, and anthropology is developing. Applied areas, such as Cooperative Extension, industrial relations, social welfare, and executive training, are adding to the present fund of knowledge.

We are just beginning to recognize the significance of experimental work in related disciplines and applied fields. Project members felt that a careful exploration of recent research in a number of disciplines would be of particular value in determining which fields were of primary importance in

assessing the potential of each to adult education.

Professional concern for adult education as a separate area in the field of education has been pioneered by a rather small cadre in U. S. colleges and universities: Only 14 Professors of Adult Education first met in 1955. In 1956 the group included 24 persons representing 17 colleges and universities.

In 1957 the Commission of the Professors of Adult Education of the U. S. Adult Education Association began a series of seminar meetings with support from the Kellogg Foundation. The purpose of the series was to formulate a theoretical framework for adult education, as well as to establish a basis

for graduate level education of the adult educators themselves.

Initially these men invited representatives of other disciplines, such as psychology and sociology, to meet with them. However, the group found itself handicapped by the lack of research-based knowledge about educating adults. Moreover, no sources were readily available for drawing on the

research findings in the various related fields.

However, research of value to the adult educator does exist in disciplines such as psychology, sociology, anthropology, vocational education, and communications. The present research development project was a limited exploration of the literature in these and related fields. It sampled each field for information which could be utilized in strengthening adult education

as a unique field of study and application.

Earlier reviews of research in adult education served as guides in establishing the objectives and selecting the fields sampled in this study. Much of the research directly identified as adult education and completed prior to 1958 had already been summarized and reported. For example, three major issues of the Review of Educational Research¹ emphasized education for later maturity, fundamental education for adults, basic characteristics of adults as related to education, content and methods of adult education, audiovisual aids of value in adult education, the sponsoring agencies of education for adults, philosophy and issues in the field, adult education as it relates to society, the psychology of adults, learning processes in the adult group, instructional methods, organization and administration of adult education, and program planning and development in the field. The evidence in all phases showed a dire need for extensive basic research.

The four major and interrelated objectives of this development project are listed below. This report presents some of the results of completing objec-

tives 1, 2, and 4.

Objectives

1. To integrate past research in adult education with more recent findings.

2. To review selectively recent research in the fields of psychology, sociology, anthropology, vocational education, and communications

¹Review of Educational Research, Washington, D.C.: American Educational Research Association, National Education Association. Vols. 20, No. 3, June, 1950; 23, No. 3, June, 1953; and 24, No. 3, June, 1959.

for findings pertinent to the process of educating adults, and to assess the feasibility of more extensive searches of the literature in these and other fields in terms of their probable contributions to adult education.

To integrate the adult education literature with relevant material from other fields and to categorize this literature in terms of the basic

researchable problems in adult education.

To relate the integrated research literature from the various disciplines to existing theory in adult education, especially theory developed by the Commission of the Professors of Adult Education and identified in the book, Adult Education: Outline of an Emerging Field of University Study.

Chapter 2 **Project Procedures**

The initial stage in integrating the literature and organizing needed research involved a review of three basic sources. The first source was the reports of research accomplished or described by adult educators, beginning with the Brunner report in 1959 and including a review of documents published through 1963. The second source was the manuscript for the volume, Adult Education: Outline of an Emerging Field of University Study.

The third and most comprehensive source was a sampling of journals and reports published since 1959 by researchers in disciplines and applied fields related to adult education. The disciplines and applied fields explored include psychology, sociology, social psychology, anthropology, communications, social work, business and industry, education and vocational education.

The second stage of this project was carried out through a series of interviews with 34 selected leaders. Some of them had direct ties to adult education and others focused upon their own discipline or field but had expressed concern for adult education. Among the former were Francis Keppel and Lloyd Davis; the latter included Margaret Mead and Henry Wriston.

Interviewees were asked to identify research areas which they believed would help resolve some of adult education's field problems. Next, they rated research gleaned from the three sources above on its importance to adult

education.

In the third stage of the project the Commission of the Professors of Adult Education and the 34 leading adult educators examined the findings from the first two stages. This phase added to the project director's perspective on literature and research needs, helped in organizing these needs and in creating a new structure through which the resources to pursue the research were organized.

In the final stage the project director integrated and synthesized findings from the survey of literature, from the interviews with leaders and from

the work conference with the professors and others.

Concepts and research needs so identified were organized into areas of application. When possible, priorities were suggested.



Chapter 3 Findings

Contributing Disciplines and Fields of Study

Researchers in several disciplines have done basic research that ties directly to the process of educating adults. In other investigations, hypotheses are tested and theories developed that cover the ground in which the adult educator has an interest although no direct tie can be identified yet. To date, the major contributions, both theoretical and practical, have come from sociology and psychology.

For major practical applications, adult educators turn to the fields of communication, business and industry, and vocational education, plus the research conducted by the educators themselves. The generalized field of education, too often considered as elementary, secondary and higher education only, is a fertile field for research. Important concepts from these studies need

verification at the adult level.

Basic Contributions of Sociology and Psychology

Adult education has roots in sociology and psychology. Research in these fields furnishes substantial materials to teachers. Sociologists have been more directly concerned with the problems of adult education than psychologists. Rural sociologists are major contributors. They have justified their research through the social problems related to innovation, adoption of recommended practices and resistance to change.

The setting for identifying these problems came from the working relationships established between adult educators in the Cooperative Extension Service of the Land Grant colleges and the sociologists. Might there have been more research on the psychological backgrounds of adult education if the Land Grant colleges had employed rural psychologists as well as rural sociologists?

The literature from 1959 to 1963 shows that psychologists are becoming more aware of adult learning problems. This trend is apparent in the research and writings of adult educators whose discipline is psychology and of psy-

chologists engaged in learning studies.

An increase also occurred in studies that deal with a combination of socio-cultural and psychological phenomena. The contributions of the social psychologists to the theory and structure of adult education are some of the most useful for practical settings. Studies of learning, social interaction and other small group phenomena are reported in a number of professional journals.

Sociologists and psychologists interviewed suggested a variety of re-

search contributions that their disciplines made to adult education.



Potential Contributions of Anthropology, Economics, Political Science and Other Disciplines

Adult education can gain breadth from investigations in fields other than those that provide its tap roots. Such disciplines as anthropology, economics and political science make some contributions, but by no means as many as

they might.

The pertinent documentation in these fields is limited. Social scientists have only begun to recognize the changes in educational patterns developing in mid-twentieth century. Anthropologists, such as Margaret Mead and George Spindler, and the economists, Fritz Machlup and Theodore Schultz, were among the first to judge the problems of adult educators worthy of investigation in their respective fields. Thus far, most adult educators who have backgrounds in these related disciplines have been too busy with action programs to employ research know-how from their basic disciplines.

Contributions to be made by these fields should not be overlooked owing

to the lack of present research related to programs of adult education.

Contributions of Education

Both a dilemma and an opportunity arise from the relationship between adult education and general education. The dilemma concerns the failure to view education as a continuous process. This inadequacy may be noted in the research in elementary and secondary school and college settings. The opportunity comes through these same researchers who may contribute information about working with and analyzing educational phenomena. Basic research in education is as meaningful for the adult educator as for the kindergarten teacher. Although the bulk of it derives from captive audiences, applied research could provide the adult educator with many promising ideas and bases for conclusions, if results were available to him.

Research in adult education is not usually integrated with activities in the field. Nor is research by separate agencies coordinated. The investigations in vocational education for adults, in business and industry, and the learning studies in the military often do not cross service lines, much less

reach the university adult educator.

Adult education is struggling to clearly identify its position in the field and to build its integral resources. Among the resources and researchers at a national level which have like concerns that need to be related to the development of the field are these: The American Society of Training Directors, the Office of Naval Research, the Psychological Branch of the Aero Medical Laboratory, the Personnel Research Branch of the Office of the Adjutant General and the American Institute for Research.

Contributions of Other Applied Fields

The field of communications has a logical affinity to adult education. Educators, and adult educators in particular, habitually use communications media as they go about their work. They have a message; they are themselves communicators; and their audience is the focal point of their efforts in educational programing.



Despite the theoretic affinity between adult education and communications. the review of research literature in both fields revealed very little traffic between the two. The areas of inquiry of the two fields merge in the study of "mass culture," and the sociology of knowledge relating to that culture. The literature of each field resembles the other more closely in philosophy and theory than in research.

Nevertheless, communications research is a promising field for the adult

educator who wishes to broaden his present experimental scope.

The research in social work promised little to adult education in general, but it has much to offer those who are developing educational programs for the disadvantaged. The adult educator has had limited success with other than members of the middle class. Research in social work should become more useful as educators turn to problems of the less well fed, the inadequately housed and the ill clothed.

Research in school administration rarely considers the adult program of the school. However, recent studies of role theory and research on differing theories of administration may enhance the public school oriented to adult education. Research done at the National Agricultural Extension Center for Advanced Study, an agency devoted almost exclusively to adult education, has drawn on school administration studies in developing administrative theory for extension.

Research in *library science*, with particular reference to adult service, has revealed concepts useful to the adult educator. Human resources to pursue this area in greater depth were not available to the project director. Library research looks promising, but no final generalizations can be made.

Numerous implications for adult education were sifted from the research literature of the disciplines and applied fields examined in this developmental study. Other disciplines and fields, such as home economics, history and philosophy, were not tapped during this investigation. They may, in the future, enhance efforts by adult educators.

Selected Concepts and Research Areas Related to Adult Education

No attempt was made in this report to identify and describe all or even a major portion of the concepts and research areas in sociology, psychology or any of the applied fields of study that apply to adult education. Sociology and psychology have been selected as examples because of their signal role to development of education. The concepts and areas of research cited from these fields are only promising examples for the adult educator to consider. They are not necessarily the strongest contributions from either.

Disciplines and concepts have been chosen for their usefulness in terms of application. Philosophy and history may eventually have as much or more to offer the adult educator than the disciplines that seem more closely allied with his field. Builders of graduate curricula in adult education must determine which concepts and research areas to emphasize.

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Selected examples of useful studies will accompany each concept or research area chosen for consideration. In some instances, entire books could be or have been written; in others knowledge is in its infancy. More intensive examinations of these latter specialized areas have been left to others.

Relevant Concepts and Research Areas from Sociology

Innovation, diffusion and adoption. This area of research has been investigated extensively during the past two decades. Brunner² suggests that findings have application to both vocational and nonvocational adult education. Fliegel,³ in studying adoption rates among dairy farmers, grappled directly with a problem of adult education by suggesting that radical departures from traditional practices require more intensive and effective educational programs if the dairyman is to make valid judgments.

Rural sociologists have found farm practice adoption such a productive field for research that books are devoted to this topic alone. Lionberger⁴ reviewed the most significant of many such studies. He proposed that farm practice adoption be examined on an interdisciplinary plane. recommending teamwork among sociologists, economists, social psychologists and anthro-

pologists.

Rogers⁵ arrived at 52 generalizations from his survey of some 600 diffu-

sion and innovation studies.

Katz⁶ in his now-classic review of diffusion and innovation, stressed the hazards of conducting such research in an unrelated fashion simultaneously in anthropology, sociology, education and communications. He suggests bet-

ter approaches to innovation studies.

Research on diffusion, innovation and adoption has progressed sufficiently so that computer simulation should be considered as reasonable. However, prediction of change through simulation would demand greater clarity in structuring and standardizing than has been employed thus far. Such standardization would contribute to comparability of results among the many future studies likely to be conducted in this key research area.

Disengagement. The educator's original approach to teaching the older adult focused on post-retirement, use of leisure and preparation for retirement. Early research covered a rather narrow band of time before and after retirement. Even as late as the 1959 Brunner report, no research used the

social-cultural approach to disengagement.

³Fliegel, Frederick C., "Farm Practice and Adoption Rates." Social Forces. Vol. 40, No. 4: 364-370; 1962.

No. 4: 304-370; 1902.

4Lionberger, Herbert F., Adoption of New Ideas and Practices. Ames: Iowa State University Press, 1961.

Rogers, Everett M., Diffusion and Innovations. Glencoe: The Free Press, 1962.

Katz, Elihu and Others, "Research in the Diffusion of Innovation." American Society

ological Review. Vol. 28, No. 2, April 1963.

Brunner, Edmund des.; David S. Wilder, Corinne Kirchner and John S. Newberry, Jr.. An Overview of Adult Education Research. Chicago 11, Illinois: Adult Education Association of the U.S.A., 1959.



²Brunner, Edmund des.; David S. Wilder, Corinne Kirchner and John S. Newberry, Jr., An Overview of Adult Education Research. Chicago 11, Illinois: Adult Education Association of the U.S.A., 1959.

Disengagement—the process by which roles in relation to job, family and community change after middle age—is suggested by research on aging but has not developed into a workable frame of reference. Birrens presents an excellent section on changing social-cultural factors of the aging individual in his summary of the literature on psychological and biological aspects of aging, but an approach to the last half of the life span in terms of a theory of disengagement is left for Cumming and others⁹ and Cumming and Henry.¹⁰ In 1961 they reported on a 5-year study with adults from age 50 through 90.

Whereas innovation and diffusion have been researched extensively, disengagement represents a new and promising field of investigation. It is now sufficiently defined to warrant enlarged research, Havighurst11 and Havighurst. Neugarten and Tobin¹² have aided in its description and, by asking critical questions in relation to the concept, have opened the doors to a series of new approaches for examining the process.

Social class and verbal behavior. Language usage long has been associated with the kind of cultural background in which a person is reared. Pieris 13 indicates that language can function either to unify a group or reflect its conflict. The educator working with adults often faces the task of bridging the verbal behavior gap between cultural groups in order to attract and retain volunteers in educational programs.

It is difficult to maintain any educational program with members of the lower strata of class profiles.14 15 Many adult educators cannot communicate with these groups. Thus there is a major research concern regarding how the two factors of social class and verbal behavior relate to each other.

Nor is social class and verbal behavior, in combination, just a recent concern. Benjamin Franklin placed a very high utilitarian value on the correct use of language in an era when schools did not. In his academy he advocated training in proper English in preference to Latin and Greek because he believed that "education of a gentleman in his own tongue" differentiated him from those of lower breeding15

⁵Birren, James E., Handbook of Aging and the Individual. Chicago: University of Chicago Press, 1959.

Cumming, Elaine, and others, "Disengagement: A Tentative Theory of Aging." Sociometry. Vol. 23, 23-25, 1960.

¹⁰ Cumming, Elaine and Henry, William E., Growing Old, the Process of Disengagement. New York: Basic Books, 1961.

[&]quot;Havighurst, Robert J., "Changing Status and Roles During the Adult Life Cycle."
Mimeographed document, University of Chicago, 25 pp., 1963.

¹²Havighurst, Robert J., Neugarten, Bernice L., and Tobin, Sheldon S., "Disengagement and Patterns of Aging." Mimeographed paper read at the International Congress of

Gerontology, Copenhagen, 1963.

13 Pieris, Ralph, "Speech and Society: A Sociological Approach to Language." American Sociological Review. Vol. 16, 499-505, 1951.

²⁴Devereus, Edward C., "Community Participation and Leadership." Journal of Social

Issues, Vol. 12, No. 4, 29-45, 1960.

15Knox, Alan B., "Adult Education and the Adult Life Cycle." Adult Education. Vol. 13, Spring, 1963.

¹⁶Lemisch, Jessie L., Editor, Benjamin Franklin: The Autobiography and Other Writings. New York: New American Library, 1961.

Research relating class to verbal behavior has been conducted extensively among children and to a much more limited degree among adults. Influence of social class upon learning verbal behavior in general, and on learning in particular, is well documented. Davis17 saw this relationship as "the pivotal meaning of social classes" which defines and systematizes different learning environments for children in different classes. On the basis of this relationship, Davis criticized the highly verbal aspect of I.Q. tests that are given to school children. Conant18 takes a different but related stand, approving the tests, but calling for improved social conditions among lower classes.

Bernstein¹⁹ suggested that lower class children may incorporate a need for direct and immediate satisfaction, while middle and upper class children develop long-term goals. Lewis20 emphasized the different interpretation that occurs among lower class families. A child learns to interpret and communicate within his family group where the language may be incorrect. When he leaves the family and faces unfamiliar situations, his language may fail him. Adult educators observe similar reactions in adult life. They refer to participation, or the lack of it, in describing what they consider to be successful or unsuccessful programs.

Educators are studying the reasons that adults drop out of learning programs. Procuring data on the relation of participation to selected socialcultural phenomena is a crucial first step in such studies. This is characteristic of the Johnstone²¹ study. He offered social clues in an effort to explain why certain groups never volunteer to participate.

Socialization throughout the life cycle. Socialization of the individual has long received the attention of social researchers and psychologists. However, it is only in the current decade that socialization has been explored in studies of the mature and later years. In a November, 1963 conference the Social Science Research Council, with aid from the National Institute of Mental Health (NIMH), provided some base lines for future research. A report containing the major research reports and theoretical formulations coming from this conference will be available from NIMH.22

Brim²³ distinguished changes in socialization throughout the life cycle. Each of the six probable changes identified within his frame of reference is amenable to social research. This interpretation is based on previous studies and may have implications for adult education.

Davis, Allison, Social Class Influences upon Learning. Cambridge Massachusetts; Harvard University Press, 1962.

¹⁸Conant, James B., Slums and Suburbs. New York: McGraw-Hill Book Co., Inc., 1961. ¹⁹Bernstein, Basil, "A Public Language: Some Sociological Implications of a Linguistic

Form." British Journal of Sociology. Vol. 10, 311-326, 1959.

**Lewis, M. M., Language in Society. New York: Social Sciences Publishers, 1948.

**Johnstone, John W. C., Volunteers For Learning. Report No. 89, Chicago: National Opinion Research Center, University of Chicago, February, 1963.

When published in 1965, copies may be obtained from the National Institute of

Mental Health. Washington 25, D.C. ²²Brim, Orville G. Jr., Socialization through the Life Cycle. Mimeographed document. Russell Sage Foundation. November, 1963, 63 pp.

Other concepts. The sociology of leisure, in a society with changing values of both work and leisure, is important to the adult educator. Research on leisure is extensive, but it has had only limited effect on programs of education for adults. A review of the literature in this area indicates that the actionoriented educator is moving ahead of the researcher to establish programs on a basis of gross generalizations about leisure time. Dumozedier24 suggested a variety of ways to study leisure, some hearing directly on adult education

and personality development.

In addition to the association of social class and verbal behavior, there are relationships between class and other factors that tie directly to learning programs for adults. Of direct application is the research underway on correlation between social class and voluntary activities. For example, Slater,25 demonstrated that women of the upper socio-economic class resolved choices between activities and housework in favor of activities. Women of lower status saw themselves almost exclusively in a domestic role. Litt,26 based on his comparison of high school students in different socio-economic strata (upper middle class versus working class), indicated that the orientation of the schools to community activities fosters this variation in adult outlook.

Kohn,27 reporting on the relationship between social class and parental values, found that value concepts hold different meanings for parents in different cultural settings and social positions. His explorations of different value patterns among participants and nonparticipants in voluntary education programs represent one of the initial efforts by the adult educator in this kind of social research.

Leggett's28 studies of work class consciousness have particular relevance for adult educators trying to program for mobile populations.

Relevant Concepts and Research Areas from Psychology

Learning to learn. People can always learn. If this ability has not been acquired before adulthood, it can be taught then. This concept has its base in Gestalt psychology and field theory where there is foundation research on the way the thinking process is organized.^{29 30 31}

²⁴Dumozedier, Jaffre, "Current Problems of the Sociology of Leisure," *International Social Science Journal*. Vol. 12, No. 4, 522-531.

American Sociological Review. February 1963.

²⁷Kohn, Melvin, "Social Class and Parental Values." American Journal of Sociology. Vol. 64, No. 4, 1959.

of Sociology. Vol. 58, No. 6, 682-692, May, 1963.

29Hilgard, Ernest R., Theories of Learning. Chicago: Appleton-Century-Crofts, Inc..

²⁰Katona, George, Organization and Memorizing. New York: Columbia University Press, 1940. ³¹Lewin, Kurt, Field Theory in Social Science, New York: Harper and Brothers, Inc..

Slater, Carol, "Class Differences in Definition of Role of Membership of Voluntary Associations among Urban Married Women." American Journal of Sociology. Vol. 65. 616-665, 1960. Litt, Edgar, "Civic Education. Community Norms, and Political Indoctrination."

. Studies of cognition by Bruner^{32 33} and the theoretical framework surrounding the concept concern those working with the adult. Once the adult's cognitive development is understood, both organization and presentation of learning materials can be adjusted for maximum effectiveness. Research on cognitive variables has much to offer. Hebb³⁴ dealing with the organization of behavior, emphasizes the dependence upon "well organized sequences" in new learning situations, as well as interaction with some past pattern of organization.

The study of aging has produced useful clues for educators. Birren's³⁵ efforts are noteworthy, as are the studies of both young and older adults by Welford³⁶ and Botwenich and associates.³⁷ Welford's work on changes in performance from young adulthood forms the base for considerably more exploration in relation to perception, problem solving and learning, and memory

No longer is the capacity of adults to learn questioned seriously. Follow-up studies of the Iowa Army Alpha Test by Owens and Charles³⁸ among subjects who had reached age 61 indicate significant learning declines only in the numerical component between ages 50 and 61. All other components were stable.

One of the promising explorations of the "learning to learn" concept is now being directed by Robert Boyd in the University of Wisconsin Adult Learning Laboratory. Studies have established the framework for experimentation on the validity of the concept³⁹ ⁴⁰ and resulting experiments are underway. Much of the background for developing the concept of learning to learn came from the literature on human learning; particularly useful were interpretations of the problems of transfer by McGeoch and Irion.⁴¹

Individual change is a continuous process. Even the casual observer can recognize gross physical, psychological, emotional and personality changes that occur with age. The nuances of such changes in characteristics from year

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> 32Bruner, Jerome S., "Course of Cognitive Growth." American Psychology, Vol. 19,

No. 1, 1-15, January, 1964.

Bruner, Jerome S., The Process of Education, Cambridge, Mass.: Harvard University

Press, 1960.

[&]quot;Hebb, Donald O., The Organization of Behavior. New York: John Wiley and Sons, Inc., 1949.

EBirren, James E. and others, A Study of Human Aging: Biological and Psychological Aspects. Chicago: University of Chicago Press, 1962.

Welford, Alan T., Aging and Human Skill. London: Oxford University Press, 1958.
"Botwenich, Jack, Brinley, Joseph F., and Birren, James, "Maintaining Set in Relation to Age" Journal of Gerontology, Vol. 12, 300-305, 1957.

tion to Age." Journal of Gerontology, Vol. 12, 300-305, 1957.

Sowens, William A. and Charles, Don C., Life History Correlates of Age Changes in Hental Abilities. Laysayette: Purdue University, 1963.

⁵⁰Marin, Ludmilla, A Conceptual Framework for the Observation and Study of Individual and Group Behavior in Adult Instructional Groups. Masters' Seminar Report. Madison: University of Wisconsin, 1962.

⁴⁰Portal-Foster, Charles W., A Methodology for the Study of Work, and Emotionality in Small Face-To-Face Instructional Groups. Masters' Seminar Report. Madison: University of Wisconsin, 1963.

sity of Wisconsin, 1963.

**McGeoch, J. A. and Irion, A. I.., The Psychology of Human Learning. New York: Longmans, Green, Inc., 1952.

to year and through progressive decades of the life span concern the psychologist. How the adult adapts to his own changes and to changes in others concerns the adult educator.

Summaries of research on individual change are available. Pressey and Kuhlen⁴² documented work completed before 1957. The psychological base for continuous changes of man was probed by Erikson.43 Havighurst and Orr44 and Havighurst45 focused on the older years but called for studies of changes from young adulthood to old age with a view toward their sequential nature.

Special aspects of individual change have been reviewed. For example, Wohlmill⁴⁶ reported on numerous studies which refer to age changes in visual perception. He deals with such factors as increase in assimilation, decrease in awareness of contrast and increase in errors of judgment of verticality with age. This type of review, and the research it reports, does not appear to have any immediate application for the adult educator, other than to affirm that individuals change in a great variety of ways.

Aging in today's culture confronts the researcher with many specific socialpsychological issues. The increase in life expectancy, the decrease in work time accompanied by increase in leisure, and the recognition of "boredom" as a psycho-social disease are being examined in terms of what they do to an individual's pattern of change in later years.47 48 Breen49 maintained that scientists do not understand aging and termed research to date on individual change in the later years inadequate. He recommended that special attention be devoted to the typical adult in a variety of group settings, such as institutions, retirement areas, communities, socio-economic clusters, stress groups, and racial groups.

The nature of the growth response pattern among adults with different levels of social and psychological motivation is not well known. That they do respond differently is well documented. The literature suggests that differences in environment may be more influential in adult change than such factors as age and sex.50 51 52 53

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⁴²Pressey, S. L. and Kuhlen, Raymond, Psychological Development through the Life Span. New York: Harper and Bros., 1957.

Erikson, Erik H., Childhood and Society, New York: W. W. Norton and Co., 1950. "Havighurst, Robert J. and Orr, Betty, Adult Education and Adult Needs. Chicago: Center for the Study of Liberal Education of Adults, 1956.

*Shavighurst, Robert J., "Successful Aging." Gerontologist. Vol. 1; 8-13, 1961.

Wohlmill, J. F., "Developmental Studies of Perception." Psychological Bulletin. Vol. 57, 249-288, 1960.

⁴⁷Still, Joseph M., "Boredom, The Psycho-Social Disease of Aging." Geriatrics. Vol. 12, 557-560, 1957.

*Sheldon, Henry D., The Older Population of the United States. New York: John

Wiley, 1958.

*Breen, Leonard Z., "Some Problems of Research in the Field of Aging." Social Sciences Research. Vol. 41, 412-416, 1957.

*OPhillips, B. S., "Role Change, Subjective Age, and Adjustments: A Correlational Analysis." Journal of Gerontology. Vol. 16, 247-352, 1961.

*Neugarten, Bernice L. and Gutman, David L., "Age-Sex Roles and Personality in

Continued on page 17.

The effects of occupation and work role on psychological adjustment were explored by Corey54 and McFarland and O'Doherty,55 who indicated that no consistently effective methods for training the aging-worker population have

as yet been developed.

Few empirical studies exist to guide adult educators in the understanding of and adjustment to changes in personality that occur in adulthood. Neugarten,56 after summarizing both longitudinal and cross sectional studies of personality phenomena, could conclude only that orderly and developmental changes do occur; that their direction tends to shift from active to passive and from outer-world to inner-world orientation; and that realignment of ego processes surrounding them begins during the middle years.

Studies by Erikson,57 White58 and Rapaport59 are very useful to the adult educator who is seeking an understanding of how the individual adapts to his

environment throughout his life span.

Adult motives—understandable and changeable. As indicated by Brunner60 research on motivation in adult education is conspicuously lacking. Motives of individuals, adult education organizations, and other institutions in the social system all warrant study, both individually and in relation to each other. Kuhlen⁶¹ Summarized the major ways motivations change in adults. He proposed research to identify factors that influence changes in adult motivation. Kuhlen's approach to motivation coincides with the Havighurst and Erikson theories of developmental phases in the life cycle.

How do new patterns of expectations and aspirations change motivation to learn and to participate in adult education? Fryer⁶² shows how evaluation

Footnote 51 Continued. Middle Age: A Thematic Apperception Study." Psychology Monographs. Vol. 72, p. 33,

Houle, Cyril O., The Inquiring Mind. Madison: University of Wisconsin Press, 1961.

Salass, Rita, "Finding Useful Roles for the Aging." Journal of Social Therapy. Vol. 3, 141-146, 1947.

54Corey, Lawrence G., "Psychological Adjustment and the Work Role: An Analysis of Occupational Differences." Journal of Applied Psychology. Vol. 43, 253-255, August 1959.

5McFarland, Ross A. and O'Doherty, Brion M., "Work and Occupational Skills."

6McHandbook of Aging and the Individual. (J. E. Birren, editor) Chicago: University of Chicago Press, 1959.

Neugarten, Bernice L., "Personality Changes During the Adult Years." Psychological Backgrounds of Adult Education. (Raymond C. Kuhlen, editor) Boston: Center for the

Study of Liberal Education of Adults, 1963.

57 Erickson, Erik H., "Identity and the Life Cycle," Psychological Issues. New York: International University Press Incorp., Vol. 1, No. 1, Monograph No. 1, 1959, pp. 18-164. ⁵⁵White, R. W., "Competence and the Psychosexual Stages of Development." Nebraska Symposium and Motivation: 1960. (M. R. Jones, editor) Lincoln: University of Nebraska

⁵⁹Rapaport, David, "Historical Survey of Psychoanalytic Ego Psychology," Psychological Issues. New York: International University Press Incorp., Vol. 1, No. 1, Mono-

graph No. 1, 1959, pp. 5-17.

60Brunner, op. cit., p. 27.
61Kuhlen, Raymond G., "Motivational Changes During the Adult Years." Psychological Background of Adult Education. (Raymond G. Kuhlen, editor) Boston: Center for the Study of Liberal Education of Adults, 1963.

62Fryer, Forrest W., "An Evaluation of Level of Aspiration as a Training Procedure."

Dissertation Abstracts. Vol. 24, No. 3, p. 1252, 1963.

of aspiration levels can be incorporated into training procedures. Comparing aspiration levels of older and younger groups, Krugman⁶³ found that older persons were less flexible in adjusting to success or failure, more vulnerable to stress and in greater need of self-protection. The older group also manifested more maladaptive and extreme patterns of response. Parsons⁶⁴ found that aspirations for social status are positively correlated with performance under pressure. High ratings and better performance are associated significantly with more rapid recognition.

The learning process is believed to be much the same for all age groups, but individual differences may influence factors such as efficiency of learning, motivation, and level of aspiration. How these differences affect adult motivations and learning needs more study. Kuhlen⁶⁵ identified two kinds of motives, growth-expansion motives, which dominate the first half of the adult years, and anxiety or threat motives, which are important later. He indicated that "psychological needs of individuals determine in part those aspects of the environment to which they attend and respond."66

Corey. 67 Obeis 68 and Pearson 69 noted that satisfactory adjustment to retirement varies less with age than with personality, occupational training, education attitudes and values, previous personal, social and job satisfaction and adjustment patterns. These and other works define successful aging in terms of personal values, attitude and expectations.

Getzels, 70 analyzing recent motivation studies, reported a trend away from the homeostatic model toward one emphasizing the drive concept of motivation. He contends that the individual may seek stimulation as well as to avoid it, in which case the optimum state would be activity rather than passivity. This approach to motivation has particular implication for the adult educator in a society that anticipates an increase in leisure and the need for a changing attitude toward work. According to Getzels, theory, observation and experimentation all suggest ". . . an optimum level of activation and stimulation. Below this level, increase in stimulation is reinforcing. Above this level, decrease in stimulation is reinforcing."71

Sensitivity to adult characteristics. Teachers of adults need to be sensitive to the great diversity of psychological characteristics among their students. McKeachie⁷² summarized many studies of instructional methods relating to

[&]quot;Krugman, Λ. D., "A Note on Level of Aspiration Behavior and Aging." Journal of Gerontology. Vol. 14, 222-223, 1959.

"Parsons, Oscar A., "Status Needs and Performance under Failure." Journal of Personalty. Vol. 26, 123-138, 1956.

Kuhlen, op. cit., 77-113.

[&]quot;Ibid., p. 77.

⁶⁵Corey, op. cit., p. 255. ⁶⁵Obeis, Winston, "Age and Achievement and the Technical Man." Personnel Psychology, Vol. 13, 245-259, 1960.

Pearson, Margaret, "The Transition from Work to Retirement." Occupational Psy-

chology. Vol. 31, 139-149, 1957.

OGetzels, J. W., "Creative Thinking, Problem-solving, and Instruction." Theories of Learning and Instruction. (Herman G. Richey, editor) Chicago: National Society for the Study of Education, 1964. ⁷¹*Ibid.*, p. 256.

adult psychological characteristics, but he could make no generalizations. Apparently, despite promising research, no major breakthrough has occurred. A typical comment by McKeachie indicates the status of knowledge in this area: "It seems likely that what is effective for one student may be ineffective for others."73

As noted in the recent project of the American Educational Research Association,74 there are many investigations on teaching children and college students, few dealing with voluntary adult learners.

There is also very little social research dealing with low-income adults and families. However, the recent Passow75 book may hold some profound implications for parent education.

The adult educator needs to understand the individual in his various subcultures and to diagnose the psychological impact of proposed educational programs and learning experiences on the individual value system, personality and total pattern of behavior. Answers will not come easily. Research on teacher sensitivity to adult psychological characteristics may require a greater interdisciplinary effort than any carried out to date.

Other Relevant Concepts and Research Areas

Effect of manner of teaching on adult learning. What little research on methods, techniques and devices used in teaching volunteers has been completed coincides with the numerous studies on the effectiveness of selected methods, techniques and devices used with youth. When a person is motivated to learn, the means of teaching makes very little difference.

Welch and Verner⁷⁶ and Verner⁷⁷ warned of the considerable difference in the processes of educating adults and youth. They make a useful distinction among method, technique and device: Their method refers to organizing people for learning; technique refers to helping the individual learn within that organization; and device refers to any one of the multitude of available instruments to help enhance learning. These three constitute the major categories of processes of adult education.

This distinction is seldom made in pre-adult education, where the class method is accepted and almost universal. However, adult educators must distinguish among processes because class is by no means the routine method within which varied techniques are selected. Within this framework, the method is an institutional (administrative) decision, while the choice of techniques and devices is an operational (teacher) decision.

Tamber 1987 McKeachie, W. J., "Psychological Characteristics of Adults and Instructional Methods in Adult Education." Psychological Background of Adult Education. (Raymond Kuhlen, editor) Boston: Center for the Study of Liberal Education of Adults, 1963.

"Ibid., p. 114. "American Educational Research Association. Handbook of Research on Teaching. (N.

L. Gage, editor) Chicago: Rand McNally and Company, 1963.

"Passow, Harry A., (editor), Education in Depressed Areas. New York: Teachers' College, Columbia University, 1963.

Welch, John M. and Verner, Coolie, "A Study of Two Methods for the Diffusion of Knowledge." Adult Education. Vol. 12, Summer, 1962.

77Verner, Coolie, A Conceptual Scheme for the Identification and Classification of Processes for Adult Education. Washington, D.C.: Adult Education Association, 1962.

Effectiveness of teaching by television seldom differs much from more conventional techniques. See, for example, summaries of such studies by Schramm⁷⁸ and Twyford.⁷⁹ In terms of Verner's definitions, television can be either a technique or a device that is used within the scope of a variety of methods (individual instruction, small group, and large group).

Tentative conclusions on the use of programed materials are similar to those for television. Less research has been done with adults. Research in this area is quite recent and summaries such as that by Lumsdaine and Glaser so serve more to set the stage for further study than to give conclusive answers on which to base teaching decisions. Optimistic regarding the use of new instructional devices, Lumsdaine \$1 believes that they "may represent the most important innovation in education since the advent of the textbook."

Adult educators tend to use group discussion techniques indiscriminately. Research on group discussion for purposes other than attitude change is not extensive, but some explorations are underway and a few have been reported. For example, Willseys2 has looked at the usefulness of discussion in terms of its effect on learning of content. Using an experimental design involving three levels of training in group discussion. he found that the participants learned more about the discussion process, but this had no measurable effect on knowledge of the content being discussed.

Effect of variation in resources on flexibility in teaching. The setting of adult education is more conducive to use of a variety of methods and techniques than is the class (schoolroom) setting of youth education. Taking advantage of the variation available demands greater flexibility of choice and more decisions from the teacher of adults. For example, research indicates that group discussion has been over-used as the master technique of adult education.

In his report on small discussion groups. Daviss: noted a positive relationship between extent of verbal participation and retention of knowledge. His subjects were members of Great Books Discussion Groups, which characteristically attract higher socio-economic classes. Replications with groups made up of participants with lower socio-economic status should be conducted.

Klein,84 dealing with groups having lower status, suggests that, where

Schramm, Wilbur, What We Know about Learning from Instructional Television. Palo Alto, Calif.: Stanford University, 1961.

Twyford, Loren C., "Research Abstract." Audio-Visual Communications Review. Vol. 8, No. 1, 1960.

Lumsdaine. A. A. and Glaser, Robert (editors), Teaching Machines and Programmed Learning: A Source Book. Washington: Department of Audio-Visual Instruction, Nationni Education Association, 1960.

*Lumsdaine, A. A., "Instruments and Media of Instruction." Handbook of Research on

Teaching. (N. L. Gage, editor) Chicago: Rand McNally and Co., 1963, p. 592.

**Willsey, Frank R., "An Experimental Study of an Adult Learning Situation Involving Three Levels of Training in the Group Discussion Process." Dissertation Abstracts. Vol.

23; No. 7-8, University of Indiana, 1962.

Discussion Groups. Public Opinion Quarterly. Vol. 25, No. 4, 1961.

Klein, Joyce G., Adult Education and Treatment in Social Agencies. Washington:

Catholic University of America Press, 1960.

language barriers obstruct verbalization, activity groups accomplish more

than groups that rely on discussion mainly.

Knutson⁸⁵ divided task oriented college students into three groups containing individuals who were judged to be "vocal," "quiet" or "very quiet." Quality of task performance was better in the quiet and very quiet groups. Vocal group members tended to be more easily satisfied with their own participation and leadership and more positive in their relations with other group members, and consequently gave their assignment less critical and thoroughgoing consideration.

Several good reviews of research on small group methods provide the adult educator with a firm base for further study. Documents by Hares6 and Bor-

gatta⁸⁷ each carry lists of more than a thousand references.

Patterns of educational leadership. No generally superior pattern of educational leadership has been identified, but research on leadership has been increasing. Information about leadership is relevant to changing adult behavior. Some basic research is beginning to contribute to this area of knowledge.

White and Lippittss examined autocracy, democracy and laissez faire approaches to leadership. Lipham⁸⁹ summarized leadership studies which have implication for administrative theory and practice in education. This applies

directly to the administrative leadership role of the adult educator.

Bass⁹⁰ and others are exploring the motivation of the leader in relation to his orientation to tasks. Recently Bass⁹¹ concluded that leaders are self-, interaction- or task-oriented. These orientations correlate consistently with patterns of leadership and other aspects of group behavior. For example, the task-oriented member is likely to be rated most helpful. Bass suggested there may be a positive carryover of behavior from one situation to another.

Types of leadership were explored by Fox,92 who dealt with positive and negative styles in group conference settings. His findings suggest superior results for a positive style which employs more democratic processes, uses more ideas from the group, maintains an objective attitude and discourages emotional involvement more than contrasting approaches. Liveright⁹³ devel-*Knutson, Andie L., "Quiet and Vocal Groups." Sociometry. Vol. 23, No. 1, March,

Hare, Paul A., Handbook of Small Group Research. New York: Free Press of Glen-

Borgatta, Edgar F., "Small Group Research." Current Sociology. Vol. 9, No. 3, 1960. SWhite, R. K. and Lippitt, Ronald, Autocracy and Democracy: An Experimental Inquiry. New York: Harper and Brothers, 1960.

Solipham, Jomes M., "Leadership and Motivation." Behavioral Science and Educational Administration (Daniel E. Griffiths, editor) Chicago: National Society for the Study of

Bass, Bernard M., Leadership, Psychology, and Organizational Bchavior. New York: Education, 1964.

Harper and Brothers, 1960. Bass, Bernard M., "Behavior in Groups as a Function of Self-Interaction, and Task Orientation." Journal of Abnormal and Social Psychology. Vol. 66, No. 5, 1963.

"Fox, William M., "Group Reaction to Two Types of Conference Leadership." Human Relations. Vol. 10, No. 3, 1957.

²²Liveright, A. A., Strategies of Leadership. New York: Harper and Brothers, 1959.

oped a framework for examining informal adult education programs, leaders and leadership styles. From his observations have come a number of tenable hypotheses.

Jeronie⁹⁴ examined power and morale aspects of leadership in synagogue center boards under autocratic and democratic leadership. He suggested that morale is not affected under these two alternate circumstances, but that subleadership is depressed under autocratic leadership. Sub-leadership is not depressed under democratic leadership. Goldman, Bohlen and Martin,⁹⁵ in a study of college-age subjects, found highest group performance and greatest enjoyment of the task among subjects who worked for an equal reward and whose leader received no additional benefits.

Leadership research must cope with complex subject matter and many variables. While efforts are already moderately extensive, considerably more basic study of the special characteristics of leadership research needs to be made before findings can be applied.

Using gate keepers involves educational risk taking. Education for youth, done largely in the classroom under supervision, has functioned essentially as a direct line from professional educator to student learner. Generally this is not the case in adult education. Often a volunteer gate keeper teaches the adult learner. These gate keepers are called volunteer local leaders in the Cooperative Extension Service and program directors or program leaders in less formally organized groups.

That mass communication research is published extensively, is apparent from bibliographies such as that by Klapper⁹⁶ and the collections of essays such as those edited by Schramm.⁹⁷ Few studies have examined the communication effectiveness of volunteer teachers, however.

Brissey's⁹⁸ approach could be applied readily to adult education. In his experiment, material was passed in series to four college age groups beyond the first "eyewitness" audience. The "eyewitness" group was the best informed of the five and they had less misinformation.

Wason,⁹⁹ testing the transfer of materials in writing precis, noted less learning of salient points from reading the precis than from reading the original documents. This research is not conclusive. The optimum number of details in a precis or abstract is a topic for further research. Such qualities as explicitness, ordering of items, clarity and rhythm cannot be ignored in

Group's Power, Hierarchies and Morale." Dissertation Abstracts. Vol. 24, No. 2, 1963. Goldman, Morton, Bohlen, Merlyn E. and Martin, Randall B., "Some Conditions under Which Groups Operate and How This Effects Their Performance." Journal of Social

Psychology. Vol. 54, 47-56, 1961.

*Klapper, Joseph T., The Effects of Mass Communication. Glencoe: The Free Press.

⁹⁷Schramm, Wilbur (editor), The Science of Human Communication. New York: Basic Books, Inc., 1963.

Bissey, F. L., "The Factor of Relevance in Serial Reproduction of Information." Journal of Communication. Vol. 11, No. 4, December, 1961.

⁹⁹Wason, P. C., "The Retention of Material Presented through Precis." Journal of Communications. Vol. 12, No. 1, March, 1962.

the search for improved ways to communicate ideas, concepts, attitudes and skills from teacher to learners.

According to an exploratory study by Kreitlow¹⁰⁰ the setting in which adult education was undertaken appeared to have as much effect on loss of content as did the use of a local leader. He found that the loss in the content transferred by bulletin and film about equaled that transferred by a non-professional (local volunteer leader of a homemaking club) using a lecture.

Given the variety of circumstances and settings in which adult education must operate, a firmer footing in research-based understanding is needed before volunteer teachers can be accepted with confidence.

¹⁰⁰Kreitlow, Burton W., Long-Term Study of Educational Effectiveness. Cooperative Research Project 375. Madison: University of Wisconsin, Department of Agricultural and Extension Education, September, 1962.

