AN ANALYSIS OF PERCEPTIONS OF ADULT EDUCATION PRACTICES IN UNIVERSITY EXTENSION

By

E. MARIE OBERLE

Bachelor of Science
Indiana State University
Terre Haute, Indiana
1971

Master of Education
Central State University
Edmond, Oklahoma
1978

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF EDUCATION
December, 1981

Thesis
1981D
D129
Cop.2

OKLAHOMA STATE
UNIVERSITY
LIBRARY

AN ANALYSIS OF PERCEPTIONS OF ADULT
EDUCATION PRACTICES IN
UNIVERSITY EXTENSION

Thesis Approved:

Waynne B. James
Thesis Adviser

Lloyd Wiggins

W. Warde

Zed DeVaughan Jr

[illegible]

Norman N. Durham
Dean of the Graduate College

1110804

PREFACE

Parts of this study were conducted by a six member research team at Oklahoma State University under the direction of Dr. Waynne James, associate professor, School of Occupational and Adult Education. Identification of the basic principles of adult education and development of the questionnaire to measure the extent of application of these principles were a corporate effort. Therefore, certain aspects of each thesis may be similar or identical. Team members adapted the questionnaire to make it appropriate to their research population.

I gratefully acknowledge the contributions of a number of people who helped in development of this study and made its accomplishments possible. A special thanks to the advisory committee: Dr. Waynne James, thesis adviser and always a great source of support; Dr. Thomas Karman, committee chairman; Dr. Lloyd Wiggins; Dr. Zed DeVaughan; and Dr. William Warde.

For benefits gained by working with the research team, I am grateful. The team included Dr. Fay Woody, Dr. Phil Offill, Dr. Elizabeth Price, and Mr. Joe Gerling.

Fellow Graduate Leadership Development Program Awardees and our adviser, Dr. Lloyd Wiggins, have been a source of encouragement throughout the doctoral program. To each of

them, I express my gratitude.

This study could not have been accomplished without the cooperation and assistance of Mr. J. O. Grantham, Director of Oklahoma State University Extension, the Directors of University Extension divisions, the extension instructors, and the extension students. I appreciate their interest and cooperation.

I am also grateful to the staff in the School of Occupational and Adult Education for many ways in which they provided assistance and encouragement.

To my family, the greatest support team of all, I express my love and gratitude. George, my husband, helped me think through and solve numerous problems I encountered, and gave emotional support and encouragement in untold ways.

TABLE OF CONTENTS

LIST OF TABLES

Table | Page

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Adult education is the new growth sector in colleges and universities. Harrington (1979), in addressing the adult education issue, stated:

> In 1975 the Census Bureau announced that the major change in college and university enrollment patterns during the past decade has been the increase in older students. Part-time credit, mainly an adult phenomenon, has increased more rapidly than full-time credit, and now exceeds full-time registration in many institutions. When non-credit programs are added, this means that adults now outnumber younger students, and are the new majority in higher education (p. 1).

Higher education as a whole is in transition, adjusting to changing constituencies and changes in mission (Alford, 1980). Shannon and Schoenfeld (1965) alleged that one of the characteristics of the typical American university in the twentieth century is its extension service. Hence, it is the university extension that links higher education to many movements for social change (Harrington, 1979; Cross, 1981; Houle, 1980; and others). Oklahoma State University's (OSU) Extension (1980) echoes the adult education growth trends. Enrollment in credit courses increased from 6,412 during the 1977 fiscal year to 9,075 during the 1980 fiscal year, or a 29 percent increase over a four-year period. The greatest growth in University Extension at OSU, however,

took place in noncredit offerings of conferences, short courses, seminars, and workshops. Noncredit enrollment increased from 8,024 students to 28,989 students, or a 72 percent increase over the same four-year period.

In spite of the influx of adult learners into institutions of higher education, many colleges and universities continue to think of extension as the "stepchild" of academic life (Harrington, 1979). The antagonism nearly always centers on questions of quality and the charge of low standards. Accusers need to remember that although adult education activities began with the founding of our country, the formal emergence of adult education as a organized field of study is a modern phenomenon (Knowles, 1970). Also, it has been an expanding field moving toward increased professionalization (Houle, 1961). Adding to this professionalization has been the accumulation of a body of theory, knowledge, and practice related to adult learning (Jensen, Liveright and Hallenbeck, 1964). Likewise, the quantity and the quality of research on adult learning is increasing (Cross, 1978).

A significant portion of the theory found in adult education literature supports the belief that adult learning does have unique characteristics, and certain principles are basic to adult education (Knowles, 1978; Kidd, 1973). This accumulated theory has been the basis for newer approaches for helping adults learn; however, this information has not been widely dispersed among the practitioners (Jensen et al., 1964, p. vii) and antiquated modes of instruction still

exist in many adult classrooms (Mezirow, Darkenwald, and Knox, 1975, p. 18). To advance both professionalization of the field and assure more effective adult practitioners, it is important to identify the adult learning principles and determine to what degree practitioners implement the principles in institutions serving adults.

Statement of the Problem

One difficulty in dispersing the accumulated body of knowledge regarding adult learning lies in the fact that no one has compiled a basic list of principles on how adults learn. Cross (1978) maintained that adult education research is too often used by individual providers of educational programs with little attention to coordination. Identifying, synthesizing, and verifying the adult learning principles should increase the potential usefulness of the principles in developing and implementing adult education programs.

In addition, no one has compared the underlying principles of adult learning with how adult education is actually practiced in the field, especially in relation to university extension. (The practitioner is the agent for implementing the adult learning principles and is a crucial variable in the teaching-learning transaction.) Knowles (1970, p. 41) believed that the teacher's behavior is probably the most influential factor affecting the character of the learning climate. Thus, data gained by comparing the teaching of

adults in university extension with research on how the adult learns best will have implications for future staff development programs, as well as for individual instructors who are sensitive to the unique needs of adults.

Purpose

The purposes of this study were (1) to identify the basic principles of adult learning that underlie adult education programs as affirmed by authoritative sources, (2) to determine the extent instructors in Oklahoma State University Extension credit courses perceive themselves as implementing these principles, and (3) to determine if a difference exist between the instructors' perceptions and the students' perceptions of the instructors' implementation of these principles.

This study sought to answer the following questions:

1. What are the basic principles of adult learning that underlie adult education programs?
2. To what extent do instructors in Oklahoma State University Extension credit courses perceive themselves as implementing these principles?
3. Is there a difference between the instructors' perceptions and the students' perceptions of the instructors' implementation of these principles?
4. Does the extent to which these principles are perceived by the instructors, to apply vary according to:

a. Age
b. Sex
c. Extension division
d. Teaching site
e. Teaching status
f. Number of years teaching (full time and part time)
g. Non-academic experience
h. Degree in education
i. Academic rank
j. Preparation in adult education.

Assumptions

The assumptions were:

1. There are "basic principles" underlying adult learning.
2. The jury's rating of the "basic principles" served as an accurate indication of its beliefs in regard to adult learning.
3. Use of the Likert-type scale assumed that the more favorable the individual's attitude toward an item, the higher the expected score for the item.
4. Instructors selected for the study were representative of other instructors in Oklahoma State University Extension.
5. Instructors responded accurately to the questionnaire.
6. Students selected for the study were representative of other students in the course.
7. Students responded accurately to the questionnaire.

Limitations of the Study

This study used only instructors teaching Oklahoma State University Extension credit courses (consisting of two or more hours) in the fall semester, 1980, and three students, randomly selected, from each class. Furthermore, the questionnaire technique imposed its own limitations.

Definitions

The following definitions apply throughout the study:

1. Adult:

> . . . a person who has come into that stage of life in which he has assumed responsibility for himself and usually for others, and who has concomitantly accepted a functionally productive role in his community (Verner, 1964, p. 29).

2. Adult Education/Adult Learning:

> . . . the process by which men and women alone, in groups, or in institutional settings, seek to improve themselves or their society by increasing their skill, their knowledge, or their sensitiveness. Any process by which individuals, groups or institutions try to help men and women improve in these ways (Houle, 1972, p. 229).

Adult education and adult learning will be used synonymously.

3. Andragogy: a set of teaching practices creating a process for helping students to become self-directed learners.

4. Authoritative sources: information resources for the generation of principles. These resources include recognized leaders in the field, books,

articles, research reports, and unpublished dissertations.

5. Class setting: the place where the educational activity occurs, used synonymously with facility, learning environment, and meeting place.
6. Courses: educational activity identified with a subject or specified focus for learning, used synonymously with activities, class, sessions, and offerings.
7. Extension: the programs of the general univeristy extension at Oklahoma State University, excluding the specific work of the cooperative extension.
8. Field of Adult Education: brings together into a definable social system all the individuals, institutions and associations concerned with the education of adults in the following areas: (1) improvement of methods and materials of adult education, (2) extension of opportunities for adult learning, and (3) advancement of the general level of culture (Knowles, 1962).
9. Instructor: one who initiates and facilitates the educational activity, used synonymously with teacher, trainer, practitioner, patient educator, and extension agent/extension educator.
10. Practitioner: one who practices a profession.
11. Principles: accepted or professed rules of action or conduct.

12. Staff Development: training faculty in relation to the particular needs of University Extension, especially in the arena of effective teaching for a diverse clientele.
13. Student: the recipient of educational activity, used synonymously with participant, trainee, patient, clientele, and target audience.

Organization of the Study

Chapter I introduces the study, presenting the problem, purpose, objectives, assumptions, scope, and definition of terms. Chapter II includes a review of related literature focusing on the areas of (1) university extension, (2) the principles of adult education and learning, and research design and instruments. Chapter III reports the procedures utilized in the study, including population and sample, instrumentation, the jury of experts procedures, and the data analysis. Chapter IV details the data interpretations and the findings of the study. Chapter V includes a summary of the study, conclusions, and recommendations for further research and practice.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The literature related to this study is presented in three categories. The categories include

1. The adult learner in university extension;
2. The principles of adult learning focusing on the cognitive, environmental, philosophical, psychological, physiological, social/life cycle, and technical aspects; and
3. Research design and instruments.

Adult Education and University Extension

Harrington (1979, p. 1) stated, "There are signs that the day of the adult is coming to higher education in the United States, if it is not already here." He expressed this view in The Future of Adult Education that reported his work as director of a study on the role of adult education in American colleges and universities, sponsored by the Carnegie Corporation and the Center for the Study of Liberal Education for Adults. Support for Harrington's statement can be found in almost any current literature regarding educational trends. The rapid growth of adult education in this

country is a phenomenon of great interest to the entire education community (Cross, 1981). In discussing educational trends, Koos (1970) stated,

> Among the most remarkable developments in the whole realm of schooling in our American society since the beginning of the century has been the spread of adult education (p. 385).

As early as the 1920's through the 1960's, the number of people participating in adult education through the public education system increased about five-fold while the population in the United States had yet to double (Oakes, 1976).

Since the beginning of public education, University Extension has served adults (Shannon and Schoenfeld, 1965).

> . . . Nothing in American history has been more striking, historian Frederick Jackson Turner observed, than, 'the steady pressure of democracy upon its universities to adopt them to the requirements of all the people.' As a primary vehicle of that adjustment, university general extension has been profoundly influenced by fundamental tides and stresses at work upon the American people (Shannon and Schoenfeld, 1965, p. 23).

Shannon and Schoenfeld (1965), Knowles (1970), Cross (1981), and others contended that both World War I and World War II gave impetus to the education of mature people. In both wars millions of adults had to be trained in a wide variety of skills new to them. Following World War II, the universities experienced an increase of older students with the veterans taking advantage of the GI Bill.

More recently, the Bureau of the Census reported a dramatic shift (Grant and Lind, 1978). College attendance among person 35 years old and over increased dramatically from 1973 to 1975 as there was a 59 percent rise in two

years. The National Center for Education Statistics reported that between October, 1972, and October, 1976, enrollment under 25 years of age decreased from 72.0 percent to 65.0 percent of the total population contrasted to an increase by the older age group.

A substantial number of writers alluded to three primary influences contributing to the current growth in adult education (Harrington, 1979; Gleazer, 1980; Houle, 1980; and others). These include the combined impact of demographic changes, social changes, and technological changes. Cross (1981) addressed the three influences in detail. First, the demographic changes represent a shift from a population dominated by youth society to a population dominated by persons in their middle years by 2000. Cross (1981) concluded from the 1977 data presented by the United States Bureau of Census that

> . . . in 1980 numerical dominance shifted to those between the ages of 15 to 29. By the year 2000, the largest age group will be 30 to 44 year olds, with a rising curve from 45 to 64 year olds (p. 3).

The second influence has to do with social change, Cross postulated some of the changes include the rising educational level of the populace, the changing roles of women, early retirement, civil rights, increased leisure time, and changing life styles. Cross further stated ". . . education for adults has become necessary for some, desirable for others, and more acceptable and attainable for almost everyone" (p. 3).

The third influence, according to Cross (1981), stems from technological change and the knowledge explosion. In a society where technological change is so fast and powerful that it can eliminate existing industries and create new ones in a single decade, Cross maintains that both producers and consumers have problems adapting.

Stern (1980), dean of University Extension at the University of California, in his contribution to Power and Conflict in Continuing Education, pointed out that factors in the growth of adult education have created a

> . . . brisk, if not fierce competition for the continuing education dollar. This fact is obscured by the absence of qualified information, and disguised by the large number of providers, the large number of subfields in which they work . . . (p. 9).

Believing that universities should play the central role in continuing education, many colleges and universities are receiving commitments and considering policy for the future to serve better the needs of the adult learner (Harrington, 1979). Still others are ignoring the competitive threat from outside the campus (Stern, 1980). "Until recently, when traditional college programs became interested in the 'recruitment' of adults, adult learners were 'served' by extension divisions" (Cross, 1981, p. 34).

Shannon and Schoenfeld (1965) defined extension as the third arm of the American university, the other two being teaching and research. University Extension is ". . . scarcely aware of its powers, self-critical of its limitations, inspiring and inspired in the boundlessness of its

dreams" (p. 1). In its broadest sense, "university extension is an institution state of mind which views the university not as a place but as an instrument" (p. 2). They further stated

> . . . university extension leaders seek to identify public problems and public needs, to intepret these concerns to the university, to focus university skills and resources upon them, and thence to translate university insights into educational activities throughout a state or region. . . The extension mission, in essence, is to bring campus and community into fruitful juxtaposition, thereby immeasurably enriching the life of both (p. 2).

The authors stressed that the diversity of educational services offered to the public by university extension organizations resulted from differing traditions, circumstances, and leadership.

Coupled with the diversity of university extension educational services is the diversity of the clientele served. Shannon and Schoenfeld stated it is risky to generalize about university general extension students

> . . . other than to say that substantial enrollments, representing a wide range of interested and vocations and ages, can be documented fairly accurately by any extension division (p. 37).

Houle (1961) offered this broad assesment

> . . . In general, high income groups are more likely to take part than low-income groups. Participation is also positively related to the size of the community. . . . People with certain nationality and religious backgrounds are more active than those with other backgrounds. Age is important: . . . there is a sharp upturn in the late twenties, a fairly constant level of activity until the age of fifty, and a decline afterward. Married people participate more than single people. . . . Many more professional, managerial, and technical people take part relative to their number in the population than do people from other

> occupational groups; next in signifigance are white-collar and clerical workers; then skilled workers; and lastly unskilled laborers. The most universally important factor is schooling. The higher the formal education of the adult, the more likely it is he will take part in continuing education (p. 7).

More recently, Cross (1979) synthesized the data from 30 national and state statistical surveys to determine some trends and findings about adult learners:

1. Those taking the greatest advantage of adult education opportunities are relatively young, white, well-educated, employed in professional and technical occupations, and making good incomes.
2. Interest and participation in adult education starts to decline in the early 30's and drops off sharply after age 55.
3. The most important predictor of an adult's interest in further education is his or her previous level of education.
4. The desire to improve one's lot in life is clearly the primary motivation for adult education.

Comparing the characteristics of the adult learner provided by Houle and Cross, one can see little change in the last twenty years. Cross (1979) contended that adult education is moving toward elitism. Also, as a whole, adult learners in the last decade consisted largely of those who have been successful in school in the past. Cross (1979) stated the following populations are significantly under represented:

> . . . blacks, people with less than a high school education, and those with annual family income

> under $8,000, people 45 and older, and those in the central city or on the farm (p. 628).

In terms of who provides adult education programs, Cross (1979) stated that colleges and universities are still the leading providers: two-year and four-year colleges provide about 37 percent of the adult education existing in the United States. The number of colleges and universities offering adult and continuing education courses has increased from 1,223 in 1967-68 to 2,225 in 1975-76. The clientele in University Extension at Oklahoma State University (OSU), the source of the population for this study, tends to reflect the elitism Cross observed. Empirical data are not available to support this observation; however, the Annual Report for 1979 stated

> Each college and division placed more emphasis on programming for professional groups. Enrollments in credit courses remained steady while attendance in non-credit programs increased by 115 percent. Practically all of this effort was directed toward professional and administrative groups (Oklahoma State University Extension, 1979, p. 3).

The above quotation must not be taken out of context because the same report stated that

> . . . Through the years, Oklahoma State University has established and maintained close ties with the grass roots elements of Oklahoma society. It comes naturally for the administration to encourage faculty members to engage in extension activities as a public service and as a firsthand source of practical problems to be researched. . . . Any restriction of this mission would appear to be in opposition to the focus of the Land Grant Acts (p. 1).

The Morrill Act of 1862 mandated that each state's land grant institutions provide, in addition to agriculture and

the mechanical arts, liberal and practical education for the masses (Fitzgerald, 1965). Since the founding of OSU in 1890 as a land grant college, University Extension has attempted to respond to that mandate (OSU Extension, 1979). Fitzgerald further explained that the extension component of OSU was first a preparatory school offering high school courses designed to qualify students from the Indian Territory of Oklahoma for entrance into the University. In 1917 OSU extension progressed to a School of Correspondence Study to accommodate students that were unable to come to the main campus. Starting in 1925 organized extension classwork, almost wholly in the field of education, helped supply the need for teachers in the new cities and towns developed following the discovery of oil. The School of Correspondence Study was named the Department of Education Extension in 1938. At that time extension responded with more diverse courses to meet the needs brought on by the depression of the 1930's. In 1981, University Extension at OSU is still characterized by growth and diversity.

In continued efforts to increase its outreach services, OSU conducted a comprehensive survey of the present clientele of University Extension during 1979. These data were used in a five year plan for University Extension (Grantham, 1980).

The mission of University Extension at OSU, as stated in the Annual Report: Fiscal Year 1980, is reminiscent of the mission of service stated by Shannon and Shoenfeld (1965).

> . . . The mission of University Extension at OSU is to provide maximum opportunity for the masses and especially for professionals to continue to learn and pursue excellence throughout their lifetimes. The land-grant mandate to serve the educational needs of the public, particularly those who find it difficult or impossible to come to the campus for study, is the beacon for University Extension. Within the limits established by its governing boards, University administrators, and resources available, University Extension responds to recognized needs for continuing education through Oklahoma (p. 1).

University Extension at OSU experienced a number of organizational structures during its history. It is currently decentralized with operational programming units in the five colleges of Arts and Sciences; Business Administration; Education; Engineering, Technology, and Architecture; and Home Economics. A sixth unit, Independent and Correspondence Study, was not used in this study. (See organizational chart, Appendix A for additional information on the organization of University Extension at OSU). According to the OSU Extension (1980, p. 2) Annual Report, "Each college recognizes its own public and serves the educational needs of that public to the extent resources will allow."

Within the organizational structures described above, the colleges of extension function independently and cooperatively to accomplish the goals of University Extension. The goals remain relatively unchanging from year to year but are reviewed annually. The five goals listed in the 1979 Annual Report were

1. To provide continuing education opportunities for all Oklahomans (a) to pursue degrees and/or certification, (b) to improve social relations and citizenship, and (c) to enhance the quality of life.

2. To encourage involvement of the OSU faculty in solving public problems within the State and, when deemed appropriate, problems at the regional, national, and international levels.
3. To stimulate a desire to increase the quality and quantity of services rendered through good management practices and innovative techniques of delivery of those services.
4. To develop the extension function in all academic units of the University and especially in the academic departments.
5. To encourage interdisciplinary cooperation in providing extension programs, especially in non-credit and public service kinds of activities (OSU Extension, 1979, p. 3).

According to the 1980 Annual Report, the College of Arts and Sciences and the College of Education offered the largest number of extension credit courses (only the credit courses relate to this study); Arts and Sciences attracted a wide variety of audiences, while Education attracts primarily public school teachers. Next in size is the Division of Engineering, Technology and Architecture. However, most of the courses offered are from the School of Technology where the majority of classes serve military personnel in a three state area. The Division of Home Economics is the next largest. This division also finds a limited market for its courses for credit because they are primarily aimed at professionals in the field of Home Economics and related professions. The last and smallest, the College of Business Administration, ". . . chooses not to expand its offerings of extension credit courses because of restrictions imposed on the college by its outside accrediting agency" (OSU Extension, 1979, p. 7).

For additional data regarding enrollment in the extension

units from the 1977 fiscal year through the 1980 fiscal year, see Appendix B.

National figures sometimes address the importance of university extension. Garner (1965) quoted former President Johnson, talking on the campus of the University of California in 1964, as saying

> . . . just as our colleges and universities changed the future of our farms a century ago, so they can help change the future of our cities. I foresee the day when an urban extension service, operated by universities across the Country, will do for urban America what the agricultural extension service has done for rural America (p. xiii).

A substantial number of writers applaud extension's success in meeting the needs of the adult learners. However, others believe the quality of higher education is in jeopardy when students take courses off campus (Harrington, 1979).

> The university extension concept has never been uniform. Flexner declared that 'universities must at all times give society, not what society wants, but what it needs.' Butts replied that 'it is idle to try to prove to people that they ought to prefer a (university) system that they unquestionably do not like' (Shannon and Schoenfeld, 1965, p. 102).

Dewey (1966) wrote that the issue of quality control should be a concern of all educators; however, they need to realize that excellence is in the context of who you are serving. Following Dewey's line of thought, adult educators tend to be on the right track. They are attempting to maintain quality while moving an educational system basically designed for dependent children and adolescents toward a system to serve adults better (Knowles, 1978; Kidd, 1973; Ingalls, 1972).

Also, there are indicators that adult education is becoming more academically respectable. Harrington (1979) states that until recently expert commissions examining the future tended to ignore the area of adult education. "Now they are uniformly recommending that mature citizens be given more consideration in postsecondary education" (p. 2).

Harrington (1979) pointed out additional areas helping adult education gain recognition as an academic discipline: (1) in recent years over 1,850 doctoral degrees have been awarded in adult education; (2) research on adult learning has increased in quantity and quality; (3) state surveys of the educational needs of American beyond college age are improving; and (4) the American Council on Educational Testing Service, and other national organizations have undertaken needed investigations into certain adult education problems. Houle (1963), Jensen et al. (1964), Knowles (1970), Kidd (1973), and others agreed that adult education is moving toward increased professionalization with the accumulation of a body of theory, knowledge, and practice related to adult learning.

A significant portion of the theory found in adult education literature supported the belief that the adult learning process <u>does</u> have unique characteristics and principles (Knowles, 1978; Kidd, 1973). This accumulated theory is the basis for newer approaches for helping adults learn (Jensen et al., 1964); however, antiquated modes of instruction still exist in many adult classrooms (Mezirow et al.,

1975). Shannon and Schoenfeld (1965) explained why extension teachers have little experience in helping adults learn

> Because university general extension is not a fully recognized 'career line', its practitioners represent a wide range of academic and professional backgrounds, and there is a high rate of attrition (p. 36).

He also stated that extension instructors typically come either from appropriate resident departments or from the respective profession. However, he added, that there is a growing trend toward recruiting Ph.D.'s on the assumption that a devotion to scholarly research on the part of the extension staff helps to increase the stature of the extension division in the eyes of the university community.

Harrington (1979) postulated that extension teaching is often done by immature or part-time people.

> . . . Most senior professors shun extension assignments because of the travel and inconvenient hours (late afternoon, evenings, weekends), not to mention the smallness of the rewards (none in status, little in cash--for though extension instructors are usually paid on an overload or moonlighting basis, the rates are low) (p. 71).

Regarding extension faculty at OSU, the 1980 Annual Report stated

> . . . Extension teaching at Oklahoma State University attracts the same high caliber of professors as does resident instruction. Almost half of the regular tenured professors participated in extension instruction last year. To the degree possible, extension teaching is done on a release time basis. There are times, however, when it is impossible to predict extension teaching needs with sufficient accuracy and lead time to be included as part of the total work load. Under these conditions a professor is offered extra compensation . . . (OSU Extension, 1980, p. 13).

Verduin et al. (1977) maintained that more consideration should be given to the teachers of adults, their preparation, and their training. They contended, adult education teachers are often hired on a part-time basis and may or may not hold a college degree in education. Even if they have a teaching degree they tend to adopt the teaching style or techniques expected of them on their first job and carry these on into subsequent jobs regardless of differences in clientele. Verduin et al. (1977) identified the following factors as contributing to the great variation in teachers of adults:

1. Few undergraduate programs exist for the preparation of adult teachers in many of the curriculum areas involved.
2. The diversity of programs and courses offered to adults requires people with varied expertise, regardless of formal educational backgroud.
3. The lack of a formal place in the educational system for adult education has prevented it from being the focus of preparation of certified personnel.

Since adult learners are extremely diverse in their educational needs, the variety of adult instructors is healthy; particularly, if these teachers can improve their skills in helping adults learn (Knowles, 1978; Verduin et al., 1977). Oakes (1976) posed a most important consideration in addressing this issue:

> One of the most important questions to be answered is whether adults should be taught in the same ways as children and high school students and college students, or whether they should be taught differently (p. 132).

Several sources in the literature substantiate the fact that university extension programs typically acknowledge that adults should be taught differently (Sorenson, 1933; Shannon and Schoenfeld, 1965; and Gardner, 1965). Sorenson (1933) stated in the conclusions of a psychological study of the adult abilities in extension classes that

> Adult education must recognize individual differences and the factors of interest, attention, habits, etc., possibly to a greater extent than do the elementary and secondary schools (p. 100).

More that twenty years later Shannon and Schoenfeld (1965) stated

> In response to basic differences between adult and youth learners, extension attempts to capitalize on the adult's motivation by involving him in assessing needs, formulating objectives, designing and conducting learning activities, and evaluating outcomes. Teaching techniques making use of adult experience have come increasingly into use: case problem solving, role playing, laboratory exercises, various forms of group discussion, and community projects (p. 86).

He added that despite the differences in adult and youth learners ". . . the majority of teachers of adults still employ the teacher-planned methods and the transmitter receiver techniques used in instructing children" (p. 87).

More recently, Gaff (1975) addressed teacher competence. He reemphasized the need to help teacher update their traditional views that the quality of education could be improved only if admissions requirements were higher or

if grading were more rigorous.

> . . . attempts are being made to help faculty members develop greater competence and a greater sense of efficacy as teachers. Efforts are being made to assist faculty members to reconsider their traditional conceptions about teaching and learning, expand their instructional repertoire, sharpen their sensitivities and skills in working with students and colleagues, and work effectively with new techniques, new programs, and new students (Gaff, 1975, p. 5).

O'Banion (1973) argued that the task for institutions of higher education in the future is to improve the existing faculty through in-service programs. Just as elementary and secondary teachers must learn the characteristics of that age group, instructors of adults should have knowledge of the characteristics of their clientele.

A number of leaders in staff development have emphasized the need for teachers to have a ". . . humanistic personality--caring for persons before things, a learner who helps others learn" (O'Banion, 1973, p. 64).

> . . . Critics of higher education sometimes let slip the urgency of their wish that professors would become, in their teaching, more sensitive, resourceful, deft, and responsive (Astin et al., 1974, p. 14).

Helt (1979) contended the instructor of the 1980's

> . . . needs to develop a new self-concept and a new system of psychic rewards, gaining satisfaction from releasing rather than controlling people. We need to develop a new set of skills, characterized as helping or facilitating, rather than transmitting. We need to rethink the role of the instructor away from prescriber, transmitter, and evaluator, toward facilitator and resource person for self-directed learning (p. 25).

Romine and Newport's (1973) study had significant findings concerning the adult learner for staff development

content. They discovered that the older students, particularly those over 27 years of age, placed a much greater significance on the following:

> . . . regular feedback from instructors, learning something important, frequent summarization by instructors, counseling, well prepared instructors, well organized course using well written materials and greater instructional structures in general (p. 37).

Holmes' (1980) study showed that the Andragogical Adult Educator scored highest on the FIRO-B in the area of "expressed affection." For the andragogical orientation, "expressed affection" is the most important interpersonal behavior. "Praising" or "approving" would be other terms used to describe expressed affection in terms of group interaction.

> The adult educator who tends to feel comfortable in initiating close relationships should tend to place faith in the responsibility of students to guide their own learning (p. 27).

The use of adjunct instructors is a significant factor in university extension (Ferrett, 1976). Shannon and Schoenfeld (1965, p. 81) addressed this issue this way ". . . as can be imagined, some of the best and some of the worst extension work is carried on by these ad hoc instructors." Oklahoma State University Extension (1980) used some adjunct instructors to teach a specific course when an OSU instructor was not available to do the job. The credentials of an adjunct instructor must be reviewed and reapproved by the Department Head and Dean each year before any extension teaching is done.

Ferrett (1976) maintained that adjunct instructors are a valuable resource. From a data base derived largely from an analysis of the felt and observed problem of adjunct faculty as perceived by adjunct faculty, full-time faculty, division chairmen, and administrators; she developed a staff development program for adjunct instructors. The responses of full-time faculty, division chairmen and administrators to the questionnaire ranked student characteristics (What are the unique characteristics of the students?) first. The adjunct faculty ranked this consideration number five.

Faculty development is an issue of concern for the 1980's.

> In a time of financial shortages and student quiescence, faculty development appears to be the chief method for improving education, or at least a prerequisite to any others; and without a sophisticated network of support for teaching, many improvements singly will not occur (Astin et al., 1974, p. 17).

Astin et al. (1974) also stated that as long as the teachers lack the network of support, academics will be defensive about any departures from basic teaching patterns.

> . . . In fact, many of the patterns assumed to be a necessary part of college teaching derive in part from anxiety aroused by practicing the art of teaching almost wholly in isolation (Astin et al., 1974, p. 17).

Astin et al. strongly recommended that isolation be broken down so that teachers can learn how to answer increasingly strong demands for their accountability.

Teaching is not perceived to be as important as research by a majority of higher education instructors (Nelsen et al.,

1980). In the association of American Colleges Project on Faculty Development

> . . . one question was invariably raised with both faculty and adminstrators: What do you perceive to be the major faculty development needs to your institution during the coming decade (p. 145)?

Administrators perceived improvement of teaching as the primary need; however, the faculty perceived it to be fifteenth with support for research primary.

Bonham (1974) also addressed the lack of interest by teachers in how they teach.

> There is a curious thing about teaching: It is at once the most important business in the college world, and yet is the least talked about. Grumbled about, yes. But one rarely hears an intelligent discussion on it. Most faculty, I suspect, would rather keep things this way (p. 6).

Bonham (1974) further stated that when attending various academic conferences, he observed that people act as if teaching were not their prime occupation. Also, he confessed his surprise as he

> . . . sits at an editor's desk, . . . one stares now a foot-high pile of manuscripts of higher learning and in it there is not a single intelligent tone on how one teaches (p. 6).

From the review of literature, it can be concluded that even though writers state that adult learners are at the center of today's most interesting innovations in higher education (Harrington, 1979; Alford, 1980) little has been done to identify how adults are being taught. This assessment precludes any staff development for adult aducation practitioners. Also, there is general agreement among modern adult education leaders regarding the basic principles

related to adult learning, however, no one has identified and synthesized these into a basic list. Bradford (1975) recognized this area of weakness in adult education

> . . . adult education, necessarily presenting a cafeteria style of offerings, has not clarified two extremely basic purposes it should meet nor has it developed theory and methods of teaching-learning uniquely adapted to adults (p. 7).

Cross' (1981, p. IX) latest book, Adults as Learners, is ". . . a synthesis of existing research and theory to aid lifelong learning." The following comments from that book are appropriate to conclude this review of literature section:

> . . . theoretical orientation of teachers may be related more to the characteristics of their subject matter than to the characteristics of their students. I believe, however, that the profession of adult aducation will be advanced if adult educators are encouraged to think about the special characteristics of adult learners and the context in which learning takes place (p. 234).

Principles of Adult Learning

In order to determine the extent instructors implement adult learning principles, one must identify the principles. The following review of literature supports each of the nine basic adult learning principles reoccuring in seven categories of literature in adult education: cognitive, environmental, philosophical, psychological, psysiological, social/life cycle, and technical aspects of adult learning. Since each of these seven categories can be affected by one or all of the other categories, they cannot be studied in isolation. This is also a factor in the nine basic adult learning

principles. While the researcher provides literature to support each of the nine principles, the same literature may also apply to more than one principle. Piaget (1972) clarified this problem as he discussed the effect of other factors on the cognitive process.

> First we must agree that at no level, at no stage, even in the adult, can we find a behavior or a state which is purely cognitive without affect nor a purely affective state without a cognitive element involved. There is no such thing as a purely cognitive state. For example, take the most refined form of thought, a mathematician who demonstrates some new theorem. As much as such behavior is intellectual from one aspect, it is necessarily affective from another. If the mathematician spends his time with it, it is because it interests him, he gets pleasure out of it, he feels enthusiasm for it, even passion, and this is affective (p. 168).

Principle 1: Adults Maintain the Ability to Learn

You can "teach an old dog new tricks." "In fact, there are probably some tricks which with proper motivation and instruction 'old dogs' are best equipped to learn" (McClusky, 1980, p. 18). Both cross-sectional and longitudinal studies indicate that the ability to learn generally does not decline in adulthood but continues at a stable and responsive level well into the later years.

Thorndike et al. (1928), a respected authority in the field of educational psychology at Columbia University, was the first to challenge the assumption that intelligence stops growing at about 16 years of age. His classic study

revealed that the ability to learn advances rapidly throughout the teens, peaks at age 21, and declines at approximately the rate of one percent a year until the late forties. He stated ". . . adults can learn rather easily and rapidly, and probably could learn much more than they do" (p. 107). Other cross-sectional studies support Thorndike's research (Jones and Conrad, 1933). Also, Wechsler (1958) reported performance reaches a peak about age 22 and declines gradually through age 75. However, some colleagues criticized parts of Thorndike's research. Lorge (1955), a pupil of Thorndike and also a professor of educational psychology at Columbia University, argued that Thorndike's test measured the speed of response and not the power of response. By eliminating the time or speed factor in his investigation, Lorge concluded that the rate of response may decline, but not the power of the response. Also, critics attacked the limitations of a research design that used a cross-sectional selection of subjects for study because the assumption is that the persons studied are identical in all respects except for age.

Sorenson (1933) measured the abilities of extension and non-extension students using the Minnesota College Aptitude Test and the Minnesota Reading Examination and found them to be essentially the same. In some universities the extension students had higher abilites, and in others the full time students were slightly superior; but the differences were not very great at any university. Sorensen indicated that

any existing superiority was found within the adult group.

More recently, Kidd (1973) stated

> . . . evidence continues to mount, particularly from uinversity extension departments, that the marks of mature students in university courses are as high and often higher on the course examinations than the average or 'regular' students . . . (p. 34).

Kidd added that

> . . . despite such studies, many educational administrators continue to think of part-time students, or mature students, as incapable of doing or unlikely to do academic work of quality (p. 34).

Knox (1977) and others believed that there is no instrument or efficient procedure to estimate adult learning ability. Early intelligence tests emphasized the potential ability of children and adolescents to master school subjects, assuming all young people have access to a common fund of information and experience. Few intelligence test items correspond with the types of competencies that adults generally try to acquire. Bischof (1969) found that intellegence tests applied to adults required adaptive behavior to situations in everyday living rather than on paper and pencil tests. The most rigorous, widely used, and well-researched test of adult intelligence is the Wechsler Adult Intelligence Scale (Wechsler, 1958; Knox, 1977; and McClusky, 1980). It used two general groups of measures: (1) verbal, and (2) performance. The Wechsler Scale and related investigations revealed that while performance abilities decline, verbal abilites show little if any decline.

By operationalizing the global concept of potential learning ability or intelligence through factor analysis of the thousands of available abilty tests, between two to four dozen primary mental abilites or factors emerged (Horn, 1970). A general factor seemed to emerge in later life just as it does before adulthood. This general factor indicated that a substantial number of the ability variables are highly associated. The factorial structure of intelligence becomes more differentiated during childhood and adolescence, highly stable during most of adulthood, and less differentiated in old age according to Horn.

Further analysis of the primary mental abilites reveals "four second-order factors;" speed, visualization, fluid intelligence, and crystallized intelligence (Horn and Cattell, 1966; Horn, 1970; Knox, 1977). Cattell (1963) noting that the latter two factors follow very different age trends during adulthood, developed the theory of fluid and crystallized intelligence. He believed that the interacting influences of neurophysiology and acculturation produce the cohesion in intelligence. His theory provides a basis for better understanding shifts in the ability to learn various types of tasks during adulthood.

Fluid (biologically-based) intelligence is

> . . . the major measurable outcome of the influence of biological factors on intellectual development--that is, heredity, injury to the central nervous system (CNS) or the basic sensory structures, etc. (Horn and Cattell, 1966, p. 254).

Fluid intelligence is relatively independent of experience

and education. It appears to determine how well individuals will perform in novel situations in which they cannot react on the basis of previous experience in a highly similar situation. Hence, fluid intelligence determines the extent a person can transfer his past experiences to new situations.

Crystallized (experientially-based) intelligence is the acculturation base of intelligence which includes the learned ability to make judgments, identify relationships, and use problem techniques to find solutions. This dimension is formed by formal education and active information seeking in which fluid intelligence is mixed with cultural knowledge (Horn and Cattell, 1966).

> Together these two kinds of intelligence cover many of the learning tasks that adults confront and constitute the global capacity to learn, reason, and solve problems that most people refer to as intelligence (Knox, 1977, p. 420).

During childhood and adolescence both fluid intelligence and crystallized intelligence increase. However, fluid intelligence tends to peak during adolescence and decline gradually during adulthood (Tuddenham, Blumenkrantz, and Wilkin, 1968; Fozard and Nuttal, 1971). In contrast, longitudinal studies show that crystallized intelligence continues to increase gradually throughout adulthood and declines only when the rate of environmental impact falls below that of the neurological loss. This rarely occurs (Owens, 1963; Deppelt and Wallace, 1955; and others).

Sorenson (1930) sought to test the theory that inactivity in learning, rather than age, is related to the lower learning ability of some older adults. His results indicated that there was no decline in learning ability in his sample for those who had recently taken course work. There was, however, a slight decline in learning ability with age for those who had not recently participated in course work. More recently, Knox and Sjogren (1965) and Sjogren, Knox, and Grotelueschen (1968) consistently found that level of education and recency of participation in an educational activity were related to an adult's ability to learn.

Jarvik (1975) found that deterioration and learning ability may be the result of pathological conditions such as cerebral atherosclerosis of the result of mental and physical inactivity. These findings tend to indicate the importance of the adult being challenged with new ideas on a regular basis throughout life.

Studies show that recall and retention are affected as age increases but not necessarily due to decline in mental ability. If information is meaningful, the ability to retain and recall it is stable (Moenster, 1972; Clark and Knowles, 1973; Schonfield, 1969). There is a marked decline in retention with age when material is not meaningful (Wimer and Wigdor, 1958; Wimer, 1960; Hulicka and Rust, 1964; and others). Also, recall is greater when the conditions for retrieval are similar to those under which the original registration occurred. Older adults especially experience a

memory deficit when they are trying to store new information at the same time they are trying to recall stored material.

> Over the years, as adults acquire more information related to a topic, they can make more cross references and potential connections between new and stored information. As a result, older adults tend to expand the scope of search when trying to recall information, which takes more time and may result in greater interference with the new material to be learned (Knox, 1977, p. 435).

While many of the research studies show a decline in adult performance, none of them indicates that the decline is fixed. On the contrary, Okun (1977) points out that decline may be either prevented or reused to such a degree and in such a way as to produce gains in cognitive behavior. Knowles (1970) and others support the belief that cognitive decline is not irreversible.

The growing body of adult education research data, employing both the cross-sectional and longitudinal research design, provide a positive picture of the learning potential of adults throughout their lifetime. The central concept that adults maintain the ability to learn is solidly established. Knox's (1977) advice to adult education practitioners is:

> Most of all, practitioners can help all adults realize that although there are substantial differences in learning ability, little of the variability is related to age. Almost all adults can learn almost anything they want to, given time, persistence, and assistance (pp. 468-469).

He further stated

> In practice people perform substantially below their capacity. Even for indices of learning ability that may decline gradually during adulthood, if the person functions throughout adulthood

> at no more than two thirds of young adult capacity, a decline in ceiling capacity of less than one third by old age would have no practical effect on performance (p. 414).

While the evidence concerning cognitive style and personality factors as predictors of success with specific teaching-learning situations may be inconclusive, it is overwhelmingly in favor of the use of a variety of techniques and repetitions in order to reach as many of the students as possible.

Major conclusions drawn from the present body of literature on adult intelligence are:

1. There is a decline in the rate of learning but not in the ability to learn.
2. Age patterns and intellectual ability may vary among and within adults.
3. Exercise of the intellectual function tends to increase the capacity to learn.

Principle 2: Adults are a Highly Diversified Group of Individuals with Widely Differing Preferences, Needs, Backgrounds and Skills

Adults grow increasingly different with age. The impact of the environment and life roles contribute to this difference. While agreeing that adults are highly diversified, a substantial number of researchers believe that adults, like children, pass through identifiable stages of development at specific ages resulting in some predictable

pattern of behavior. These investigations are in the areas of life stages and life crisis.

Frenkel-Brunswik (1936) conducted one of the first studies on life phases. However, it is Erikson's (1963) theory of the eight stages of ego development that provides the basis for current research on adult development. Three of these stages (intimacy vs. isolation, generativity vs. stagnation, and ego integrity vs. despair) are considered developmental stages for the adult. Neugarten (1968) investigated the characteristics of middle age and identified five unique characteristics of this phase of life. Gould's (1972) research, built on the concept of life crises and life stages, supports Erikson's theory that persons enter either-or identity situations at different stages of their lives. Levinson et al. (1978) studied men and their development coined the term BOOM (Becoming One's Own Man). Vaillant (1977) and Lowenthal et al. (1975) conducted additional research studies that tend to agree that adult development implies a growth schedule common to all individuals. The finding's suggest:

> . . . tentativeness and vigor in early adulthood, greater assumption of adult roles and responsibility in the early portion of middle adulthood, followed by a questioning of commitments and reintegration in the latter portion of middle adulthood (Whitbourne and Weinstock, 1979, p. 124).

Sheehy (1976) popularized the complex findings of these researchers by providing a lay version of predictable crises in adult life. The theory of life cycle changes in adults proposes that adult development consists of the same stages,

encountered at about the same age, and resolved in a manner similiar to that of all other adults.

Another school of thought regarding adult development parallels the "stages" theories, but postulated a continuous readiness to change throughout the maturing life of a person. The concept is based on the premise that ". . . adult experiences are too varied and multifaceted to be classified into age defined discrete categories" (Whitbourne and Weinstock, 1979, p. ii). Major life events that characterize each phase confront all adults; however, the way the events affect each adult's life is different and cannot be predicted.

The school of thought discussed above is based on the work of Werner (1948) and Erikson (1963). Werner postulated that ". . . differentation and integration underlie developmental change over the life span of every individual" (Whitbourne and Weinstock, 1979, p. 7). Differentiation is defined as the process of refinement while integration is the process of synthesis. Erikson theorized that individuals must confront certain critical issues as major life events are faced. This means that personal identity must always be defined and redefined by the individual with each major life event. Differentiation is responsible for change in identity with integration providing overall consistency. Identity differentiation is stimulated when there is a perceived discrepancy between one's experiences and one's identity.

> The process of identity change is a cyclical one. Adults interpret experiences on the basis of what they already believe about themselves, and change this belief when their experiences contradict the belief (Whitbourne and Weinstock, 1979, pp. 9-10).

This model is based on two types of experiences: (1) deductive differentiation which occurs when one's identity forms the basis for the interpretation, and (2) inductive differentiation which occurs when experiences affect change in identity. Factors that could affect these changes include self-concept, goals, value systems, interpersonal relationships, social roles, and motivation.

Amost everyone accepts the notion of a universal sequence in physiological aging, influenced by health practices and health care (Cross, 1981). Educators can do little about what Cross calls the "inner code," but by "understanding it, they can better adapt to it, capitalize on it when desirable, and compensate for it when necessary" (p. 236).

McClusky (1980) used the differentiation concept to interpret the adult condition. He stated that as a person moves through the adult years, there is a diversification of abilities, skills, attitudes, and interests as well as other factors. This concept has two important implications for adult education. First, it simply means that one is working with highly differentiated persons; and second, in attempting to anticipate the motivations, interests, skills, and abilites of adults, programming should be largely a tailor-made affair.

McBride (1977, p. 180) agreeing with the diversity of adults, states that there is no such thing as a non-developing adult, that educators should approach continuing education with some knowledge of adult development, and that adults should be treated as people in process and not "butterflies fully shaped at 21."

Adults are also diverse in their learning styles. Some adults are primarily visual learners, some are primarily auditory learners, and some need a combination of both visual and auditory. In addtion, adult educators need to consider (1) the ways that past experiences and motivation influences how the adult approaches the learning task; (2) how the adult processes information, including acquisition, memory, and forgetting in relation to exposure and pacing; and (3) the process of thinking and problem solving including attention to cognitive style and complexity of learning task (Knox, 1977).

There are various types of cognitive learning. The theory of fluid intelligence and crystallized intelligence was discussed under principle 1. Gagne (1972) includes eight types of learning that tend to be hierarchial, in that lower order types of learning are prerequisite to higher order types as the individual attempts to master any area of content. Listed in ascending order are his eight types of learning.

1. Signal. The person learns to make a generalized response to a signal, as in classical conditioning.

2. Stimulus response. The person acquires an instrumental response to a discriminated stimulus.

3. Chaining. The person acquires a chain of two or more stimulus-response connections.

4. Verbal association. The person learns and assembles verbal chains that are assembled from a previously learned repertoire of language.

5. Multiple discrimination. The person learns to make diffrentiated responses to varied stimuli.

6. Concept. The person learns to identify and make a common response to an entire class of events or objects that serve as stimuli.

7. Principle. The person learns and is able to apply a principle that consists of a chain of two or more concepts.

8. Problem solving. The person internally thinks through the combination of two or more previously acquired principles to produce a new capability that depends on a higher order principle (Knox, 1977, p. 409).

Knox (1977) stated that adults who deliberately set out to learn something have not the prerequisite learning of the four or five lower order types in Gagne's list. Thus the learner can generally concentrate on concepts, principles, and problem solving. Where prerequisite learning has not occurred, a practitioner can diagnose the type of learning needed. Types of learning vary in the circumstances under which the learning occurs according to Gagne (1972). There has been considerable work conducted in trying to match specific types of learners to materials and teaching techniques which would be most successful for them. Cognitive style mapping is one method of attempting to ascertain the

learner's strongest learning skills by analyzing the way he or she encodes, processes, and then decodes information (Nunney, 1978).

Saloman (1979) explained that persons who have difficulty working with words and phrases may use most of their "processing capacity" just decoding the information into their own mode of thinking. This leaves them little capacity to deal with the information itself or to integrate new knowledge into existing structures. Cognitive development, individual differences in mode of thinking or processing information, and skills in various media are all factors influencing each person's style or pattern of learning.

Heun (1975) and co-workers recommended a minimum of 70 percent match between a learner's preferred learning style and "the mode of response" demanded by the learning task at hand for efficient learning. "Every teaching method (book, lecture, cassette tape, communication game, etc.) has its own cognitive style" (p. 4). Nunney (1978) stated that at least five or six alternative teaching/learning techniques would be needed to match the variety of learning styles found in even a small group of 30 learners.

Another factor determining a person's learning style is field dependency. Donnarumma et al. (1980) found in working with adult basic education students that field independent adults did significantly better on the General Educational Development (GED) test than did field dependent adults. Field independent persons are able to be more analytical and

logical because they tend to look at a problem or situation without seeing the whole picture while field dependent adults tend to see more of the whole picture and "be more global" in their outlook. The field dependent in this study was significantly more likely to drop out of basic education programs.

All these factors point to the advisability of using a variety of systems to present information. The use of multiple presentation methods also has the advantage that learning does not depend on receiving information through only one sense. This would be especially beneficial to those adults who suffer some loss of sensory capabilities, which is a trend associated with the aging process.

Realizing there are varied beliefs regarding developmental stages and phrases, the learning process, and preferences of adults, it is reasonable to conclude from the present body of literature on the diversity of adults that

1. Adult development is continuous and multifaceted.
2. Some categorical changes in adults cannot be predicted.
3. Adult learning styles are varied and require an eclectic approach.

Principle 3: Adults Experience a Gradual Decline in Physical/Sensory Capabilities

Adults can and should remain mentally and physically active for a better quality and quantity of life. As research accumulates, the age at which physiological aging

needs to be a consideration in learning seems to be moving steadily upward (Cross, 1981). In addition, adult education leaders agree that all persons attempting to facilitate adult development and learning can be more effective with a better understanding of developmental trends in physical condition and health during adulthood (Kidd, 1973).

The comprehensive overview of tested knowledge about adult development and learning by Knox (1977) is a useful resource on the physical characteristics of adults. Knox (1972, p. 583) stated that "Timiras (1972) has prepared the most recent and comprehensive volume on developmental trends in physical condition and health during adulthood." Adult education leaders who addressed this area including Knowles (1970), Neugarten (1968), Bischof (1969), and Kidd (1973), attempted to minimize false stereotypes about older adults by making some distinctions between general trends in biological aging that affect everyone and specific forms of ill health that affect only some people. "Biological aging refers to the accumulated changes in people that lead to functional impairment and death" (Knox, 1977, p. 247). The physical characteristics associated with biological aging are addressed here. Severe health and handicapping conditions greatly reduce the ability to remember, learn and modify behavior. These physical conditions are "influenced by heredity, living conditions, emotional stress, nutrition, and the accumulation of impairments from disease, accidents, and practices such as drinking and smoking" (Knox, 1977, p. 560). Since the factors are so individualized, they will

not be discussed in this paper, except to emphasize the importance of practitioners considering the implication each severe health and handicapping condition has for adult learning.

Since the body contains cells and capacity that are not essential for normal operation, the influence of biological aging on performance is reduced (Timiras, 1972). Nevertheless, just as machinery loses some of its efficiency as it gets older, so does the aging individual (Bischof, 1969). Visual impairment, hearing loss and decline in reaction time are the more common physical conditions providing implications for adult learning. This means that these conditions characterize adults in general but not necessarily all adults.

Visual acuity is at its best somewhere between the middle teens and early twenties (Bischof, 1969). Whitbourne and Weinstock (1979) summarized other general trends in the aging eye which should influence the planning of the learning environment and more specifically the planning of educational media. The lens becomes more clouded with age, creating a need for more light in the learning situation and making adults so affected more susceptible to glare from the lighting.

The lens also tends to yellow with age causing a filter effect which makes the blues and violets less distinct and intensifies the yellows, reds and oranges. This means that visual aids will be more effective for adults so affected if

colors are used which have sharp contrasts rather than subtle differences in tones and if the warm hues such as reds and oranges and yellows are emphasized.

Another trend in the eye which may occur with age is a loss of adaptation to darkness, which means the eye may need longer to adapt to change in light and dark. There is a tendency for the eye to be slower in changing focus (Whitbourne and Weinstock, 1979).

These general trends of gradual decline in the eye of the adult indicate a need for adult practitioners to provide adequate, diffuse light for the adult learner; to use visual aids which make use of sharply contrasting colors on the red and yellow side of the spectrum when possible; and to allow enough time for the adult learner's eye to adapt when using media that involves low light such as a motion picture or slide program. Extra time is needed when using techniques which require the learner to change focus frequently such as looking from a flipchart or blackboard to the learner's individual notebook or pamphlet. Knox (1977) suggested that information be presented in both audio and visual forms to facilitate learning for those with a loss of visual capacity.

Auditory acuity reaches its maximum peak generally between the ages of ten to fourteen years (Timeras, 1972). Later there is a gradual decline until the fifties, and then the rate increases more rapidly. Women have a greater decline in low frequency discrimination, and men have a

greater decline in high frequency discrimination (Knox, 1977). Older adults also have more difficulty screening out interfering noises. Knox offered suggestions to help adults compensate for a hearing loss in several ways:

> . . . such as providing sound amplification at the source, encouraging use of a hearing aid, recognizing that increased volume will not compensate for neural deafness and that a major hearing loss is usually upsetting, and providing clear enunciation and facial and lip cues (p. 314).

Many types of performance entail both reaction time and movement time. Knox (1977) described reaction time as the perception of the stimulus by the sense organ, transmission of information to the brain, and selection of a response. The movement time or motor phase entails carrying out the response or action. The peak reaction time is about age twenty (Timiras, 1972), a general slowing during adulthood, and by fifty it has returned to about the average level of age fifteen. The slowing of reaction time is greater than the slowing of movement time. Adults typically compensate for reduced speed by increased accuracy and attentiveness (Kidd, 1973; Knox, 1977; Cross, 1981). Also, when working with older adults, one should use clear instructions and reinforcement procedures to help improve speed and accuracy and avoid situations which entail time pressures (Knox, 1977).

Kidd (1973) pointed out another interesting difference between older and younger people, other than the slow down that comes with age.

> With a young man, the speed of response or performance varies with the task and his familiarity or practice. With an older person, who has well-developed personality traits, relative quickness or slowness is a characteristic pattern of his response to stimuli and will be consistent in all his activites (p. 61).

In terms of job performance, Kidd (1973) maintained that losses in dexterity are negligible up to seventy and over, and that these losses can be retarded by training and practice.

Knox (1977) stated that another factor for adult practitioners to consider when working with the older person is the changes in the functioning of endocrine glands. This change reduces the person's ability to respond effectively to extreme high or low environmental temperatures.

Physiological conditions and physical health can affect learning and cognition in various ways. Knox (1977) considered the physical condition as one of seven modifiers of learning. In efforts to assess learning ability accurately and to facilitate learning performance, the adult learner should be in an environment that minimizes the extent to which physical condition and health interfere with learning.

Major conclusions drawn from the present body of literature on the adults' physical/sensory capabilities are:

1. Visual impairment, hearing loss, and decline in reaction time are the more common physical conditions that have implications for adult learning.
2. The rates of decline for specific capabilities vary with each individual.

Principle 4: Experience of the Learner is a Major Resource in the Learning Situation

> . . . the resource of highest value in adult education is the learner's experience. If education is life, then life is also education . . . Experience is the adult learner's textbook (Lindeman, 1926, p. 10)

Knowles (1978) maintained that Lindeman in The Meaning of Adult Education identified many of the basic assumptions about adult learners that later research supports. These ". . . constitute the foundation stones of modern adult learning theory" (p. 31). Knowles gave credit to Lindeman for the following assumptions:

1. Adults are motivated to learn as they experience needs and interests that learning will satisfy; therefore, these are the appropriate starting points for organizing adult learning activities.

2. Adult's orientation to learning is life-centered; therefore, the appropriate units for organizing adult learning are life situations, not subjects.

3. Experience is the richest resource for adults' learning; therefore, the core methodology of education is the analysis of experience.

4. Adults have a deep need to be self-directing; therefore, the role of the teacher is to engage in a process of mutual inquiry with them rather than to transmit his or her knowledge to them and then evaluate their conformity to it.

5. Individual differences among people increase with age; therefore, adult education must make optional provisions for differences in style, time, place, and pace of learning (p. 31).

Four of the above assumptions are termed "principles" in this study and are discussed in separate literature review sections; one under principle 7, two under principle 6, three under principle 4 (this section), and five under principle 2.

Knowles (1970) strongly agreed and elaborated on Lindeman's assumptions regarding experience as a major resource in the learning situation. He defines experience as ". . . the interaction between an individual and his environment" (p. 51). The accumulated set of unique experiences constitutes an adult's identity, Knowles postulated. Thus ". . . an adult is what he has done" (p. 44). Since an adult defines himself largely in terms of experiences such as occupation, place of employment, training, achievements, and travel, the adult has a deep investment in its value. Knowles theorized that when the adult is placed in a situation where experience cannot be used, or its worth is minimized, it is not only the experience that is being rejected, but also the person. Drucker (1969, p. 323) addressed the significance of experience this way: ". . . the more experience in life and work people have, the more eager they will be to learn and the more capable they will be of learning."

The difference in experience between children and adults have at least the following three consequences for learning (Knowles, 1970):

1. Adults have more to contribute to the learning of others; for most kinds of learning, they are themselves a rich resource for learning.

2. Adults have a richer foundation of experience to which to relate new experiences (and new learnings tend to take on meaning as we are able to relate them to our past experiences).

3. Adults have acquired a larger number of fixed habits and patterns of thought, and therefore tend to be less open minded (p. 44).

Mezirow (1978) viewed adult learning as developmental in orientation and different from most school learning. He suggested that, at some point, new learning is not just additive to what we already know, instead it is mixed with existing knowledge to bring about a new perspective. He termed this concept "perspective transformation" and stated it is one of the most significant aspects of adult learning. He adds ". . . we are caught in our own history and are reliving it . . . new experience is assimilated to - and transformed by - one's own experience" (p. 101). An example Mezirow cited to point out perspective transformation is the women's movement. In this example, men and women come to perceive the role of women in society in a different light.

Dansereau (1978) supported Mezirow's concept and added that new learning is most effective when related to past experience. He pointed out that learning material without meaningfully relating it to other stored information limits the facility with which such information can be retrieved at a later date. Tulving and Thompson (1973, p. 254) explained this concept further: "no retrieval can help access to a particular memory unless the cue and that target were encoded

together initially." Therefore, it is important that learning be tied to past experiences and to expected future use so that it can be retrieved and used without difficulty. Knox (1977, p. 431) stated: "A more positive approach to learning can result when a person better understands connections between organized and personal experience." Knox (1977) postulated that practitioners

> . . . who help adults learn in ways that closely relate knowledge resources to action concerns of the learners typically give serious attention to cognitive and affective development of the participants before, during, and after the educational activity (p. 431).

The example used by Knox to emphasize connections between organized knowledge and personal experience was the laboratory for student development. This laboratory course combined some features of an encounter group with the college psychology course on personality.

> . . . The course syllabus lists the readings on personality theory and provides detailed instructions for students to prepare related materials on their own experience. These materials include autobiographical reports and a weekly journal that emphasized emotionally charged experiences. The student-prepared materials include both descriptions and interpretations of the personal meanings of the experiences. Copies of these materials are shared with the instuctor and with all other group members as a basis of class discussion and illustrations of concepts from the course readings (p. 431).

This instructional approach as outlined by Knox is a way of helping students understand interrelationships among personality concepts as they occur holistically for an individual. By using the materials prepared by individual course members as case study examples, the <u>entire group</u> can benefit as they

attempt to understand and explain personality dynamics as an aspect of performance.

Adult educators affirmed Knox's suggested use of the instructional approach using individual experience as a resource for group learning (Knowles, 1970, 1973; Houle, 1964; Cross, 1981; and others). They maintained that adults can learn a great deal from the successes and failures of others. "The cross-fertilization of ideas that comes from exchanging experience is a stimulant to improved practices" (Knowles, 1970, p. 140).

Adult educational programs that explicitly deal with alternation between knowledge and experience are advocated throughout the present body of literature on experience of the learner as a major resource in the learning experience. This can occur in many fields: humanities, social sciences, and occupational areas.

> . . . This concern for application is even more straight forward for many adult groups in which the participants can apply what they learn to their daily lives (Knox, 1977, p. 432).

Major conclusions drawn from this review of literature section are:

1. New learning is most effective when related to past experience.
2. Individual experience provides resources for group learning.

Principle 5: Self-concept Tends to Move from Dependency to Independency as an Individual Grows in Responsibilities, Experiences and Confidence

The individual's perceptions and feelings about self influence many aspects of functioning; it is a critical aspect of personality. Lehner and Gunderson (1953), Veroff and others (1962) found that the positiveness of self-concept and level of self-esteem tends to increase until middle age and then to stabilize or gradually decline. The researchers postulated that the decline in self-esteem for older adults is influenced by recent disruptive life experiences, such as a loss of a spouse or job and by a lower standard of living than anticipated.

Ingalls and Areori (1972) provided a good discussion of the changing self-concept that occurs as an individual matures. They stated that the self-concept of the child is that of being a dependent person. As children move toward adulthood, they become increasingly aware of being able to make decisions for themselves. This change from a self-concept of dependency to one of autonomy indicates that a person has achieved psychological maturity or adulthood. Because of this, adults tend to resent being put into situations that violate their self-concept of maturity, such as being treated with a lack of respect, being talked down to, being judged and otherwise treated like children.

McClusky (1971) offered another view of the implications self-concept can have on the adult education process. He stated that the prevailing view of society is that the major task of children is to go to school, study and learn, while the major task of the adult is to get a job and work. This results in the dominant thrust of society's expectations and the adult's self-expectation being that the learning role is not a major element in his life, and therefore, both society and the adult view themselves as non-learners. McClusky believed that this failure to internalize the learner role as a central feature of the self is a substantial restraint in the adult's realization of his learning potential. If and when an adult thinks that studying, learning, and the intellectual adventure is as much a part of life as his occupation and obligation to his family, he will be much more likely to achieve a higher level of intellectual performance, according to McClusky.

An important principle in Knowles' (1978) andragogical theory assumes that as a person grows and matures, his self-concept moves from one of total dependency to one of increasing self-directedness. Andragogy is a term popularized in the United States by Knowles (1970) to distinguish adult education from pedagogy (the art and science of teaching children). Andragogy "is based on the Greek word aner (with the stem andr-), meaning 'man'. Andragogy is therefore, the art and science of helping adults learn" (p. 38). To practice andragogy, Knowles (1978) believed one must be

> . . . able to accept dependency at a given time and moment, or time with a given person, has a built in sense of obligation to do anything one can to help that person move from dependency toward increasing self-directiveness. In other words, the androgogue has a value system that places self-directiveness on a much higher level than dependency and so will do everything one can to help a learner become increasingly self-directed in his or her learning (p. 206).

Knowles stated that encompased in the self-concept principle, is the most critical differentiating set of assumptions between pedagogy and andragogy. Also, ". . . the one that makes the most difference between what teachers of adults do" (p. 206).

Often there is another ingredient in the self-concept of adults that affects their learning role (Houle, 1964; Knowles, 1970; Cross, 1981, and others). These authors addressed the implication a negative concept can have on the learning situation. There may be a carry over from previous experiences with schooling that resulted in the adults' perceiving he or she cannot learn.

> This fact about the adult psyche has several consequences for adult education. In the case of some adults the rememberance of the classroom as a place where one is treated with disrespect is so strong that it serves as a serious barrier to becoming involved in adult-education activities at all (Knowles, 1970, p. 40).

Knowles also suggested that a challenge for the adult practitioner, when such an adult is enticed back to the classroom, is to help make the rewards of learning outweigh the anticipated pain of learning.

Another implication of the negative concept for adult practitioners, brought out by Knowles (1970), is that even

though adults overcome the necessary barriers to enter the classroom they typically expect to be treated like children. Often adult students will put pressure on their teacher to behave toward them in this way. However, Knowles emphasized, that ". . . once a teacher puts adult students into a dependent role . . . he is likely to experience a rising resistance and resentment" (p. 40).

Major conclusions drawn from the present body of literature on the implication of the adult's self-concept on learning are:

1. The adult sees self as being able to make own decisions and face their consequences to manage own life.
2. Adults preconditioned by school experiences to perceive the role of learners to be dependent may need help in reconceptualizing the role of learner as self-directed.

Principle 6: Adults Tend to be Life-centered in Their Orientation to Learning

Life changes are generally the reasons adults learn. Data from a study conducted by Future Directions for Learning Society (FDLS) based on a nation wide representative sample of more than 1,500 adults, reveals that 83 percent of the adults described some past or future change in their lives as a reason for them to learn. Some event in their career lives such as a promotion, a new job, or a company

relocation, triggered more that half to begin learning. Changes in family lives such as divorce, increase in income or moving to a new location motivated 35 percent to learn, and 16 percent of the respondents said they were learning to cope with family transitions (Cross, 1978).

Havinghurst (1972) developed the concept of "teachable moments" to signify a point at which there is great urgency to learn in a very short time because of a competency required by a new situation. He found that new situations and social roles create an urgent need to gain certain knowledge or skills. The term "teachable moments" is now used extensively in adult literature to indicate a point in which education possibilities are very high.

The following writers also address the need for adult education to be life-centered: Dewey (1966)

> . . . social life is our ultimate educational standard for determining the value of the subject matter taught, and for determining all questions of methods or ways of teaching; only that social life is not to be interpreted simply as a remote or adult social life, but as a present, immediate, living thing (p. 135).

Kneller (1964)

> . . . the teacher should construct learning situations around particular problems whose solution will lead his pupils to a better understanding of their social and physical environment (p. 25).
>
> Education should be life itself, not a preparation for living (p. 48).
>
> Learning should be directly related to the interests of the learner (p. 48).

Tough (1971, p. 51) ". . . the adult learns because he expects to use or apply the knowledge and skill directly in

order to achieve something." In his research on adult learners who were engaged in their own independent learning projects, Tough found that for almost three-fourths of these learners the primary reason for starting their learning project was to use the learning directly in order to do something, produce something, or decide something. (Knox, 1977, p. 467) "Major role changes can produce heightened readiness to learn and focus attention on needed competence."

The above references tend to infer that all adults want to learn. However, the literature solidly establishes the

> . . . fact that many of the attitudes and values of American society are directly and specifically opposed to the idea of lifelong learning and that this opposition has a vehemence and spread of impact which is not apparent to those who do not feel it directly themselves (Houle, 1961, p. 46).

Houle views this as outright opposition and stated that the opposition generally comes from places where it counts most with the person who feels the inclination to learn: family, associates, and friends. Thus in many social circles, education is not respected. For this reason, Houle postulated that participants in adult education are more likely to state their reason for continuing education is to learn a skill, when in fact they just want to keep learning for learning's sake. "Improving a skill sounds more acceptable in some social circles" (p. 46). Houle (1959, p. 16) stated that ". . . extension education is rated in the social situation in which adults find themselves." Shannon and Schoefeld (1965) reemphasized this statement in the two basic facts underlying university extension participation:

". . . (1) it is not a chance event in a person's life but is determined by his needs, and (2) he looks to education as an aid in realizing his aspirations" (p. 38).

A number of research studies solidly support the theory that social class level and extent of education are consistently far more associated with learning ability than is age (Fozard and Nuttal, 1971; Birren and Morrison, 1961).

Knowles (1970, p. 88) provided more insight regarding social impact on adult education when he wrote "one of the strong and much-researched presumptions among adult educators is that interests vary greatly according to socio-economic level."

He further stated that

> . . . the proportion of participants over non-participants in all forms of adult education rises as such indicators of socio-economic level as occupation, income, and education rise (p. 88).

Knowles believed that the study conducted by Johnstone and Rivera (1965) is the most authoritative study on the influence of socioeconomic factors of adult learning. Johnstone and Rivera make the following generalization

> 1. The lower classes place less emphasis on the importance of high educational attainment. . . .
>
> 2. The average deprived person is interested in education in terms of how useful and practical it can be to him. . . .
>
> 3. Although education is widely recognized as an appropriate channel for social mobility, the average lower-class person is less ready than the average middle-class person to engage in continuing education even if tangible economic rewards are at stake. . . .

> 4. The average lower-class person does not perceive education in terms of personal growth or self-realization, and this may explain why the lower classes are much less ready to turn to adult education for recreational purposes than they are for purposes of vocational advancement (Knowles, 1970, p. 89).

In addition, Johnstone and Rivera (1965) concluded that interest both in continuing one's education in general and in studying particular subjects varies with such other factors as sex, regional location, urban or rural residence, race, and size and type of community.

More recently, Cross (1981) supported the premise that adult education has a high middle-class flavor. She stated

> The general conclusion arrived at by Johnstone and Rivera after their comprehensive national study in 1965 in as true today as it was fifteen years ago: 'One of the most persistent findings emerging from this inquiry is that a great disparity exists in the involvement in continuing education of segments of the population situated at different levels of the social hierarchy' (p. 231).

Cross (1981) used data from the 1978 triennial survey conducted by the Census Bureau. "These figures document the socioeconomic elitism of adult education" (p. 53). She concluded that the best single prediction as to whether adults will continue to participate in learning activities is the prior level of educational attainment.

Havighurst (1953), Kidd (1973), Knowles (1970), and others addressed the factor of time in adult learning. They agreed that adults perceive time differently than young people. Kidd (1973, p. 48) stated that "for an adult, more than a child, the investment of time in an activity may be as important a discussion is the investment of money or

effort." One of Knowles' assumptions regarding andragogy expands this concept of the adult learner:

> . . . his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject-centeredness to one of problem-centeredness (p. 39).

Major conclusions drawn from the present body of literature on the adult's life-centered orientation to learning are:

1. Activities and events in lives of adults have an impact on their involvement in learning experiences.
2. Needs related to changes in life tasks and responsibilities bring about teachable moments.
3. Adults tend to have an expectation of immediate application of knowledge.

Principle 7: Adults are Motivated to Learn by a Variety of Factors

Knowles (1970) defined learning motivation as the gap between where persons are in their present competencies and where they want to be. Adult practitioners can assist the learner to reach this point by providing diagnostic experiences in which the learner can assess present competencies and determine future goals. The self-induced dissatisfaction with present inadequacies, coupled with a clean sense of direction for improvement, should produce the needed motivation to follow through with the learning project according to Knowles.

Confusion exists in psychological literature regarding the nature of needs and interests and the difference between them. It is not relevant to this study to explore the differences, only to provide research to support their significance in adult education and learning. Bergevin (1967) stated

> Needs and interest are interrelated. Interests often point toward needs. In order to encourage participation, it is helpful to begin with a need or interest that is recognized as important by the learner (p. 11).

Knowles' (1970) writings followed this same line of thought:

> . . . perhaps the highest expression of the art of the adult educator is skill in helping adults to discover and become interested in their needs. But in order for him to have a chance to practice this art, he has first to reach them through their interests (pp. 79-80).

One of the most popular theories of motivation is postulated by Maslow (1943). He proposed that persons are motivated by five basic human needs. He defined a hierarchial, five-level model. The needs in ascending order are:

1. physiological,
2. safety and security,
3. belonging and social activities,
4. esteem and status, and
5. self-actualization.

He maintains that a person is first motivated by the need to satisfy the basic needs, and once these are satisfied, one can then move up the hierarchy in an attempt to satisfy the higher order social needs.

Boshier (1973) related Maslow's need hierarchy to negative factors that may influence that degree of motivation of adult learners. He theorized that dropouts can be predicated according to their reason for enrolling as reflected by their level of need according to Maslow's needs hierarchy. Those students enrolling for reasons relating to a deficiency were much more likely to drop out. Students enrolling in adult education for reasons relating to personal growth were likely to be operating at the higher levels of needs such as esteem and self-actualization. Boshier goes further to relate the work of Maslow to that of Rogers in stating the Maslow's "growth motivated person" is what Rogers calls the "full functioning person."

In attempting to formulate a theory by which potential dropouts can be identified, Boshier (1973) used Rogers' theories of self/other congruence to

> . . . hypothesize that enrolling for 'deficiency' reasons is associated with intra-self incongruence, which in turn leads to self/other incongruence and dissatisfaction with the educational environment. Growth motivation is associated with intra-self, and thus self/other congruence and satisfaction with the educational environment (p. 259).

Maslow's deficiency-motivated person is described as more dependent on and more fearful of the environment and possible more hostile if the situation threatens to "fail or dissappoint." The growth-motivated persons tend to be more "self-directed" and less dependent on the environment. They would be better in coping with "inconsistency and disorder" in the learning environment (Boshier, 1973).

The impact of this concept of man moving through a hierarchy of need motivation is described by Tough (1971). He stated that in advanced nations, more and more men and women are moving beyond material goals as their lower-order needs, such as food and shelter, are satisfied relatively easily. As a result, they are setting new goals for themselves. They are seeking the higher joys of gaining new knowledge and skills and achieving better self-understanding of learning to interact more sensitively and honestly with others. Tough noted that the incredible expansion of human growth centers and other programs for maximizing human potential is one sign of this shift.

Riessman (1962) is convinced that education is perceived differently by the poorly educated, hence their motivation for learning is different.

> There is practically no interest in knowledge for its own sake; quite the contrary, a pragmatic anti-intellectualism prevails. Nor is education seen as an opportunity for the development of self expression, self realization, growth, and the like. The average deprived person is interested in education in terms of how useful and practical it can be to him (p. 12).

Riessman concluded from survey data that as one proceeds up the educational and socioeconomic scale, the dominant orientation changes from a strictly utilitarian emphasis to a greater stress on knowledge as having value in its own right. Persons on the low educational and socioeconomic scale would be Maslow's deficiency motivated person.

Cross (1981) discussed the lack of motivation for learning of adults 55 and older. Some factors bearing on

the declining participation by older adults are the lack of interest in career success (which dominated the motivations of young people), declining energy and mobility, and the feeling of being too old to learn. Also, she postulated that competition is a negative motivator in this age group. Knowles (1970), Kidd (1973), and others agreed that group work cannot exist when students are competing against each other. Cross added that while the 55 and older adult is the most underrepresented of all subgroups in adult education activities, she stated there has been growth in recent years. "For those 55 and older, participation has grown from 2.9 percent of the age cohort in 1969 to 4.6 percent in 1978" (p. 58).

Kidd (1973) explained motivation in terms of "need reduction" and "positive striving." The need reduction view places emphasis on the need to satisfy bodily hunger, thirst, sleep and sexual appetites. This view of human motivation asserts that an organism's motivation to perform a variety of activities arises from the necessity of fulfilling these basic needs. This view is sometimes expanded to include the need to avoid pain and discomfort or to minimize anxiety. The "positive striving" view identifies the two primary motivating forces as self-fulfillment and the need for a human being to enhance his relationship within society (Kidd, 1973).

Ingalls and Areori (1972) reinforced this concept in their A Trainers Guide to Andragogy. They stated that the

level of need-satisfaction plays an important role in determining what learners will be motivated to learn. A person who is experiencing a high level of psychological anxiety is likely to be motivated to want to learn anything that will help him resolve his problems "as he perceives them," but he will not be motivated toward developing his higher potentialities until he first finds a "safe" environment.

Houle's research enabled an understanding of the processes of adult learning. He found that the purposes of learning by the adult could be grouped into three categories. "These are not pure types; the best way to represent them pictorially would be by three circles which overlap at their edges" (Houle, 1961, p. 16). Houle's study was designed to discover why adults engage in continuing education. It also suggested how adults learn. Houle identified the following types of adult learners:

1. Goal-oriented: uses education for accomplishing fairly clearcut objectives. These persons have realized a need or identified an interest. Learning takes place in episodes rather than a continuous flow, is ever-recurring, and is not restricted to one institution or method.
2. Activity-oriented: uses courses for the social contact and the kind of human relationships they yield.
3. Learning-oriented: seek knowledge for its own sake. Learning has a continuity and a flow and is

> associated with all their activities such as organization, trips, jobs and the like.

Jensen et al. (1964) stated that adults are especially concerned with maintaining and enhancing their social worth and success. For many years of adult life, this seems to be the primary source of motivation for learning. Jensen goes on to say that in American society, social worth and success are largely dependent upon continued increase in competence. Adults, therefore, have a strong need for acquiring new knowledge and skills in an instructional situation which reduces to a minimum the danger of losing "hard-won" prestige.

Lengrand (1975) reminded adult practitioners that an adult is seldom driven by force to take his or her place on the school bench.

> . . . as a general rule he will only sacrifice his leisure and take part in educational activities if drive by self-interest, if aware of the link between what is offered to him and his own ambition, hopes, inquisitiveness and taste (p. 48).

Cross (1981) contended that so far, most of the research on motivation has been conducted through surveys, with the exception of job-oriented motives. Also, the goals mentioned are so broad that they offer litle insight as to how educators might design learning experiences to help people achieve such goals. She recommends a greater diversity of research methods in this area.

Major conclusions drawn from the present body of literature on motivational factors in adult learning are:

1. The need to grow, as an individual, influences an adult's motivation to learn.
2. Negative self-concept, fear of failure and inaccessibility of learning opportunities are some of the factors that may influence the degree of motivation.
3. Expectations for the future can be as important for motivation for learning as actual experience.

Principle 8: Active Learner Participation in the Instructional/Learning Process Contributes to Learning

Adult educators generally agree that a basic condition of learning is that the learner be actively involved. This concept is built around the humanistic theory that the individual is in control of his own learning behavior (Lindeman, 1961; Maslow, 1954; Bergevin, 1967; Rogers, 1969; Knowles, 1970; Kidd, 1973; and others). For Lindeman (1961), the key word in education is participation. Learners are viewed as active participants who are capitalizing on their own practical experiences, not as repositories for dumping knowledge. Instructors are viewed as facilitators whose ". . . function is not to progress but to evoke . . . to draw out, not pour in" (p. 119). Knowles (1970) whose own life reflects the mission of facilitating the learning of others stated:

> . . . the main thrust of modern adult-educational technology is in the direction of inventing

> techniques for involving adults in ever-deeper processes of diagnosis of their own needs for continual learning, in formulation their own learning objectives for learning, in sharing responsibilities for designing and carrying out their learning activities, and in evaluating their progress toward their objectives (p. 51).

Knowles described the faith in the ability of individuals to learn for themselves as the "theological foundation" of adult education and stated that teachers can hinder learning if they do not have this faith. Thus, when teachers of adults view the locus of responsibilty to be in the learner, they conscientiously suppress their compulsion to teach what they think the students ought to know in favor of helping the students learn for themselves what they want to learn. Knowles contended that a teacher's responsibility lies in being ingenious and finding better ways to help students discover the important questions and answers for themselves instead of giving ready-made answers to predetermined questions. He recommended that more participatory experimental techniques be used in teaching adults such as

> . . . group discussion, the case method, the critical-incident, simulation exercises, role playing, skill-practice exercises, field projects, action projects, laboratory methods, consultative supervision, demonstrations, seminars, work conferences, counseling, group therapy, and community development (p. 45).

Bergevin (1967), Knowles (1970), and others, address the importance of learners knowing how to learn in order to effectively participate in the learning situation. Bergevin (1967) stated

> This book rests on one other assumption - that all persons participating in adult education need to

> learn something about how to learn in a cooperative and mutually supporting manner. Experience and research have shown that adults can be taught to identify needs, to plan and conduct their own learning activities. They can learn to discuss issues in a productive way, to deal with conflict in the learning situation and share in the evaluation of their learning experience. This we call active participation in the learning situation (p. 8).

Knowles (1970) further emphasized the need for adults to learn how to learn. He stated:

> . . . one of the almost universal initial needs of adults is to learn how to take responsibility for their own learning through self-directed inquiry, how to learn collaboratively with the help of colleagues rather than to compete with them, and especially how to learn by analyzing one's own experiences (p. 45).

Major conclusions drawn from the present body of literature on learning participation in the instructional/learning process are:

1. Adult learning occurs best when the student participates in identifying needs, setting goals, and evaluating progress.
2. The quality of learning is directly related to the quality of interaction within the learning environment.
3. Adults learn best when they become actively involved in the learning activities.

Principle 9: A Comfortable Supportive Environment is a Key to Successful Learning

> The humanist assumes that there is a natural tendency for people to learn and that learning

> will flourish if nourishing, encouraging environments are provided (Cross, 1981, p. 228).

This concept reflects the writings of Lindeman (1926), Dewey (1966), Rogers (1969), Knowles (1970), and others who believed adults are influenced by the learning environment. They believed adults may possess all of the internal preconditions for learning, but they may still fail because of conditions in the immediate learning situation over which they have no control. Adult education leaders categorize these factors under various headings, but they generally agree the educative environment (some use the term climate) consists of the physical settings as well as the emotional atmosphere (Cross, 1981).

Ingalls and Areori (1972, p. 10) placed ". . . setting a climate for learning" as the first step in his seven step continuous development process for adult learners". Knowles (1970, p. 52) succinctly described a supportive learning climate as being "characterized by physical comfort, mutual respect, mutual helpfulness, freedom of expression, and acceptance of differences." The factors of physical comfort have strong implications in adult learning. In most instances the learner has put in a full day of work and may be under time pressures as well as other home or work pressures. For example, learning may be decreased for the adult learner who must climb four or five flights of stairs to a poorly lit and overheated classroom, and sit three hours in an uncomfortable chair. Knowles (1970) stated that care should be given to assure the physical conditions are

comfortable such as seating, smoking, temperature, ventilation, lighting and decorations. He also suggested a seating arrangement conducive to interaction (e.g., no person sitting behind another person).

Knowles (1970) theorized that the quality and amount of learning is influenced by the quality and amount of interaction between the learner and his environment and

> . . . by the educative potency of the environment. The art of teaching is essentially the mangement of these key variables in the learning process-environment and interaction--which together define the substance of the basic unit of learning . . . (p. 51).

Often many adaptations need to be made in the environment for special needs persons, such as when there is low sound volume, poor acoustics, and much background noise that interferes with those who are hearing impaired. Under such circumstances, a hearing aid may not help, and if the room is to be satisfactory for adults with hearing impairments, sound amplification at the source and improved acoustics can provide the needed compensation. Elevators and ramps are other modifications of the environment that enable adults with physical disabilities to minimize the limitations on their activities (Knox, 1977).

Houle (1961), Verner (1964), Knowles (1970), Ingalls and Areori (1972), Knox (1977), among others, supported the tenet that the emotional atmosphere must be open, positive, and supportive of the adult's attempt to learn. In this connection, the attitude and behavior of the instructor are crucial; the adult must be treated as an equal in his/her

own right, without any hint of criticism or depreciation of his attempts to learn. This has particular meaning to adult students returning to a classroom for additional learning. The open, supportive classroom is necessary because the adult learner may perceive the school, classroom, and teacher as negative factors (a threat) because of past experiences in similar institutions. If the adult left school because of personal difficulties or expulsion, his/her perception of the new situation will not be conducive to gaining new experiences (Knox, 1977). In a positive classroom climate with the absence of threat where the teacher accepts each student as a person of worth, mutual trust may develop.

Knowles (1970), Tough (1971), Knox (1977), and others, discouraged an atmosphere of competition in which adult students are pitted against each other and the teacher sits as expert and judge. They contend this diverts the energies of the students from learning to defensive measures. A high level of emotional stress in the classroom tends to demoralize the adult and interfere with the learning process itself. Evidence of such stress would probably not be found in learning climates characterized by mutual helpfulness. Knowles (1970) stressed the importance of building relationships of mutual trust and helpfulness among the students as well as the teacher. This can be done by ". . . encouraging cooperative activities and refraining from inducing competitiveness and judgmentalness" (p. 52).

Classroom climate is based on nonverbal as well as verbal communication. Mehrabian (1981) concluded that 93

percent of what we learn from the communication process is carried in nonverbal cues. Other estimates range from 55 percent upward. Nonverbal behavior by the adult teacher can encourage or inhibit involvement by the student.

Verduin, Miller, and Greer (1977) suggested that responding to a raised hand or a puzzled look will build climate as does such positive expressions as enthusiasm and liking the students. Important also is listening to students with patience and showing supportive expressions that denote enjoyment, or praise of the students. As Verduin et al., pointed out, these will aid more in climate building than expressions of aloofness, coldness, low regard, indifference, dissatisfaction, discouragement, disparagement, or punishment.

There tends to be general agreement in the adult education literature that one of the most critical factors in adult learning is the climate of the classroom or the general environment in which learning is to take place. Adults who view school as an unpleasant place because of past experiences are especially sensitive to the atmosphere. Are they really welcome or just being tolerated? The effective teacher of adults will find ways of helping students relax and feel a part of the group.

Major conclusions drawn from the present body of literature regarding implications of the environment on adult learning are:

1. An atmosphere that is open, positive, and supportive of the adult's attempts to learn enhances learning.
2. A nonauthoritarian climate, with mutual respect and acceptance of differences, facilitates learning.
3. Physical conditions such as seating arrangements, room temperature, ventilation, and lighting influence learning.

Related Research Design and Instruments

Review of instruments available as described in "Research in Education" and "Test Collection Bulletin" of Educational Testing Service revealed that the target of almost all instruments in education is the student rather than the educator. In the case of a few instruments directed toward the educator, most try to identify one single skill. However, three exceptions were found to be germane to this study.

First and the most relevant, Conti (1979), presented a research paper on an instrument he developed for measuring the degree of instructor's support of the learning principles related to the collaborative teaching-learning mode, the Principles of Adult Learning Scale (PALS). The collaborative mode was defined ". . . as a learner-centered method of instruction in which authority for curriculum formation is shared by the learner and the practitioner" (p. 1).

PALS has relevance to this study because of: (1) the learning principles related to the collaborative mode; (2) the methods of establishing the validity and reliability; and (3) the versatility of the instrument.

In 1975, Hadley developed an instrument to determine adult education orientation: andragogical or pedagogical. The theoretical constructs which underlie this Educational Orientation Questionnaire are restricted to identifying those elements on which andragogy and pedagogy maintain opposite positions. Since some of the assumptions underlying adult learning could be omitted using Hadley's criteria, its usefulness to this study was limited.

Rossman (1977), developed a questionnaire to ascertain the level of faculty awareness of selected characteristics of the adult learner. Since the questionnaire used in this study limited the theoretical constructs to selected characteristics of the adult learner, its usefulness to this study was also limited.

Summary of Literature Review

It is apparent from the literature that the number of individuals in the age range which appears most interested in continued learning is on the rise. Also, there is a solid data base related to participants in University Extension nationally, as well as from OSU. Studies have indicated that adults are motivated for very personal reasons, but regardless of the motives they are aware of what they

wish to learn. Adults are unwilling merely to accept that which others desire to teach. Realizing this, a few faculty development programs emerged that include an emphasis on the adult learner.

Furthermore, a review of literature in the field of adult education revealed some unique principles of adult learning that need to be considered by teachers of adults. The literature recommended that these principles be the basis of training for persons engaged in and responsible for the teaching of adults. These principles have great implications for the structure and content of staff development programs in institutions serving a large percent of adult clientele. University extension is one of the largest programs in these institutions.

Adult education leaders also stated that little research has been done to determine how adults are actually being taught. Research studies by Conti (1979), Hadley (1975), and Rossman (1977) had limited application to this study. However, with the perceived trend to encourage staff development programs in higher education, more emphasis may be put on <u>how</u> adults are being taught.

CHAPTER III

METHODOLOGY

The purposes of this study were (1) to identify the basic principles of adult learning that underlie adult education programs as affirmed by authoritative sources, (2) to determine the extent instructors in Oklahoma State University (OSU) Extension credit courses perceive themselves implementing these principles, and (3) to determine if a difference exists between the instructors' perceptions and the students' perceptions of the instructors' implementation of these principles. The study was conducted in four phases: (1) identification and validation of principles in adult education, (2) development of a data collection questionnaire, (3) collection of data, and (4) analysis of data and statistical procedures.

Identification and Validation of Principles

Review of Literature

A six-person research team conducted the first phase of this study by comprehensively reviewing the available resources in adult education. Each team member reviewed literature in one or more of the following areas of adult

education: philosophical, psychological, social and socio-economic, cognitive, environmental, physical and methodological. This literature included textbooks, published reports of research, journal articles, and unpublished doctoral dissertations. Out of these searches, each team member submitted a written report to the group relating findings from the literature review. Individual members used these reports in writing their comprehensive section in the review of literature (Chapter II) section of this study on adult learning principles. In addition, each team member compiled a list of the major principles from the literature they reviewed. The individual lists were then combined into a single list. Through corporate efforts, the principles were grouped into categories and synthesized into concise statements. Next, the team, through consensus, established a tentative list of eight principles with one or more short explanatory statements for each principle (see Appendix C).

Refinement of the Principles

Next, the tentative principles with the explanatory statements were submitted to a jury of experts in adult education to rate via a modified Likert scale with values of 0 to 5. This jury was also asked to respond with suggestions for modifying the principles to make them consistent with what they perceived as the basic theoretical orientation of adult education. Appendix C contains a listing of the initial jury (or review panel).

The jury expressed agreement that the eight principles were basic to adult education. Based on the jury's recommendations, the research team modified some wording, added concepts to the explanatory material, and added a ninth principle. The added principle (number 7) "Adults are motivated to learn by a variety of factors," focuses on concepts which the team had previously included under principle 2 (diversity) and principle 5 which dealt with adult readiness to learn and the adults' trend toward a life-centered orientation to learning.

The team used a second jury (consisting of adult education leaders with a high degree of visibility in the field of adult education, having geographic dispersion and philosophical heterogeneity) to validate the importance of each of the refined principles. See Appendix D for a refined list of the principles, explanatory cover letter and the names of the validation panel (second jury). The jury rated the principles on a modified Likert scale with values from 0 to 5. Principles had to receive an average of 3.75 or more to be considered basic principles of adult education. All nine principles received a value of 4.54 or higher from the validation panel. Mean values for each of the nine principles by the validation panel are reported below.

Principle	Mean
1.	4.87
2.	4.83
3.	4.75
4.	4.66
5.	4.54

Principle	Mean
6.	4.58
7.	4.79
8.	4.87
9.	4.62

Development of the Questionnaire

The second phase of this study consisted of creating a data collection questionnaire, followed by field-testing, numerous revisions, and checking for validity and reliability.

From the refined list of principles, the research team developed statements which represented the application of some aspect of each of the validated principles, using as a reference and model the Principles of Adult Learning Scale (PALS) instrument created by Conti (1979). The team used these statements to design a questionnaire to assess the extent of application of the principles. The initial questionnaire contained 47 statements, four to six for each of the nine principles. Statements were randomly ordered for placement in the questionnaire. Instructions to the respondents asked that they indicate how often they applied the activity described in each statement by checking "Always," "Frequently," "Sometimes," "Never," or "Not applicable" to their situation, on a modified Likert scale. Definition and range for each point on the scale were as follows:

"Not Applicable" (0)	does not apply to respondent.
"Never" (1.00 to 1.49)	respondent does not practice this action.

"Sometimes" (1.50 to 2.49)	respondent practiced this action a few times in the past year.
"Frequently" (2.50 to 3.49)	respondent practices this action more than does not practice it.
"Always" (3.50 to 4.00)	respondent consistently practices this action.

Because the terminology for each population to be studied by the research team differed significantly, it was necessary to adapt the questionnaire to each interest area. Each team member changed only those terms inappropriate for their area. Those terms that created communication problems related to (1) the recipient of the educational activity (i.e., student, participant, trainee, patient), (2) the person responsible for the educational activity (instructor, teacher, trainer, facilitator), (3) the location of the educational activity (classroom, setting, program), and (4) the educational activity (course, activities, class, seminar, programs). Other than these modifications, the questionnaire statements remained identical.

Field-Testing and Refinement of the Questionnaire

The research team used adult educators and graduate students in adult education courses in five different field tests of the questionnaire. Following each field test, the team refined the statements. The final questionnaire was reduced to 45 statements. The final, revised questionnaire is presented in Appendix E.

Validation of Placement of Questionnaire Statements Under the Related Principles

The research team used a panel of experts in adult education to validate the placement of questionnaire statements under the nine basic principles listed below:

PRINCIPLE 1. Adults maintain the ability to learn.

PRINCIPLE 2. Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.

PRINCIPLE 3. Adults experience a gradual decline in physical/sensory capabilities.

PRINCIPLE 4. Experience of the learner is a major resource in the learning situation.

PRINCIPLE 5. Self-concept tends to move from dependency to independency as an individual grows in responsibilities, experience, and confidence.

PRINCIPLE 6. Adults tend to be life-centered in their orientation to learning.

PRINCIPLE 7. Adults are motivated to learn by a variety of factors.

PRINCIPLE 8. Active learner participation in the instructional/learning process contributes to learning.

PRINCIPLE 9. A comfortable supportive environment is a key to successful learning.

See Appendix F for the questionnaire and instructions for the validators as well as a list of the validators and the institutions they represent. All but two items were placed under a principle with 70 percent agreement by panel members. Statement 9 was placed under both principle 2 and 8, while statement 14 was placed under both principle 1 and 2, as can be seen below. Means for these statements, which represented only a 50 percent agreement by the validators, were therefore counted under both principles.

There were four to six statements which related to the application of each of the nine principles. Each principle was assigned a code phrase or word to make the report of data easier. Each principle number, the code word, and the final placement of each statement from the questionnaire are presented below:

Principle	Code	Statements
1.	"ability to learn"	14,(17),22,(27),30
2.	"diversity"	9,11,14,(26),31,37
3.	"physical change"	(10),(33),36,39,40
4.	"experience"	1,4,19,44
5.	"self-concept"	13,21,23,25
6.	"life-centered orientation"	3,8,15,24,28,43
7.	"motivation"	6,7,20,35,42
8.	"active participation"	5,9,16,18,29,34
9.	"supportive environment"	2,12,(32),38,41,45

Numbers in parentheses represent statements contrary to the principles of adult education. The research team deliberately included the negative items in the questionnaire as a check on the respondents' attention to detail. The respondents were not informed that any of these statements expressed

contrary concepts. The scores for these statements were reversed for analysis.

Reliability

The research team checked the questionnaire for reliability by test-retest of individuals with backgrounds in adult education. Individuals in this group reflected backgrounds from nursing, industrial training, college teaching, general university extension, and agricultural extension. A correlation of .70 was obtained for an average reliability coefficient.

Collection of Data

The research team selected five different adult education fields in which to investigate the extent to which practitioners use the established principles. Each team member selected a population according to his/her interest area, training background, relation to their field of study, and the degree to which adult learners were present in the field. These specific fields include university extension, business and industry, hospital patient education, agricultural extension, and community junior college.

The steps for collecting data involved identification of the population to study and the method for collecting data.

Selection of the Population

Oklahoma State University Extension was used for this

study for two main reasons: the researcher's specific interest in adult education in higher education and the expressed interest in the study by the Director of Oklahoma State University Extension. This study dealt with instructors teaching Oklahoma State University Extension credit courses (consisting of two or more hours) in the fall semester of 1980; and three students, randomly selected from each class. In cases where an instructor taught more than one extension course during the Fall semester 1980, only one course was randomly selected for the study. Thus, the researcher dealt with a total of 240, which included 60 instructors and 180 students.

Data Collection Method

The researcher obtained permission from the Director of University Extension to secure the cooperation of the Extension Directors of the five extension divisions (three are entitled colleges and two are entitled divisions, however, for convenience the term division will be used throughout the study to designate both). University Extension includes extension activities in the College of Arts and Science, the College of Business Administration, the College of Education, the Division of Engineering, Technology and Architecture, and the Division of Home Economics. The researcher met individually with the five Extension Directors in November and December, 1980, to discuss this project and ask for recommendations and support. Following the personal contact

correspondence was initiated to provide a review and update of the research. See Appendix G for a sample of the correspondence. All five Extension Directors of the respective divisions pledged their full support of the study. They provided names and addresses of instructors and their students for the 1980 fall semester extension credit courses. The researcher assigned numbers to each of the instructors from 501 to 560. Numbers assigned to the students identified them with their instructor. For example, the three students of instructor number 501 were numbered 501-01, 501-02, and 501-03. The numbers were recorded on the questionnaire that was developed by the research team, modified by this researcher as previously described in this chapter, and mailed to the total population in this study with a stamped, self-addressed envelope.

On February 5, 1981, the researcher mailed the questionnaire to all participants in the study with February 25, 1981, as the suggested return date. Instructions to the instructors asked them to respond to the questionnaire in relation to how often they practiced the action described in each statement, and the students were asked to indicate how often their instructor practiced this action. See Appendix H for a sample of the instructor questionnaire and the student questionnaire. A total of 101 (42%) of the questionnaires were returned by the first deadline. This includes 29 (48%) of the instructors and 72 (40%) of the students.

On February 26, 1981, a second questionnaire was mailed to the individuals who had not responsed. A notice to disregard the second questionnaire if they had already completed and returned the first questionnaire was included (see Appendix G for a sample). By March 31, 1981, an additional 31 (13%) questionnaires had been returned, 9 (15%) more of the instructors and 22 (12%) of the students. The researcher was not satisfied with this 57 percent return by the instructors and 60 percent return by the students, particularly since the success of the study depended on a match of instructor returns with their student returns. Data could not be used from the student questionnaire unless it matched with an instructor.

On April 4, 1981, the researcher made a third appeal by sending questionnaires and notices to persons who had not previously responded. She attempted to find new addresses for a number of questionnaires returned because of an incorrect address. This appeal resulted in 22 (9%) additional responses of which 4 (6%) were instructors and 18 (10%) were students. There was a total response rate of 42 (70%) for the instructors and 112 (62%) for the students. Only 83 (46%) of the student returns matched with an instructor and, therefore, could be used for the research.

Data Analysis and Statistical Procedures

Out of the 60 instructor questionnaires mailed, a total of 42 were returned and out of the 180 student questionnaires

mailed, a total of 112 were returned with 83 being applicable to this study. The researcher coded and recorded the data on coding sheets from which computer cards could be punched. The computer facilities of the OSU Computer Center were used to facilitate the data analysis. The Statistical Analysis System (SAS 1979) was utilized.

Data from the study were analyzed in two parts. The first part of the data analysis was descriptive in nature. Frequency analysis and percentage distributions were performed to present a demographic profile for the instructors and for the students. Second, the responses representing the perceived application of the principles of adult education were analyzed. The mean values for each of the 45 questionnaire statements by instructors and by students were calculated. The value for each principle was computed by averaging the responses for statements corresponding to that principle (see page 85). A paired t-test was used to determine a significant difference between the mean values for that principle as rated by the instructors, and the mean values for that principle by students of that instructor. In addition, means were calculated for the following variables for instructors: age, sex, extension division, teaching site, teaching status, number of years teaching (full time and part time), non-academic experience, degree in education, academic rank, and preparation in adult education.

The t-test was used to determine if a statistically significant difference existed between variables with two

levels, and the one-way ANOVA was used to compare the mean values of variables with three or more classes. Because this research relies heavily on the respondents' mean scores, ANOVA was indicated as the most appropriate way to test the statistical significance of differences found. ANOVA is best applied to data which meet the following assumptions:

> (1) the scores must be from a genuine interval scale, (2) the scores must be normally distributed in the population, and (3) the variance in the treatment conditions or groups must be homogeneous (Linton and Gallo, 1975, p. 127).

Also, Linton and Gallo (1975, p. 127) stated that "in most cases, violation of these assumptions, even fairly extreme ones, do not severely affect the outcome of the analysis of variance." They go on to state

> Although tests have been developed to determine non-normalcy and heterogeneity of variance, we do not recommend their use. Many of them are less robust than the analysis of variance (p. 127).

Therefore, no tests were used in this study to determine the homogeneity of the variance within groups.

Duncan's new multiple range test was utilized to determine where the significant differences lie after a statistically significant difference was found to exist among classes. Ary et al. (1972, p. 145) referred to this test as "a well known and widely used test for this purpose".

CHAPTER IV

PRESENTATION OF FINDINGS

This chapter presents the findings of the research. The following sections describe the (1) identification of nine basic principles in adult learning, (2) development of a questionnaire for data collection, and (3) presentation and analysis of the collected data.

Basic Principles

Through the process described in Chapter III, the following nine principles were determined to be basic in adult education:

PRINCIPLE 1. Adults maintain the ability to learn.

PRINCIPLE 2. Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.

PRINCIPLE 3. Adults experience a gradual decline in physical/sensory capabilities.

PRINCIPLE 4. Experience of the learner is a major resource in the learning situation.

PRINCIPLE 5. Self-concept tends to move from dependency to independency as an individual

grows in responsibilities, experience, and confidence.

PRINCIPLE 6. Adults tend to be life-centered in their orientation to learning.

PRINCIPLE 7. Adults are motivated to learn by a variety of factors.

PRINCIPLE 8. Active learner participation in the instruction/learning process contributes to learning.

PRINCIPLE 9. A comfortable supportive environment is a key to successful learning.

Questionnaire

The second phase of this study consisted of creating a data collection questionnaire. A detailed description of the process is given in "Development of the Questionnaire" in Chapter III. The questionnaire was designed to reflect the use of the principles in the instructional setting and to measure the extent to which instructors perceive themselves as implementing the nine basic principles of adult learning. See Appendix E for the questionnaire as adopted for this study.

Presentation and Analysis of the Data

Questionnaire Response

Seventy percent of the instructors (42 of 60) returned questionnaires; however, one questionnaire was not usable,

which left a net return of 68 percent or 41 useable responses. Some respondents chose not to answer every question. Instructors in the College of Education Extension returned 21 (75%); the College of Arts and Sciences Extension returned 13 (81%); the Division of Engineering, Technology and Architecture Extension returned 3 (30%); the College of Business Administration returned 2 (67%); and the Division of Home Economics Extension returned 2 (67%). Sixty-two percent of the students (112 of 180) returned questionnaires; however, only 83 (46%) matched with an instructor and were used for this study.

Description of Instructors' Demographics

Since the primary focus of this study was the extent to which instructors apply adult education principles, selected demographic characteristics were analyzed as to their significance in the instructors' perception of their application of the principles. Instructors were asked to indicate age, sex, division represented, teaching site, teaching status (full-time, part-time, or adjunct), years of teaching experience, job title, last three academic positions, last three non-academic positions, degrees attained, and adult education preparation. The instructors' demographic data are summarized in Table I.

Age. Two respondents were 30 years or younger (4.88%), 21 were between 31 and 40 (51.22%), 11 were between 41 and 50 (26.83%), and 7 were 51 or older (17.07%). It is

TABLE I

FREQUENCIES AND PERCENTAGES OF INSTRUCTORS CLASSIFIED BY DEMOGRAPHIC CHARACTERISTICS

Characteristic	Frequency*	Percent
Age (years):		
30 or younger	2	4.88
31 through 40	21	51.22
41 through 50	11	26.83
51 and older	7	17.07
Sex:		
Male	35	85.37
Female	6	14.63
Extension Division:		
Arts and Sciences	13	31.71
Business	2	4.88
DETA	3	7.31
Education	21	51.22
Home Ec	2	4.88
Teaching Status:		
Full-time	23	58.97
Part-time	5	12.82
Adjunct	11	28.21
Year of teaching (Full-time):		
2 years or less	1	3.03
3 through 5	6	18.18
6 through 10	7	21.21
11 through 15	9	27.28
16 through 20	2	6.06
21 or more	8	24.24
Years of teaching (Part-time):		
2 years or less	3	17.65
3 through 5	6	35.29
6 through 10	2	11.77
11 through 15	6	35.29
16 or more	0	0.00

TABLE I (Continued)

Characteristic	Frequency*	Percent
Non-academic experience:		
None	4	12.50
Some	28	87.50
Academic degree:		
B.S. or B.A.	6	15.38
M.S. or M.S.	11	28.21
Ph.D.	9	23.08
Ed.D.	13	33.33
Degree:		
Degree other than in education	14	35.90
Degree in education	25	64.10
Preparation in adult education:		
None	4	10.00
Workshops, inservice, and conferences	6	15.00
Courses	1	2.50
Workshops, inservice, conferences, and courses	9	22.50
Workshops, inservice, conferences, and degree program	2	5.00
Courses and degree program	2	5.00
All Categories	16	40.00

* Some instructors chose not to answer every question.

interesting to note that over fifty percent of the instructors were between thirty-one and forty years of age.

Sex. The distribution of male and female instructors shown in Table I indicates that 35 males (85.35%) and 6

females (14.63%) responded to the questionnaire.

Extension Division. As illustrated in Table I, the largest percent of instructors represented the College of Education, 21 (51.22%); followed by the College of Arts and Sciences, 13 (31.71%). In fact, 82.93 percent of the instructors studied were from these two extension divisions with 3 instructors (7.31%) representing Engineering, Technology and Architecture. Home Economics Extension and Business Extension each were represented by 2 instructors (4.88%).

Teaching Status. It is evident in Table I that the largest percent of instructors taught full-time (23 [58.97%]) followed by 11 adjunct instructors (28.21%) and 5 part-time instructors (12.82%). This item was omitted by 2 respondents.

Years of Teaching. Table I also indicates teaching experience in years. Of the 33 respondents in the full-time category, only 1 (3.03%) had taught 2 years or less; 5 (18.18%) had taught 3 through 5 years; 7 (21.21%) had taught 6 through 10 years; 9 (27.28%) had taught 11 through 15 years; only 2 (6.06%) had taught 16 through 20 years; and 8 (24.24%) had taught 21 or more years. More than half (57.52%) of the instructors had taught longer than 10 years. Only 21.21 percent had taught 5 years or less.

The categories were identical for years of teaching full-time and years of teaching part-time, however, no one indicated the last two categories of 17 through 20 and 21 or more in years of teaching part-time. Three instructors had 2 (17.65%) years or less part-time teaching experience, 6 (35.29%) had 3 through 5 years, 2 (11.77%) had 6 through 10 years, and 6 (35.29%) had 11 through 15 years of part-time teaching experience. Only 17 respondents indicated placement in this category.

Job Title. Of the 39 instructors who indicated a job title, 25 (64.10%) were either associate professors, assistant professors, or administrators. Other job titles included: instructor, teaching assistant, coordinator, industrial trainer, industrial engineer, public school teacher, and psychologist.

Non-Academic Experience. Because of the wide range of non-academic experiences indicated by the 28 instructors (87.50%), the research only reported the respondents as having had some or no non-academic experience (see Table I). Only 4 (12.50%) reported no non-academic experience. Ten respondents omitted this item in the questionnaire.

Academic Degree. Table I reflects the highest academic degrees attained by the respondents. Six (15.38%) indicated a B.S. or B.A. degree, 11 (28.21%) indicated a M.S. or M.A. degree, 9 (23.08%) indicated a Ph.D. degree, and 13 (33.33%) indicated they had an Ed.D. degree. Of the 39 respondents

84.62% had graduate degrees. Table I also shows that 25 (64.10%) instructors had degrees in education, while 14 (35.90%) had degrees in other fields. Two respondents omitted this item on the questionnaire.

Preparation in Adult Education. As displayed in Table I, only four (10%) of the instructors had not had some preparation in adult education. Most of the respondents had participated in a combination of workshops, inservice training, conferences, courses, and a degree program in adult education. Sixteen (40%) stated they had preparation in all the categories. One respondent omitted this item.

Description of Students' Demographics

Students were asked to respond to fewer demographic items in their questionnaire than were the instructors. These characteristics are reflected in Table II.

Age. The student ages, at the time of this study, are presented in Table II. Twenty-six (32.5%) were 30 years or younger, 40 (50%) were 31 through 40, 8 (10%) were 41 through 50, and 6 (7.5%) were 51 years or older. As was true with the instructors, about half of the students were 31 through 40 years of age. A greater number of students, however, were 30 years or younger (30.5%).

Sex. The distribution of male and female students shown in Table II indicates that 44 males (55%), and 36 (45%) females were used in this study. Three respondents

TABLE II

FREQUENCIES AND PERCENTAGES OF STUDENTS CLASSIFIED BY DEMOGRAPHIC CHARACTERISTICS

Characteristic	Frequency*	Percent
Age:		
30 or younger	26	32.50
31 through 40	40	50.00
41 through 50	8	10.00
51 and older	6	7.50
Sex:		
Male	44	55.00
Female	36	45.00
Level of education:		
12 years or less	4	5.06
13 or 14	16	20.25
15 or 16	29	36.71
17 or more	30	37.98
Reason for taking course:		
Enrichment	15	19.23
Certification	34	43.59
Advancement	28	35.90
Other	1	1.28
Course paid for by:		
Employer	19	24.05
Self	41	51.90
Shared by employer and self	5	6.33
VA	12	15.18
Shared by VA and self	1	1.27
Other	1	1.27

* Some students chose not to answer every question.

omitted this item. The student male and female ratio is close to equal compared to the discrepancy between the instructors' ratio.

Level of Education. Students were provided eight levels of education in which to respond. For ease in reporting, the researcher grouped all responses into the categories as illustrated in Table II. Only 4 (5.06%) had 12 years or less of education, 16 (20.25%) had 13 or 14 years, 29 (36.71%) had 15 or 16 years, and 30 (37.98%) had 17 or more years of education. More than one-third (37.98%) of the students were doing graduate study.

Reason for Taking Course. As shown in Table II, 15 (19.23%) of the students claimed enrichment as the primary reason for taking the course; 34 (43.59%) claimed certification, 28 (35.90%) claimed advancement, and 1 (1.28%) marked the category of other as the reason for taking the course. This means that 79.49 percent of the students viewed the course as a step toward improving their job status.

Course Paid By. As revealed in Table II, more than one-half (41 or 51.90%) of the students studied indicated they paid their own tuition for the course. The employer paid the tuition for 19 (24.05%) of the students, 12 (15.18%) indicated their employer shared the expense with them, the Veteran's Administration (VA) paid for 12 (15.18%), 1 (1.27%) marked VA and self, and 1 student (1.27%) indicated the

category of other.

Analysis of Individual Statements

The mean value for each of the 45 questionnaire statements was calculated. Table III presents the statement means by instructors and by students. Analyzing the mean values for the questionnaire responses was a significant step toward determining the extent OSU extension instructors perceive they implement adult learning principles.

The mean values for the 45 questionnaire statements ranged from a low of 2.34 (within the 1.50 to 2.49 range for applying the action "sometimes") and the high, mean value of 3.78 (within the 3.50 to 4.00 range for applying the action "always"). The definition and range for each level on the modified Likert scale used for responses to the questionnaire statements are located in Chapter III. The three statements with the highest mean values were all related to principle 9 (supportive environment). Statement 41, "A comfortable and supportive environment is provided," was ranked the highest of all the statements in the questionnaire with a mean value of 3.78. Statement 2, the second highest (mean of 3.52) states that "Errors are accepted as a natural part of the learning process." Since the mean values for the two highest ranked statements exceeded 3.50, it implies that the instructors perceive that they "always" provide a comfortable supportive environment for the students and that they "always" accept errors as a natural part of

TABLE III

MEAN SCORES OF INDIVIDUAL QUESTIONNAIRE STATEMENTS AND PRINCIPLES

Principles of Adult Education		Mean Instructor	Mean Student
1.	Adults maintain the ability to learn.	2.96	2.68
14	Students are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.	3.45	2.30
*(17)	Learning activities stress the student's ability to learn based on memorization.	3.10	2.92
22	Students are presented with new concepts on a regular basis.	3.35	3.01
(27)	The same materials are used for all students.	3.24	2.44
30	Previously learned information is reviewed before new material is presented.	2.88	2.67
2.	Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.	2.76	2.47
9	Students are encouraged to choose and use the most suitable means to accomplish their goals.	3.03	2.95
11	Instructional objectives are adapted to match the individual abilities of the participant.	2.72	2.56
14	Students are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.	2.45	2.31
(26)	A time limit is imposed when asking for recall of information and/or completion of tasks.	2.34	1.99

TABLE III (Continued)

Principles of Adult Education		Mean Instructor	Mean Student
31	Cultural backgrounds of students are considered when planning learning activities.	2.58	2.16
37	Different instructional techniques are used depending on the material to be taught and the students' needs.	3.24	2.80
3.	Adults experience a gradual decline in physical/sensory capabilities.	3.31	3.10
(10)	The instructor uses subdued colors rather than sharp contrasts in visual aids.	3.04	2.43
(33)	The instructor speaks rapidly when instructing adults.	3.05	3.13
36	Extra time is allowed for the eyes of the students to adapt when visual information is presented.	3.00	2.77
39	Adequate lighting is provided in the adult learning environment.	3.38	3.48
40	The learning environment is adapted to the students' physical needs.	3.08	3.18
4.	Experience of the learner is a major resource in the learning situation.	3.25	3.08
1	Students are helped to relate new learning to their prior experiences.	3.41	3.15
4	The many competencies that students possess are utilized to achieve educational objectives.	3.07	3.10
19	Learning activities are planned to take into account the students prior experiences.	3.15	3.00

TABLE III (Continued)

Principles of Adult Education		Mean Instructor	Mean Student
44	Students are encouraged to share their experiences with others in the group.	3.37	3.11
5.	Self-concept tends to move from dependency to independency as an individual grows in responsibilities, experience, and confidence.	2.99	2.89
13	Students and instructor relate to each other as partners in learning.	3.20	3.11
21	Students are encouraged to see themselves as the best judges of what they are learning.	2.95	2.72
23	Students are encouraged to decide how well they are learning the material.	2.79	2.47
25	Activities are planned that encourage independent learning.	2.87	2.83
6.	Adults tend to be life-centered in their orientation to learning.	3.05	2.94
3	Programs are presented which are relevant to the current problems and needs of the various clientele served.	3.36	3.07
8	Students are helped to identify problems that they need to solve.	3.02	2.96
15	Subject matter is related to problems of everyday living.	3.08	3.08
24	The instructor presents knowledge and techniques which the students can apply immediately.	2.97	2.93
28	Learning activities are organized according to real life experiences.	2.95	3.00

TABLE III (Continued)

Principles of Adult Education		Mean Instructor	Mean Student
43	The program is designed to help people cope with recent or expected changes in their lives.	2.95	2.73
7.	Adults are motivated to learn by a variety of factors.	3.25	3.13
6	An attempt is made to utilize the factors that keep the students participating in offerings.	3.31	2.87
7	Programs are scheduled at locations that provide the greatest accessibility to as many people as possible.	3.15	3.27
20	Resources for further learning are identified and/or presented.	2.95	2.84
35	Programs are arranged to minimize conflicts with other activities in which the target audience may be involved.	2.89	2.96
42	An attempt is made to determine what causes people to attend programs offered.	3.00	3.25
8.	Active learner participation in the instructional/learning process contributes to learning.	2.89	2.83
5	Students are included in making decisions about the material that will be covered.	2.51	2.51
9	Students are encouraged to choose and use the most suitable means to accomplish their goals.	3.03	2.95
16	Students are helped to diagnose the gaps between their goals and present level of performance.	2.66	2.49

TABLE III (Continued)

Principles of Adult Education		Mean Instructor	Mean Student
18	Methods that foster discussion and class interaction are used.	3.22	3.23
29	Students are encouraged to have input into the various types of programs conducted.	3.08	3.04
34	Students are helped to develop short-range as well as long-range objectives.	2.67	2.85
9.	A comfortable suuportive environment is a key to successful learning.	3.29	3.09
2	Errors are accepted as a natural part of the learning process.	3.51	3.20
12	The meeting room is arranged so that it is easy for participants to interact.	3.13	2.94
32	Competition among students is encouraged.	3.18	2.22
*(38)	Questions or comments offered by students are treated with importance and given a sincere response.	3.78	3.44
41	A comfortable and supportive environment is provided.	3.33	3.17
45	Informal counseling of students is offered where needed.	3.47	2.91

*( ) Indicates negative statement with scores reversed for analysis.

the learning process. The two statements described above were the only statements that had a mean large enough to indicate the extent of use as "always." Statement 45, "Informal counseling of students is offered when needed," was ranked third highest with a mean value of 3.47 (within the 2.50 to 3.49 range for applying the action "frequently"). This statement is also related to principle 9 (supportive environment) and implies that the instructor "frequently" offers students informed counseling when needed.

Statement 26 had the lowest mean value (2.34) of all the items on the questionnaire. This statement "The same teaching materials were used for all participants," is related to principle 2 (diversity). Number 26 is one of the seven negative statements and in computation, the mean score was reversed. The next lowest mean value (2.45) was for statement 14, "Students are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept," is related to both principle 1, (ability to learn) and principle 2 (diversity). This information implies that instructors perceived that they "sometimes" allow students to work at their own rate, whereas adult education theory recommends that adults consistently be allowed to work at their own rate (Knowles, 1970).

With the exception of the two statements ranked highest (implying "always" application) and the two statements ranked lowest (implying "sometimes" application), the instructors perceived that they "frequently" practiced the

actions implied in the remaining 41 statements in the questionnaire.

The students did not perceive their instructors as "always" applying any of the actions implied in the statements (3.50 to 4.00 was the range for applying the action "always"). In fact, the students tended to perceive the instructors implementing the actions implied in the statements less often than the instructors perceived themselves implementing the actions. Of the 45 questionnaire statements, the students ranked 32 statements lower than did the instructors. Also, the students ranked 2 statements the same as the instructors did and 10 statements higher than did the instructors.

It is interesting to note that both the instructors and the students ranked statement 26 the lowest of all the statements in the questionniare. As noted previously, this statement is related to principle 2 (diversity) and is a negative statement with the mean reversed for analysis. The actual mean of this statement by instructors was 2.66 and by students was 3.01. This would indicate that both the instructors and the students perceive they "frequently" use the same teaching materials for all the participants, whereas research on adult learning has indicated that teaching materials should be designed to meet the individual needs of the students (Cross, 1981).

With the exception of seven statements ranked lowest (implying "sometimes" application) the students perceived

that instructors "frequently" practiced the actions implied in the remaining 38 statements in the questionnaire.

Some of the 45 statements had responses marked "not applicable." The computer was programmed to omit "not applicable" responses when calculating the mean values. The most frequently recorded "not applicable" responses were on statements 10, 36, 43, and 7. Question number 10, "the instructor used subdued colors rather than sharp contrasts in visual aids," was marked "not applicable" by twelve respondents. Question 36, "Extra time is allowed for the eyes of the students to adapt when visual information is presented" has ten "not applicable" responses. Question 43, "The program is designed to help people cope with recent or expected changes in their lives," had eight "not applicable" responses and question 7, "Programs are scheduled at locations that provide the greatest accessibility to as many people as possible," had seven "not applicable" responses.

Analysis of Principles

After the mean values for each of the 45 questionnaire statements were calculated, the mean values for each principle were computed by combining responses for statements grouped by principle as described in "Validation of Placement Questionnaire Statements Under the Related Principles" in Chapter III.

Each of the nine principles was rank ordered by mean values. Table IV contains this rank order by instructors. The mean values range from a high of 3.29 to a low of 2.76.

TABLE IV

RANK ORDER OF PRINCIPLES
BY INSTRUCTOR

Rank	Principle Number	Mean	Principles
1	9	3.29	A comfortable supportive environment is a key to successful learning.
2	7	3.25	Adults are motivated to learn by a variety of factors.
2	4	3.25	Experience of the learner is a major resource in the learning situation.
4	3	3.12	Adults experience a gradual decline in physical/sensory capabilities.
5	6	3.05	Adults tend to be life-centered in their orientation to learning.
6	5	2.99	Self-concept tends to move from dependency to independency as an individual grows in responsibilities, experience, and confidence.
7	8	2.89	Active learner participation in the instructional/learning process contributes to learning.
8	1	2.85	Adults maintain the ability to learn.
9	2	2.76	Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.

Principle 9 (supportive environment) had the highest mean value while principle 7 (motivation) and principle 4 (experience) tied for second highest with a mean value of 3.25. Principle 9 (diversity) had the lowest mean value or 2.76 and principle 1 (ability to learn) was next lowest with a mean value of 2.85. The greatest range between the means occurred between principle 4 (experience) and principle 3 (physical change).

All nine principles had mean values to indicate that instructors perceived they "frequently" implemented the actions implied in the principles. The instructors perceived themselves as practicing those principles more than they did not practice the principles.

Table V presents the rank order of the nine principles by students. The mean values ranged from a high of 3.13 to a low of 2.47.

Principle 7 (motivation) had the highest mean value (3.13) with principle 3 (physical change) second highest with a mean value of 3.09. Principle 9 (supportive environment) and principle 4 (experience) ranked third highest with a mean of 3.08. Principle 2 (diversity) ranked the lowest with a mean value of 2.47 and principle 1 (ability to learn) the next lowest, with a mean of 2.68. The students' perceived that instructors implemented "frequently" eight of the nine principles, while one principle (2) was "sometimes" implemented.

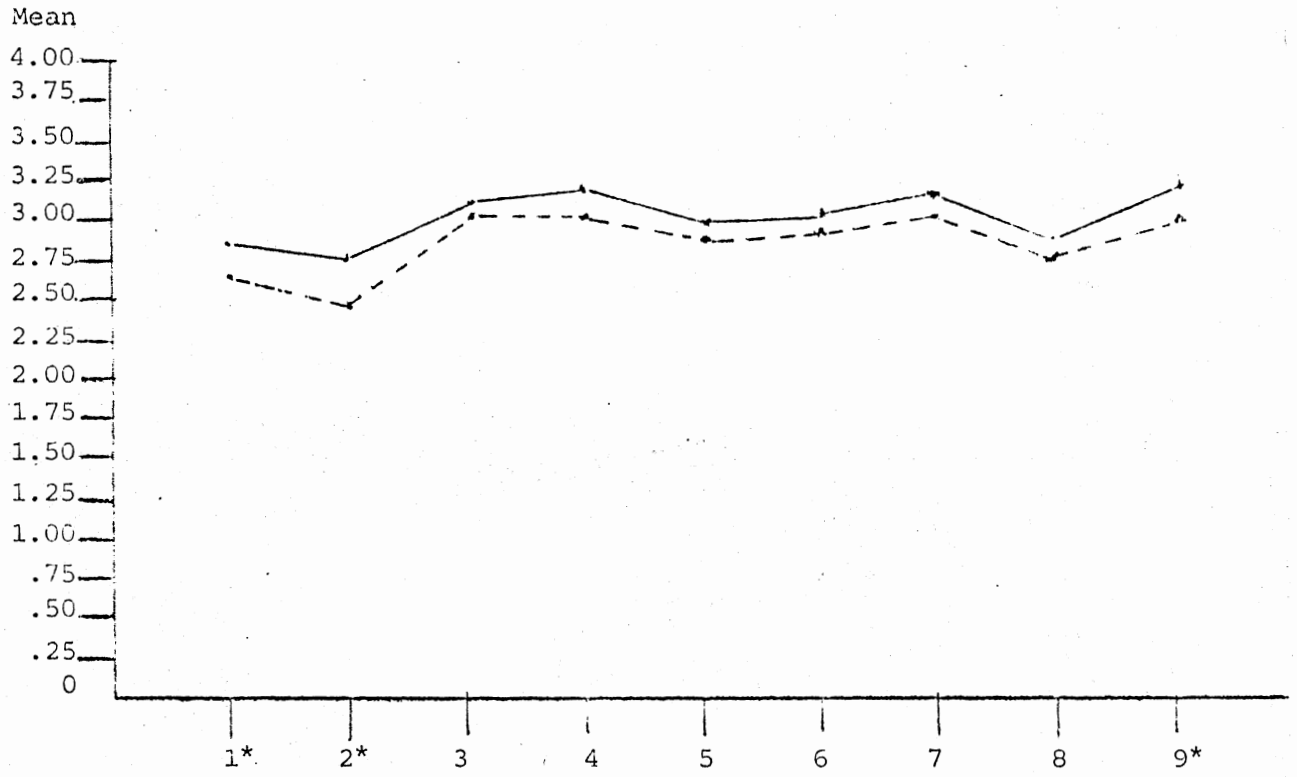
TABLE V

RANK ORDER OF PRINCIPLES
BY STUDENTS

Rank	Principle Number	Mean	Principles
1	7	3.13	Adults are motivated to learn by a variety of factors.
2	3	3.09	Adults experience a gradual decline in physical/sensory capabilities.
3	9	3.08	A comfortable supportive environment is a key to successful learning.
3	4	3.08	Experience of the learner is a major resource in the learning situation.
5	6	2.94	Adults tend to be life-centered in their orientation to learning.
6	5	2.89	Self-concept tends to move from dependency to independency as an individual grows in responsibility, experience, and confidence.
7	8	2.83	Active learner participation in the instructional/learning process contributes to learning.
8	1	2.68	Adults maintain the ability to learn.
9	2	2.47	Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.

An analysis of the data indicated that the instructors' perceived that of all the principles, they gave more attention to the practices related to the concept that a comfortable supportive environment is a key to successful learning. However, the students' perceived that the instructors gave more attention to the practices related to the concept that adults are motivated to learn by a variety of factors. Both the instructors and the students agreed on the rank order of the bottom five principles which include the lowest, principle 2 (diversity); the next lowest, principle 1 (ability to learn); and the third lowest, principle 8 (active participation).

Figure 1 presents a line graph of the mean values for each principle by instructors and their student(s) for comparison purposes. The students perceived the instructors applying all nine principles less often than the instructors perceived themselves applying the principles of adult education. Means and standard deviation of instructors and their students (1-3 depending on student questionnaire response) were computed for each principle. The computation weighted the student responses according to the number of students for individual instructors. The differences between means were analyzed by the use of a paired t-test. A significant difference (at the .05 level) was found to exist for principle 1 (ability to learn), principle 2 (diversity), and principle 9 (supportive environment).



	1*	2*	3	4	5	6	7	8	9*
Student ———	2.85	2.76	3.12	3.25	2.99	3.05	3.25	2.89	3.29
Instructor- - - -	2.68	2.47	3.09	3.09	2.89	2.94	3.13	2.83	3.08

*A significant difference exists between the perceived application of these principles at the .05 level.

Figure 1. Mean Values of Principles by Instructors and Students

Analysis of Principles by Demographics

Age. Table VI presents the means for each principle by instructor's age. The instructors 41-50 years of age and 51 and older tended to score higher on the principles. The Duncan's multiple range test was applied to determine the location of the significance of the differences between the groups. The only significant difference existed for principle 2 (diversity). It was found that the instructors in both the 41-50 and the 51 and older age groups perceived themselves as implementing the concept that adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills than did the 31-40 age group. This difference was significant at the .05 level of confidence.

Sex. Table VII is used to report the mean values for each principle by instructor's sex. Differences between the means were analyzed for the nine principles using a t-test, and the only significant difference was in principle 7 (motivation). The female instructors perceived that they implement the concept that adults are motivated to learn by a variety of factors to a greater degree than the males perceive that they implement this concept. This difference was significant at the .05 level of confidence. All respondents perceived that they "frequently" implement the 9 basic principles of adult education.

Extension Division. Table VIII presents the mean values

TABLE VI

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S AGE AND THE F VALUES FROM ANOVA

Principle	30 and Less N=2	31-40 N=21	41-50 N=11	51 and older N=7	F
1. Ability to Learn	2.50	2.75	3.01	3.05	1.60
2. Diversity	2.67	2.51	2.95	3.24	4.97*
3. Physical Change	3.40	3.07	2.99	3.43	1.57
4. Experience	3.63	3.08	3.34	3.50	1.89
5. Self-Concept	2.88	2.83	3.11	3.29	1.43
6. Life-Centered Orientation	2.93	2.90	3.17	3.38	1.81
7. Motivation	3.20	3.22	3.33	3.25	0.13
8. Active Participation	3.31	2.71	2.99	3.18	2.50
9. Supportive Environment	3.50	3.19	3.33	3.49	0.63

* There is a significant difference (at the .05 level) in the perceived application of principle 2 (diversity) when the mean for the 31-40 age group was compared to the mean of both the 41-50 and the 51 and older age groups.

TABLE VII

MEAN AND t VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S SEX

Principle	MALES N=35	FEMALES N=6	t
1. Ability to Learn	2.91	2.62	1.40
2. Diversity	2.78	2.79	-0.08
3. Physical Change	3.09	3.19	-0.43
4. Experience	3.24	3.38	-0.58
5. Self-Concept	3.00	2.96	0.16
6. Life-Centered Orientation	3.05	3.21	-0.71
7. Motivation	3.20	3.48*	-2.68*
8. Active Participation	2.91	2.75	0.72
9. Supportive Environment	3.26	3.46	-0.79

* There is a significant difference (at the .05 level) in the perceived application of principle 7 (motivation) when the means were analyzed by a t-test procedure.

TABLE VIII

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S EXTENSION DIVISION AND THE F VALUES FROM ANOVA

Principle	A & S N=13	Business N=2	DETA N=3	Education N=21	Home Ec N=2	F
1. Ability to Learn	2.70	2.20	3.83	3.04	2.70	1.58
2. Diversity	2.45	2.50	2.86	2.99	2.30	2.52
3. Physical Change	3.50	2.33	3.09	3.03	2.83	1.81
4. Experience	2.23	3.00	3.20	2.30	2.38	0.14
5. Self-Concept	2.98	2.50	2.98	3.08	2.75	0.35
6. Life-Centered Orientation	3.05	2.75	2.91	3.11	3.50	0.64
7. Motivation	3.39	3.60	3.05	3.22	3.43	0.85
8. Active Participation	2.99	2.43	2.75	2.94	2.86	0.55
9. Supportive Environment	3.38	3.40	3.19	3.27	3.38	0.18

by instructors extension division. As can be seen in Table VIII, the fact that the instructors represent different extension divisions appears to make little difference in the perceived application of the principles. Three mean values are 3.50 or higher indicating "always" application. These high means are shared by Arts and Science for principle 3 (physical change), Engineering, Technology, and Architecture for principle 1 (ability to learn), and Home Economics for principle 6 (life-centered orientation). With the exception of those three high means, the instructors in all divisions perceived that they "frequently" practice the principles. There were no statistically significant differences.

Teaching Site. Instructors indicated twelve different locations where extension courses were taught in the fall semester, 1980. The teaching site had little effect on the perceived application of the principles. No statistically significant differences were found.

Teaching Status. Table IX presents the mean values for each principle by instructor's teaching status. The categories included full time, part time, and adjunct. There were no statistically significant differences found in the means of the three groups. The adjunct instructors, however, had a higher mean on seven of the nine principles. The highest mean for all three groups was for principle 9 (supportive environment). By teaching status, the instructors perceived themselves providing a comfortable supportive

TABLE IX

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S TEACHING STATUS AND THE F VALUES FROM ANOVA

Principle	Full Time N=23	Part Time N=25	Adjunct N=11	F
1. Ability to Learn	2.78	2.68	3.02	1.30
2. Diversity	2.68	2.57	3.00	1.62
3. Physical Change	3.05	3.16	3.33	1.30
4. Experience	3.23	3.10	3.34	0.41
5. Self-Concept	2.91	3.00	3.23	1.15
6. Life-Centered Orientation	2.96	2.88	3.37	2.74
7. Motivation	3.23	3.33	3.32	0.19
8. Active Participation	2.85	2.97	2.93	0.20
9. Supportive Environment	3.24	3.28	3.51	0.97

environment in the instructional/learning process more than any other principle.

Years of Teaching (Full-time and Part-time). Table X presents the mean values for each principle by instructor's years of teaching full time. Instructors, who had taught two or less years ranked the lowest of all the groups in eight of nine principles. The only significant differences (at the .05 level) was found in princple 3 (physical change). The mean for the instructors who had taught from 3-5 years were significantly higher than for the instructors who had taught 2 or less years, 6-10 years, and 11-15 years. This implies that the instructors who had taught from 3-5 years perceived they gave more consideration to the physical changes in their students than did the instructors in the other three groups.

An examination of the mean values for each principle by instructor's years of teaching part time as presented in Table XI reveals no significant difference in the application of the principles.

Non-Academic Experience. Table XII presents the mean values for each principle by whether the instructor's had non-academic experience. An examination of the means table indicated that the instructors with non-academic experiences had a higher mean on all nine of the principles. A significant difference at the .05 level was found in the means for principle 5 (self-concept). This significance implies that

TABLE X

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S YEARS OF TEACHING FULL TIME AND THE F VALUES FROM ANOVA

Principle	2 or less N=1	3-5 N=6	6-10 N=7	11-15 N=9	16-20 N=2	21 or more N=8	F
1. Ability to Learn	2.50	2.40	2.98	2.83	3.10	3.01	1.89
2. Diversity	2.33	2.37	2.67	2.75	3.25	3.08	2.28
3. Physical Change	2.60	3.58	3.01	2.91	3.33	3.21	3.22*
4. Experience	3.00	3.13	3.18	3.19	3.62	3.44	0.59
5. Self-Concept	2.88	2.79	2.79	3.08	3.25	3.16	0.57
6. Life-Centered Orientation	2.60	3.04	2.91	3.11	3.03	3.08	0.32
7. Motivation	2.50	3.14	3.36	3.30	2.93	3.40	1.35
8. Active Participation	2.43	2.78	2.67	2.91	3.07	3.13	0.92
9. Supportive Environment	2.90	3.37	3.37	2.13	3.50	3.38	0.59

* There is a significant difference (at the .05 level) in the perceived application of principle 3 (physical change) by the 3-5 group when the mean was compared to the means of the 2 or less, 6-10, and the 11-15 groups.

TABLE XI

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S YEARS OF TEACHING PART TIME AND THE F VALUES FROM ANOVA

Principle	2 or Less N=3	3-5 N=6	6-10 N=2	11-15 N=6	F
1. Ability to Learn	2.77	2.80	3.00	3.03	0.46
2. Diversity	2.87	2.75	2.25	2.92	0.94
3. Physical Change	3.50	2.95	3.50	3.18	0.86
4. Experience	3.50	2.96	2.75	3.38	1.06
5. Self-Concept	3.17	2.79	3.00	3.78	1.56
6. Life-Centered Orientation	3.35	2.82	2.33	3.37	2.98
7. Motivation	3.15	3.12	3.63	3.01	0.76
8. Active Participation	2.95	2.60	3.07	3.02	0.90
9. Supportive Environment	3.40	2.97	3.60	3.47	0.82

TABLE XII

MEAN AND t VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S NON-ACADEMIC EXPERIENCE

Principle	NONE N=4	SOME N=28	t
1. Ability to Learn	2.40	2.91	-1.93
2. Diversity	2.45	2.78	-1.11
3. Physical Change	2.80	3.26	-1.90
4. Experience	2.88	3.27	-1.53
5. Self-Concept	2.56	3.02	-2.91*
6. Life-Centered Orientation	2.64	3.07	-1.55
7. Motivation	3.05	3.30	-0.99
8. Active Participation	2.45	2.93	-1.92
9. Supportive Environment	3.15	3.28	-0.46

* The difference between teachers with non-academic and without non-academic experience on principle 5 is significant at the .05 level.

the instructors with non-academic experience in addition to their teaching experience perceived that they adhere to the concept that self-concept tends to move from dependency to independency as an individual grows in responsibilities, experience and confidence more than did the instructor without non-academic experience.

Degree in Education and Academic Rank. Table XIII reports the mean values for each principle by whether the instructors had a degree in education, or a degree in another field. The education degree appears to make little difference in the instructors' perception of their application of the principles. Likewise, an examination of Table XIV, which presents the mean values for each principle by the instructor's academic degree, indicated that no significant difference was found in the means of the various levels of education.

Preparation in Adult Education. Table XV presents the mean values for each principle by the instructor's adult education preparation. No attempt was made to evaluate the reported experiences in quality or quantity. All except four of the instructors indicated participation in one or more adult education categories. These categories included workshops, inservice sessions, conferences, courses, and degree programs. The lowest means appeared to be in the group without any adult education preparation. However, there were no statistically significant differences.

TABLE XIII

MEAN AND t VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S DEGREE IN EDUCATION

Principle	Degree other than in Education N=14	Degree in Education N=25	t
1. Ability to Learn	2.89	2.90	-0.10
2. Diversity	2.72	2.80	-0.47
3. Physical Change	3.24	3.01	-1.46
4. Experience	3.23	3.24	-0.04
5. Self-Concept	3.05	2.98	0.38
6. Life-Centered Orientation	3.11	3.02	0.49
7. Motivation	3.34	3.18	0.94
8. Active Participation	2.95	2.86	0.57
9. Supportive Environment	3.40	3.23	0.89

TABLE XIV

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S ACADEMIC DEGREE AND THE F VALUES FROM ANOVA

Principle	B.S or A.B. N=6	M.S. or MA N=11	Ph.D. N=9	Ed.D. N=13	F
1. Ability to Learn	2.73	2.84	3.04	2.89	0.83
2. Diversity	2.33	2.96	2.99	2.68	2.58
3. Physical Change	3.26	3.06	3.15	3.01	0.41
4. Experience	2.92	3.27	3.22	3.37	1.05
5. Self-Concept	3.00	2.93	3.11	3.00	0.15
6. Life-Centered Orientation	2.83	3.23	2.92	3.10	0.97
7. Motivation	3.06	3.28	3.22	3.30	0.33
8. Active Participation	2.71	2.94	3.03	2.84	0.56
9. Supportive Environment	3.07	3.40	3.35	3.27	0.49

TABLE XV

MEAN VALUES FOR EACH PRINCIPLE BY INSTRUCTOR'S ADULT EDUCATION PREPARATION AND THE F VALUES FROM ANOVA

Principle	NONE N=4	Workshops Inservice Conferences N=6	Courses N=1	Workshops Inservice Conferences Courses N=9	Workshops Inservice Conferences Degree Program N=2	Courses and Degree Program N=2	All Categories N=16	F
1. Ability to Learn	2.50	2.79	2.40	3.15	2.70	3.00	2.85	1.25
2. Diversity	2.88	2.12	2.33	3.04	2.75	2.75	2.79	1.73
3. Physical Change	2.63	3.11	3.80	3.23	3.50	3.13	3.12	1.34
4. Experience	2.69	3.50	3.17	3.44	3.25	3.25	3.30	1.10
5. Self-Concept	2.69	2.92	3.25	3.19	3.25	2.88	2.97	0.48
6. Life-Centered Orientation	2.66	2.95	3.25	3.21	3.20	2.50	3.15	1.01
7. Motivation	3.10	3.09	3.20	3.28	3.10	3.40	3.32	0.25
8. Active Participation	2.42	2.86	3.43	3.04	3.00	3.07	2.87	1.02
9. Supportive Environment	2.85	3.30	3.20	3.28	3.10	3.80	3.37	0.81

Summary

In the presentation of the findings the research questions were answered. In question #1, which dealt with basic principles that underlie adult education, nine basic principles were identified and verified. Question #2 investigated the extent to which instructors perceive they implement the principles. A data collection questionnaire was developed, followed by the data collection and analysis. The instructors perceived that they "frequently" implement all nine principles. Question #3 examined the differences between instructors' perceptions and the students' perceptions of the instructors' implementation of these principles. The students perceived the instructors implementing all nine principles less frequently than the instructors perceived themselves applying the nine principles. A significant difference (at the .05 level) was found to exist for principle 1 (ability to learn), principle 2 (diversity), and principle 9 (supportive environment).

Question #4 investigated the extent to which selected variables influenced perceived application of the principles. There were no statistically significant difference found within these variables: extension division, teaching site, teaching status, years of teaching, degree in education, academic rank, and preparation in adult education. Significant differences were observed in the following four variables:

1. in the instructor's age for principle 2 (diversity),
2. in the instructor's sex for principle 8 (active participation),
3. in the instructor's number of years in full-time teaching for principle 3 (physical change), and
4. for the instructor's non-academic experience for principle 5 (self-concept).

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Discussion in this chapter is presented in two parts. The first section presents a summary of the study. The researcher's conclusions, implications, and recommendations are discussed in the second section of the chapter.

Summary

The purposes of this study were (1) to identify the basic principles of adult learning that underlie adult education programs as affirmed by authoritative sources, (2) to determine the extent instructors in Oklahoma State University Extension credit courses perceive themselves as implementing these principles, and (3) to determine the extent students in Oklahoma State University Extension credit courses perceive that instructors apply these principles.

Through a comprehensive literature review, a research team of six individuals identified nine principles of adult education. These principles were validated by a jury of adult education leaders. From the validated principles, a questionnaire was developed to measure the extent of application of these principles. The questionnaire was verified, checked for reliability, and then adapted for the several

populations studied by the research team. There were 45 statements on the questionnaire with four to six items related to each of the nine principles.

The research population for this study was composed of the instructors teaching Oklahoma State Univerisity (OSU) Extension credit courses (two or more hours) in the fall semester, 1980, and three students, randomly selected from each class. Of the 60 questionnaires mailed to the instructors, 42 (70%) were returned. Sixty-two percent of the students (112 of 180) returned questionnaires; however, only 83 (46%) matched with an instructor and were used for this study.

Data collected were analyzed in two parts. The first part of the data analysis was descriptive in nature. Frequency analysis and percentage distributions were computed to present a demographic profile for instructors and their students.

Second, mean values of each of the 45 questions by instructor and by student were calculated. The mean value for each principle was computed by averaging the instructor responses and student responses for statements grouped by principle. A paired t-test was used to analyze the differences between principle means for instructors and their student(s). In addition, means were calculated for the following variables for instructors: age, sex, extension division, teaching site, teaching status, number of years teaching (full-time and part-time), non-academic experience,

degree in education, academic rank, and preparation in adult education.

The t-test was used to determine if a statistically significant difference existed between variable with two values, while the one-way ANOVA was utilized to compare mean values with three or more variables. The Duncan's new multiple range test was applied to identify the location of the significance of the differences between the groups.

The major findings of this study are summarized as follows:

1. Nine basic principles of adult education were identified.

2. OSU Extension instructors perceived themselves to "frequently" implement all nine principles.

3. The students perceived the instructors as implementing all nine principles less often than the instructors perceived themselves as implementing the principles.

4. A significant difference was found to exist between the instructors' perception and the students' perception of the application of principles 1 (ability to learn), 2 (diversity) and 9 (supportive environment).

5. The three statements receiving the highest mean value for instructors were all related to principle 9 (supportive environment).

6. The students perceived that the instructors implemented principle 7 (motivation) to a greater degree than any other principle.

7. The 31-40 age group perceived themselves as implementing principle 2 (diversity) to a lesser extent than the two older groups, 41-50 and over 50 years of age.

8. A significant difference was found between the perceived application of principle 7 (motivation) by male and female instructors.

9. Instructors who had not worked at non-academic jobs perceived themselves as significantly implementing principle 5 (self-concept) to a lesser extent than the instructors that had non-academic experience.

10. Instructors who had taught 3-5 years perceived themselves as implementing principle 3 (physical change) to a greater extent than did the instructors who had taught two or less years, 6-10 years, and 11-15 years.

11. Adjunct instructors had a higher mean on seven of the nine principles than part-time and full-time instructors.

12. Instructors who did not have any preparation in adult education perceived themselves as implementing the nine principles to a lesser extent than did the groups with various levels of preparation in adult education. However, a significant difference was not found.

Conclusions, Implications and Recommendations

Nine basic principles of adult education were identified. The review of available resources in adult education

conducted by a six member research team was more comprehensive than previous studies. Adult education experts utilized and the steps taken to synthesize and refine the basic principles strengthened the study.

These basic principles of adult learning provided the basis for developing a device for collecting data on the perceived application of these principles in OSU Extension. In addition, these principles have implications for all persons sensitive to the unique needs of adult learners. Since the criteria for evaluating the success of most adult education programs is the return of participants, adult program planners and implementers are wise to adhere to these principles.

The basic principles could also be utilized by curriculum evaluators and planners in adult education by using them as a gauge against which the content of college and university adult education programs are judged and as parameters for designing either an undergraduate or a graduate adult education program or for revising an existing program.

The developed questionnaire is a potentially effective tool for analyzing practices in adult education settings. In this study, the questionnaire was utilized to explore the perceived application of the nine principles by OSU Extension instructors and their students. The results could be beneficial in increasing a practitioner's awareness of his/her own implementation of the principles or as a basis in developing pre-service and in-service educational programs.

Because adult education leaders have proclaimed the instructors as the crucial variable in the teaching-learning transaction, there is a need to determine if the adult learning principles are being implemented and if they are not, how best to insure their implementation (Knowles, 1970, and Houle, 1980). An analysis of a practitioner's responses to the various items in the questionnaire could uncover areas of concepts around which in-service training activities could be either planned for or sought by that individual.

Staff development activities suggested by this assessment could be provided either by group sessions or individually. Group sessions could be conducted to address common educational gaps identified among staff members. However, Houle (1980) has observed that much of an adult educator's learning has depended on his/her capacity to teach himself/herself. Therefore, many of the educational gaps could lead to individualized learning projects organized according to Tough's (1973) model.

Each individual's learning of the adult education principles could be greatly facilitated by the bibliographic references in this study for the nine learning principles. These references could be combined with other resources by the adult education practitioners in organizing individual learning projects.

The questionnaire might also be used to determine the perceived teaching-learning modes of adult education program directors. Kidd (1976) argues that sound adult learning

principles must permeate the entire organization and that administrative practices should be congruent with these learning principles. The questionnaire could serve as a professional developement tool for directors and as a tool for identifying areas of commonalities and differences concerning perceived teaching methods between the administrator and his/her staff in an adult education program.

An analysis of the data collected in this research demonstrated that instructors of OSU Extension perceived themselves as "frequently" implementing all of the principles of adult learning. These findings are in contrast to the implication made by Mezirow, Darkenwald, and Knox (1975) that adult education practitioners often are not aware of the information, ideas, and learning principles which are contained in the field's theory base and literature. They do, however, substantiate sources that contend university extension programs typically acknowledge that adults should be taught differently than children, high school and traditional college students (Sorenson, 1933; Shannon and Schoenfeld, 1965; and Gardner, 1965).

This study also revealed that instructor's perception of the extent of application of the principles can vary significantly from their students' perception of the extent the principles are applied by their instructors. The students perceived the instructors applying all nine principles less often than the instructors perceived themselves applying the principles of adult learning. In only three of the

principles was there a significant difference, however. A significant difference existed for principle 1 (ability to learn), principle 2 (diversity) and principle 9 (supportive environment).

The researcher can only speculate on the reason for these perceived differences. First, in responding to the questionnaire, the instructors may have been comparing the difference between how they teach a lower level traditional college class and the way they teach a University Extension class. In this case they perceived the difference to be significant and responded accordingly. However, the adult students in the University Extension class may still have felt that they were being taught too traditionally. Second, the instructors may have responded as they intended to apply the principles and situational factors could possibly have mitigated the degree of application of these principles. Third, the instructors may have responded to the questionnaire in the manner they thought was expected of adult practitioners.

This study revealed that instructor's perception can vary according to such factors as sex, age, extension division, formal degrees, teaching status, years of teaching experience, work experience outside academia, and preparation for teaching the adult learner. Significant differences were observed at the .05 level in four variables: age, sex, numbers of years teaching fulltime and the instructor's non-academic experience.

The 31-40 age group perceived themselves as implementing principle 2 (diversity) to a lesser extent than the other three age groups. However, a significant difference was only noted between the 31-40 age group (51% of the respondents) when compared to both the 41-50 and the 51 and older age groups. The two latter groups combined represent 44 percent of the respondents. One might conclude that since the older instructors perceive themselves implementing the concepts related to the diversity of adult students, they perhaps view themselves becoming more diverse and likewise view their students as being more diverse in their needs and learning styles. This theory supports literature findings that adults tend to grow increasingly different with age.

A significant difference was found between the perceived application of principle 7 (motivation) by male and female instructors. The males perceived they implement the concepts related to motivation less frequently than the females perceived that they implement those concepts. Since this study had too few females (15% of the respondents) in the population, for an adequate comparison, further research is needed to determine the extent of application of these principles according to sex.

Instructors who had taught 3-5 years (18% of the respondents) perceived themselves significantly implementing principle 3 (physical change) to a greater extent than did the instructors who had taught two or less years, 6-10 years, and 11-15 years. Even though the difference was not

significant, this 3-5 years group had a higher mean than the other five categories. Since only one instructor (3% of the respondents) had taught two or less years, this would indicate that generally the teachers with less teaching experience perceived they gave more consideration to the physical changes in their students than did the instructors who had taught longer than five years.

One explanation for this trend might be that since adult education is a relatively new field of study, the teachers with more teaching experience have not had preparation in the characteristics of the adult learner, while the teacher with less teaching experience might possibly have had more exposure to the concepts. It would be helpful to know if the teachers having taught five years or less have had preparation in adult education.

Instructors who had not worked at non-academic jobs perceived themselves as significantly implementing principle 5 (self-concept) to a lesser degree that the instructors that had non-academic experience perceived themselves implementing that principle. This is another case where the study contained too few instructors (15% of the respondents) without non-academic experience to provide an adequate comparison. Further research is needed to determine the effect that non-academic experience has on faculty practices in the academic setting.

The variables of job status and preparation in adult education had observable but not significant differences.

Adjunct instructors (28% of the respondents) had a higher mean on seven of the nine principles than part-time (13% of the respondents) and full-time (59% of the respondents) instructors. The fact that adjunct instructors are generally experts in a specific skill area might account for some degree of their perceived success in teaching adults. Shannon and Schoenfeld (1965, p. 81) maintained that "some of the best and some of the worst extension work is carried on by these ad hoc instructors." Ferrett (1976) in an analysis of the felt and observed problems of adjunct faculty stated that adjunct instructors are a valuable resource. Since nearly one-third of the respondents were adjunct professors, it might be useful to conduct further analysis of this category of instructors in OSU University Extension.

Instructors who did not have any preparation in adult education (10% of the respondents) perceived themselves as implementing the nine principles to a lesser extent than did the groups with various levels of preparation in adult education. Since no attempt was made to evaluate the quality of the reported preparation, it is impossible to generalize regarding this variable. Additional studies are needed to determine the effect that different kinds of preparation for teaching the adult learner can have on the extent of actual implementation of the principles in adult learning settings.

Additional recommendations for research are as follows:

1. Future research on the principles should be conducted to identify significant differences that may exist among the variables presented in this study.

2. The present study dealt with the perceived utilization of the principles by the instructors and their students. Future research could concentrate on the actual utilization in the classroom setting perhaps by the use of observational techniques.

3. This study could be extended to additional extension faculties.

4. The questionnaire could be used again in other settings to further test adult education practices.

5. This study could be analyzed in relation to the other studies conducted by the research team.

BIBLIOGRAPHY

Alford, Harold (Ed.). Power and Conflict in Continuing Education: Survival and Prosperity for All? California: Wadsworth Publishing Company, 1980.

Ary, Donald, Lucy Cheser Jacobs and Asghar Razavieh. Introduction to Research in Education. New York: Holt, Rinehart and Winston, Inc., 1972.

Astin, Alexander W., et al. Faculty Development in a Time of Retrenchment. New Rochelle, N.Y.: A Change Publication, 1974.

Bergevin, Paul. A Philosophy for Adult Education. New York: Seabury Press, 1967.

Birren, J.E. and D.F. Morrison. "Analysis of the WAIS Subtests in Relation to Age and Education." Journal of Gerontology, Vol. 16, 1961, pp. 363-369.

Bischof, Ledford J. Adult Psychology. New York: Harper and Row, 1969.

Bonham, George W. "About This Special Report." In Alexander W. Astin, et al. Faculty Development in a Time of Retrenchment. New Rochelle, New York: A Change Publication, 1974.

Boshier, Roger. "Motivational Orientations of Adult Education Participation: A Factor Analytic Exploration of Houle's Typology." Adult Education, XXI, 1971, pp. 3-26.

Cattell, R.B. "Theory of Fluid and Crystallized Intelligence: A Critical Experiment." Journal of Educational Psychology, Vol. 54, 1963, pp. 1-22.

Clark, L.E. and J.B. Knowles. "Age Differences in Dichotic Listening Performance." Journal of Gerontology, Vol. 28, 1973, pp. 173-178.

Cross, K. Patricia. Adults As Learners. San Francisco: Jossey-Bass Publishers, 1981.

Conti, Gary J. "Principles of Adult Scale." (Paper presented at the Twentieth Annual Adult Education Research

Conference, 1979.) Ann Arbor, Michigan: University of Michigan, 1979.

Cross, K.P. "Adult Learners: Characteristics, Needs, and Interests." In R.E. Peterson and Associates, Lifelong Learning in America: An Overview of Current Practices, Available Resources, and Future Prospects. San Francisco: Jossey-Bass, 1979.

Cross, K. Patricia. The Missing Link: Connecting Adult Learners to Learning Resources. New York: College Entrance Examination Board, 1978.

Cross, K. Patricia. "Our Changing Students and Their Impact on Colleges: Prospects for a True Learning Scoiety." Phi Delta Kappan, Vol. 6, May, 1980, pp. 627-630.

Dansereau, Donald. "The Development of a Learning Strategies Curriculum." Learning Strategies. Ed. Harold F. O'Neil, Jr. New York: Academic Press, 1978, pp. 1-26.

Deppelt, J.E. and W.L. Wallace. "Standardization of the Wechsler Adult Intelligence Scale for Older Persons." Journal of Abnormal and Social Psychology, Vol. 51, 1955, pp. 312-330.

Dewey, John. Lectures in the Philosophy of Education, 1899. Ed. Reginald D. Archanibault. New York: Random House, 1966.

Donnarumma, Teresa, David Cox, and Hal Beder. "Success in a High School Completion Program and Its Relation to Field Dependence-Independence." Adult Education, Vol. 30, No. 4, Winter, 1980, pp. 222-232.

Drucker, Peter F. The Age of Discontinuity. New York: Harper and Rowe, 1969.

Erikson, Eric H. Childhood and Society. New York: W.W. Norton, 1963.

Erikson, Eric H. "Identity and the Life Cycles." Psychological Issues, International Universities Press, Vol. 1, No. 1, 1959.

Ferrett, Sharon K. "The Forgotten Faculty - Adjunct Instructors." Continuum, Vol. XLI, No. 3, March, 1976, pp. 18-19.

Fitzgerald, J.C. "Oklahoma State University Division of Continuing Education." Eds. Stanley J. Drazek et al. Expanding Horizons . . . Continuing Education. Washington, D.C.: North Washington Press, 1965.

Fozard, J.L. and R.L. Nuttal. "GATA Scores for Men Differing in Age and Socio-economic Status." Journal of Applied Psychology, Vol. 55, No. 4, 1971, pp. 372-379.

Frenkel-Brunswick, Else. "Studies in Biographical Psychology." Character and Personality, Vol. 5, 1936, pp. 1-34.

Gaff, Jerry G. Toward Faculty Renewal: Advances in Faculty, Instruction, and Organizational Development. San Francisco: Jossey-Bass Publishers, 1975.

Gagne, Robert M. The Conditions of Learning. Rev. ed. New York: Holt, Rinehart and Winston, 1972.

Garner, R.M. "Foreward". Expanding Horizons . . . Continuing Education. Ed. Stanley J. Drazek et al. Washington, D.C.: North Washington Press, 1965.

Golladay, M.A. The Condition of Education 1977. Vol. Three, Part One. Washington, D.C.: National Center for Educational Statistics, 1977.

Gould, Roger. "Adult Life Stages: Growth Toward Self Tolerance," Psychology Today, February, 1975, p. 78.

Gould, Samuel B. "Prospects for Non-Traditional Study." Explorations in Non-Traditional Study. Ed. Samuel B. Gould and K. Patricia Cross. San Francisco: Jossey-Bass, Inc., 1972.

Grant, W. Vance and George C. Lind. Digest of Education Statistics, 1977-78. National Center for Education Statistics. Washington, D.C.: U.S. Government Printing Office, 1978.

Grantham, J.O. "University Extension Needs Assessment Report." (Unpublished report, Oklahoma State University , 1980.)

Hadley, Herschel N. "Development of an Instrument to Determine Adult Educators' Orientation: Andragogical Pedogogical." Microfilm copy. (Unpub. Ed. D. dissertation, Library, Boston University School of Education, 1975.)

Harrington, Fred Harvey. The Future of Adult Education. San Francisco: Jossey-Bass Publishers, 1979.

Havighurst, R. Developmental Tasks and Education. 3rd Edition. New York: McKay, 1972.

Havighurst, Robert J. Social Roles of the Middle-Aged Person. Chicago: Center for the Study of Liberal Education for Adults, 1953.

Helt, Diane. "Preparing for Tomorrow's Students." Community College Review, Vol. 7, No. 2, Fall, 1979, pp. 22-25.

Heun, Linda et al. "Maximizing Individual Student Learning Through Cognitive Style Mapping." (Paper presented at the Annual Meeting of the Speech Communication Association, Houston, Texas, December 27-30, 1975.) ERIC Document No. 119 250.

Hiemstra, Roger. The Older Adult and Learning. Lincoln: University of Nebraska, Department of Adult and Continuing Education, 1975.

Holmes, Mel R. "Interpersonal Behaviors and Their Relationship to the Andragogical and Pedagogical Orientation to Adult Educators." Adult Education, Vol. 31, No. 1, 1980, pp. 18-29.

Horn, J.L. "Organization of Data of Life Span Development of Human Abilities." Eds. L.R. Goulet and P.B. Bates. Life Span Developmental Psychology: Research and Theory. New York: Academic Press, 1970.

Horn, J.L. and R.B. Cattell. "Refinement and Test of the Theory of Fluid and Crystallized Intelligence." Journal of Educational Psychology, Vol. 57, 1966, pp. 253-270.

Houle, Cyril O. Continuing Learning in the Professions. Washington: Jossey-Bass Publishers, 1980.

Houle, Cyril O. The Design of Education. San Francisco: Jossey-Bass, Inc., Publishers, 1972.

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

Houle, Cyril O. Continuing Your Education. New York: McGraw-Hill Book Co., 1964.

Houle, Cyril. Major Trends in Higher Adult Education. Chicago: Center for the Study of Liberal Education for Adults, 1959.

Huck, Schuyler W. et al. Reading Statistics and Research. New York: Harper & Row, 1974.

Hulicka, I.M. and L.D. Rust. "Age-Related Retention Deficit as a Function of Learning." Journal of the American Geriatrics Society, Vol. 12, 1964, pp. 1061-1065.

Ingalls, John D. and Joseph M. Areori. A Trainers Guide to Andragogy. Waltham, MA: Data Education, Inc., 1972.

Jarvik, L.F. "Thoughts on the Psychobiology of Aging." American Psychologist, Vol. 30, No. 5, 1975, pp. 576-583.

Jensen, Gale. "Developing a Theory of Adult Learning." Adult Education Theory and Method. Washington, D.C.: Adult Education Association of the U.S.A., 1965.

Jensen, Gale, A.A. Liveright, and Wilber Hallenbeck (Eds.). Adult Education: Outline of an Emerging Field of University Study. Washington, D.C.: Adult Education Association of the U.S.A., 1964.

Johnstone, John W.C. and Ramon Rivera. Volunteers for Learning. Chicago: National Opinion Research Center, 1965.

Jones, H.E. and H.S. Conrad. "The Growth and Decline of Intelligence: A Study of a Homogeneous Group Between the Ages of Ten and Sixty." Genetic Psychology Monographs, Vol. 13, 1933, pp. 223-298.

Kidd, J.R. How Adults Learn. New York: Assocation Press, 1973.

Kneller, George F. Introduction to the Philosophy of Education. New York: John Wiley and Sons, 1964.

Knowles, Malcolm. The Adult Learner: A Neglected Species. 2nd Ed. Houston: Gulf Publishing Company, 1978.

Knowles, Malcolm. The Modern Practice of Adult Education. Chicago: Associated Press, 1970.

Knowles, Malcolm. The Adult Education Movement in the United States. New York: Holt, Rinehart, and Winston, Inc., 1962.

Knox, Alan B. Adult Development and Learning. San Francisco: Jossey-Bass, Inc., 1977.

Knox, Alan and D. Sjogren. "Research on Adult Learning." Adult Education, Vol. XV, 1965, pp. 133-137.

Koos, Leonard. The Community College Student. Gainesville: University of Florida Press, 1970.

Lehner, G.F.J. and E.K. Gunderson. "Height Relationship on the Draw - A Person Test." Journal of Personality, Vol. 21, 1953, pp. 392-399.

Levinson, Daniel J. The Seasons of a Man's Life. 1st Ed. New York: Knopf, 1978.

Linton, Marigold and Philip S. Gallo, Jr. The Practical Statistician. Monterey, California: Brooks/Cole Publishing Company, 1975.

Lindeman, Eduard C. The Meaning of Adult Education. New York: New Republic, 1926.

Lorge, Irving. "Capacities of Older Adults." Ed. Wilma Donahue, Education for Later Maturity. New York: Whiteside and William Morrow and Co., Inc., 1955.

Lorge, Irving. "The Influence of the Test Upon the Nature of Mental Decline as a Function of Age." Journal of Educational Psychology, Vol. 27, 1936, pp. 100-110.

Lowenthal, Marjorie, Niajda Thurnher; and David Chiriboga. Four Stages of Life. San Francisco: Jossey-Bass, Inc., 1975.

Maslow, Abraham H. Motivaton and Personality. New York: Harper and Row, 1954.

Maslow, A.H. "A Theory of Human Motivation." Psychological Review, Vol. 50, 1943, pp. 370-396.

McBride, Alfred. "Adult Education: A Ministry to Life Cycles." Religious Education, Vol. 72, March-April, 1977, pp. 171-182.

McClusky, Howard Y. "Cognitive Performance and Mental Ability: Implications for Learning in the Later Years." Alternative Higher Education, Vol. 5, Fall, 1980, p. 29.

McClusky, Howard Y. Background Report on Education. Washington, D.C.: White House Conference on Aging, February, 1971.

Mehrabian, Albert. Silent Messages: Implicit Communications of Emotions and Attitudes. Belmont: Wadsworth Publishing Company, 1981.

Mezirow, J. "Perspective Transformation." Adult Education, Vol. 28, 1978, pp. 135-147.

Mezirow, Jack, Gordon G. Darkenwald, and Alan B. Knox. Last Gamble on Education: Dynamics of Adult Basic Education. Washington: Adult Eucation Association of the U.S.A., 1975.

Moenster, P.A. "Learning and Memory in Relatin to Age." Journal of Gerontology, Vol. 27, 1972, pp. 361-363.

Nelsen, William C. and Michael E. Siegel (Ed). Effective Approaches to Faculty Development. Washington, D.C.: Association of American Colleges, 1980.

Neugarten, Bernice. Middle Age and Aging. Chicago: University of Chicago Press, 1968.

Nunney, Derek N. "Cognitive Style Mapping." Training and Development Journal, Vol. 32, September, 1978, pp. 50-56.

Oakes, Imogene E. Adult Education in the Public School Systems, 1968-1969 and 1969-1970: The Complete Report with Historical, Analytical and Comparative Findings. Washington, D.C.: Office of Education (DHEW), August, 1976.

O'Banion, Terry. Teachers for Tommorrow: Staff Development in the Community-Junior College. Tuscon, Arizona: The University of Arizona Press, 1973.

O'Banion, Terry. Teachers for Tomorrow. Tucson, Arizona: The University of Arizona Press, 1954.

Oklahoma State University Extension. Annual Report. Stillwater, Oklahoma, 1980.

Oklahoma State University Extension. Annual Report. Stillwater, Oklahoma, 1979.

Okun, M.A. "Implications of Geropsychological Research for the Instruction of Older Adults." Adult Education, Vol. 27, No. 3, 1977, pp. 139-155.

Olson, D.R. "Towards a Theory of Instructional Means." Educational Psychologist, Vol. 12, 1976, pp. 14-35.

Owens, William A., Jr. Life History Correlates of Age Change in Mental Abilities. Lafayette, Indiana: Purdue University, 1963.

Riessman, F. The Culturally Deprived Child. New York: Harper & Row, 1962.

Rogers, Carl. Freedom to Learn: A View of What Education Might Become. Columbus, Ohio: C.E. Merrill Publishing Co., 1969.

Romine, Stephen and Donald Newport. Defining, Assessing, and Improving Community-Junior College Climate. Boulder, Colo.: University of Colorado, 1973.

Roper, Orson B. "Philosophical and Personality Characteristics of Teachers of Adults." Paper presented at the Adult Education Research Conference, Toronto, Ontario, April 8, 1976.

Rossman, Maxine Ellen. "Awareness of Adult Characteristics by the Faculty in the Maricopa County Community College

District." Microfilm copy. (Unpublished Ed.D. dissertation, Library, New York Univeristy, 1977.)

Saloman, Gavriel. Interaction of Media Cognition and Learning. Washington: Jossey-Bass Publishers, 1979.

Schonfield, D. "Learning and Retention." Contemporary Gerontology: Concepts and Issues. Ed. J.D. Buren. Los Angeles: Andrus Gerontology Center, 1969.

Shannon, Theodore J. and Clarence A. Schoenfeld. University Extension. New York: The Center for Applied Research in Education, Inc., 1965.

Sheehy, G. Passages: Predictable Crises of Adult Life. New York: Dutton, 1976.

Sjogren, Douglas D. et al. "Adult Learning in Relation to Prior Adult Education Participation." Adult Education Journal, Vol. XIX, No. 1, 1968, 3-10.

Sorenson, Herbert. Adult Abilities In Extension Classes. Minneapolis: The University of Minnesota Press, 1933.

Sorenson, H. "Adult Ages as a Factor in Learning." Journal of Educational Psychology, Vol. XXI, 1930, 451-59.

Thorndike, E.L. et al. Adult Learning. New York: The Macmillan Company, 1928.

Thornton, James W., Jr. The Community College. New York: John Wiley & Sons, 1960.

Timiras, P.S. Development Physiology and Aging. New York: Macmillan Publishing Co., Inc., 1972.

Tough, Allen. The Adult's Learning Projects. Toronto, Ontario: The Ontario Institute for Studies in Education, 1971.

Tuddenham, R.D., J. Blumenkrantz, and W.R. Wilkin. "Age Changes on AGCT. A Longitudinal Study of Average Adults." Journal of Consulting and Clinical Psychology, Vol. 32, No. 6, 1968, pp. 659-663.

Tulving, E. and M. Thomson. "Encoding Specificity and Retrieval." Journal of Abnormal and Social Psychology, Vol. 80, 1973, pp. 352-372.

Verduin, John R., Harry Miller, and Charles Greer. Adults Teaching Adults: Principles and Strategies. Austin, Texas: Learning Concepts, 1977.

Verner, Coolie. "Definition of Terms." Eds. Jensen Gale, A.A. Liveright, and Wilber Hallenbeck. Adult Education: Outline of an Emerging Field of University Study. Washington, D.C.: Adult Education Association of the U.S.A., 1964.

Veroff, J., S.C. Feld, and G. Gorin. "Dimensions of Subjective Adjustment." Journal of Abnormal and Social Psychology, Vol. 64, 1962, pp. 192-205.

Wechsler, D. The Measurement and Appraisal of Adult Intelligence. 4th Ed. Baltimore, Maryland: William and Wilkins Co., 1958.

Werner, H. Comparative Psychology of Mental Development. New York: International Universities Press, 1948.

Whitbourne, Susan K. and Comilda S. Weinstock. Adult Development: The Differentiation of Experience. New York: Holt, Rinehart, and Winston, 1979.

Wimer, R.E. "Age Difference in Incidental and Intentional Learning." Journal of Gerontology, Vol. 15, 1960, pp. 79-82.

Wimer, R.E. and R.T. Wigdor. "Age Difference in Retention of Learning." Journal of Gerontology, Vol. 13, 1958, pp. 291-295.

APPENDICES

APPENDIX A

OKLAHOMA STATE UNIVERSITY EXTENSION

ORGANIZATION CHART

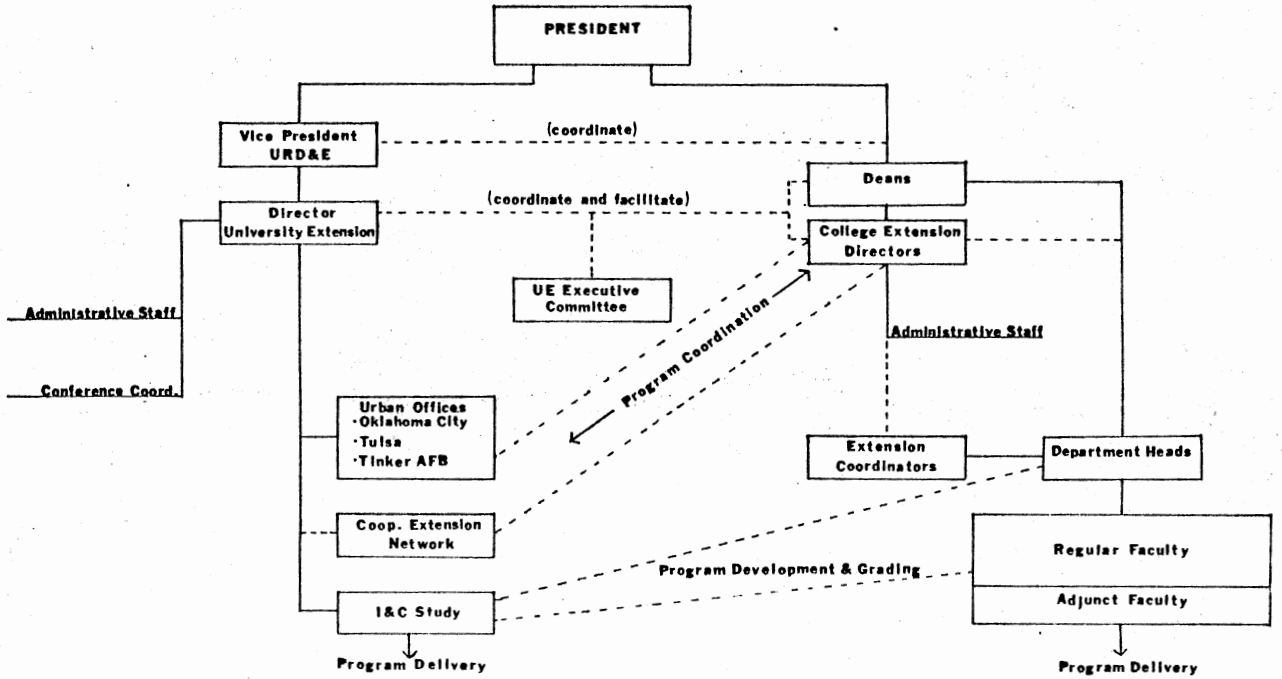


Figure 2. Oklahoma State University Organization Chart

APPENDIX B

TABLES OF UNIVERSITY EXTENSION

1977-1980

TABLE XVI

OKLAHOMA STATE UNIVERSITY EXTENSION
ENROLLMENT 1977-1980

COURSES FOR ACADEMIC CREDIT

Extension Unit	FY 1977		FY 1978		FY 1979		FY 1980		FY 1980 Summary	
	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Hrs of Instr.	Participant Hrs.
Arts & Sciences	87	1643	143	2472	133	2043	114	2081	3570	58295
Business Adm.	18	250	22	378	8	127	13	170	406	5836
DETA	47	735	40	483	45	732	54	741	2865	38270
Education	81	1985	85	1826	87	2208	126	2434	4537	80233
Home Economics	16	307	27	581	35	643	32	697	1098	24168
Ind. & Corr. Study	77	1492	99	1719	111	2873	137	2952	5650	125085
TOTALS	326	6412	416	7459	419	8626	476	9075	18126	331887

CONFERENCES, SHORT COURSES, WORKSHOPS AND SEMINARS

Extension Unit	FY 1977		FY 1978		FY 1979		FY 1980		FY 1980 Summary	
	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Hrs of Instr.	Participant Hrs.
Arts & Sciences	19	645	20	828	26	1589	31	3040	619	46900
Business Adm.	86	2925	113	5095	94	3747	92	3465	1215	37756
DETA	81	2713	94	3989	425	12625	360	14509	16767	506397
Education	18	1266	20	588	10	1772	12	4195	145	40682
Home Economics	12	477	22	779	35	2606	50	3724	842	27973
Ind. & Corr. Study	-	-	-	-	-	-	1	56	45	2520
TOTALS	216	8026	269	11279	590	22329	546	28989	19633	662228

APPENDIX C

PRELIMINARY STATEMENTS OF PRINCIPLES AND REVIEW PANEL

Directions:

Listed below are eight principles of adult education that have been identified from an exhaustive review of the literature related to adult education. Included with each are sample supportive statements which further define each of the eight basic concepts.

On the response sheet, place an X over the number which you feel most closely reflects your perception of the statement as an underlying principle of adult education.

1. Adults maintain the ability to learn.

    a. There is a decline in the rate of learning but not in the ability to learn.

    b. Age patterns and intellectual ability may vary among and within adults.

    c. Exercise of the intellectual function tends to increase the capacity to learn.

2. Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.

    a. Adult development is continuous and multifaceted.

    b. Categorical changes in adults cannot be predicted.

    c. Adult learning styles are varied and require an eclectic approach.

3. Experience of the learner is a major resource in the learning situation.

    a. New learning should be related to past experience.

    b. Individual experience provides resources for group learning.

4. An individual's self concept tend to move from dependency to independency as responsibilities, experience, and confidence are built up.

    a. The adult sees himself as being able to make his own decisions and face their consequences to manage his own life.

5. Evolving life roles and events influence adults' readiness to learn.

    a. Adults tend to have an expectation of immediate application of knowledge.

    b. Expectations for the future can be as important for motivation for learning as actual experience.

c. Needs related to changes in life style and responsibility bring about teachable moments.

6. Active learner participation in the instructional/learning process is important.

   a. Adult learning occurs best when the student is motivated to identify needs, set goals, and evaluate progress.

   b. The quality of learning is directly related to the quality of interaction within the learning environment.

   c. Adults learn best when they become actively involved in the learning activities.

7. A comfortable supportive environment is a key to a successful learning experience.

   a. Physical conditions such as seating arrangements, room temperature, ventiliation, and lighting have an impact.

   b. The emotional atmosphere must be open, positive, and supportive of the adults' attempts to learn.

   c. Instructor creates a nonauthoritarian climate with mutual respect and acceptance of differences.

8. There is a gradual decline in physical/sensory capabilities.

   a. Visual impairment, hearing loss, and decline in reaction time are the more common physical conditions that provide implications for adult learning.

   b. There are general trends but these may not affect all students.

Initial Review Panel

Dr. Malcolm Knowles, Professor Emeritus, North Carolina State University

Dr. Albert Campbell, Associate Professor of Adult Education, Texas A&M University

Dr. Gene Whaples, Associate Professor, Adult and Continuing Education, University of Maryland

Dr. Wendell Smith, Dean of Continuing Education Extension, University of Missouri, St. Louis

APPENDIX D

REFINED PRINCIPLES AND VALIDATION PANEL

(COVER LETTER)

November 7, 1980

The School of Occupational and Adult Education at Oklahoma State University is conducting an exhaustive research attempting to (1) identify the basic principles underlying adult education programs, and (2) determine the extent to which that these principles are being utilized in a variety of adult learning settings.

Literature review has now been completed by a team to determine the repetition of varius adult learning principles in research and in the recognized literature of the field. The following areas were covered in the comprehensive literature review:

a. Philosophical background of Adult Education

b. Cognitive factors in Adult Learning

c. Psychological factors in Adult Learning

d. Social/life cycle factors in Adult Learning

e. Physiological/Environmental factors in Adult Learning

f. Teaching/Instructional methodology for Adults

We need your help to verify and/or refute basic principles we have synthesized from the literature. Would you please review the nine statements on the enclosed questionnaire rating each statement as you feel appropriate? Thank you in advance for your cooperation.

Sincerely,

Marie Oberle
Graduate Student

MO/km

VALIDATION PANEL

1.	Dr. Art Burrichter	Professor of Adult Education Florida Atlantic University
2.	Dr. Mary Grefe	President, American Association of University Women
3.	Dr. Roger Heimstra	Professor of Adult Education Syracuse University
4.	Dr. Carol Kasworm	Assistant Professor Adult Education, University of Texas
5.	Dr. Chester Klevins	Dean of Continuing Education City University, Los Angeles
6.	Dr. Alan Knox	Professor of Adult Education University of Illinois - Urbana
7.	Dr. Bianca Marguglia	Department of Nursing University of Hawaii at Monoa
8.	Dr. Peggy Mezaros	Associate Director of Home Economics Cooperative Extension, Oklahoma State University
9.	Dr. Leonard Nadler	Professor of Adult Education George Washington University
10.	Dr. Robert Reisbeck	Extension Communications Training Specialist, Oklahoma State University
11.	Dr. William Rivera	Project Director Clearinghouse of Resource for Educators of Adults Syracuse University
12.	Dr. Don Seaman	Professor of Adult Education Texas A&M University

PRINCIPLES OF ADULT LEARNING

Directions:

Listed below are nine PRINCIPLES OF ADULT EDUCATION that have been identified from an exhaustive review of the literature related to adult education. Included with each are *supportive concepts* which further define each of the nine basic principles.

Place an X over the number in the left margin which you feel most closely reflects your perception and acceptance of the statement as an underlying principle of adult education. There will be a total of nine responses--one for each numbered principle; the lettered concepts are explanatory in nature.

Use the following scale to respond. 1 is Not Acceptable, 5 is Acceptable.

Not Acceptable	Questionable	Undecided	Some Reservations	Acceptable
/	/	/	/	/

Not Acceptable — Acceptable

1	2	3	4	5
/	/	/	/	

1. ADULTS MAINTAIN THE ABILITY TO LEARN.

This principle includes the following concepts:

a. *There is a decline in the rate of learning but not in the ability to learn.*

b. *Age patterns and intellectual ability may vary among and within adults.*

c. *Exercise of the intellectual function tends to increase the capacity to learn.*

Not Acceptable — Acceptable

1	2	3	4	5
/	/	/	/	

2. ADULTS ARE A HIGHLY DIVERSIFIED GROUP OF INDIVIDUALS WITH WIDELY DIFFERING PREFERENCES, NEEDS, BACKGROUNDS, AND SKILLS.

This principle includes the following concepts:

a. *Adult development is continuous and multifaceted.*

b. Some categorical changes in adults cannot be predicted.

c. Adult learning styles are varied and require an eclectic approach.

Not Acceptable — Acceptable
1 2 3 4 5

3. ADULTS EXPERIENCE A GRADUAL DECLINE IN PHYSICAL/SENSORY CAPABILITIES.

This principle includes the following concepts:

a. Visual impairment, hearing loss, and decline in reaction time are the more common physical conditions that have implications for adult learning.

b. The rates of decline for specific capabilities vary with each individual.

Not Acceptable — Acceptable
1 2 3 4 5

4. EXPERIENCE OF THE LEARNER IS A MAJOR RESOURCE IN THE LEARNING SITUATION.

This principle includes the following concepts:

a. New learning is most effective when related to past experience.

b. Individual experience provides resources for group learning.

Not Acceptable — Acceptable
1 2 3 4 5

5. SELF-CONCEPT TENDS TO MOVE FROM DEPENDENCY TO INDEPENDENCY AS AN INDIVIDUAL GROWS IN RESPONSIBILITIES, EXPERIENCE, AND CONFIDENCE.

This principle includes the following concepts:

a. The adult sees self as being able to make own decisions and face their consequences to manage own life.

b. Adults preconditioned by school experiences to perceive the role of learners to be dependent may need help in reconceptualizing the role of learner as self-directed.

Not Acceptable / / / / Acceptable
1 2 3 4 5

6. ADULTS TEND TO BE LIFE-CENTERED IN THEIR ORIENTATION TO LEARNING.

This principle includes the following concepts:

a. *Activities and events in lives of adults have an impact on their involvement in learning experiences.*

b. *Needs related to changes in life tasks and responsibilities bring about teachable moments.*

c. *Adults tend to have an expectation of immediate application of knowledge.*

Not Acceptable / / / / Acceptable
1 2 3 4 5

7. ADULTS ARE MOTIVATED TO LEARN BY A VARIETY OF FACTORS.

This principle includes the following concepts:

a. *The need to grow, as an individual, influences an adult's motivation to learn.*

b. *Negative self-concept, fear of failure and inaccessibility of learning opportunities are some of the factors that may influence the degree of motivation.*

c. *Expectations for the future can be as important for motivation for learning as actual experience.*

Not Acceptable / / / / Acceptable
1 2 3 4 5

8. ACTIVE LEARNER PARTICIPATION IN THE INSTRUCTIONAL/LEARNING PROCESS CONTRIBUTES TO LEARNING.

This principle includes the following concepts:

a. *Adult learning occurs best when the student participates in identifying needs, setting goals, and evaluating progress.*

b. *The quality of learning is directly related to the quality of interaction within the learning environment.*

c. *Adults learn best when they become actively involved in the learning activities.*

Not Acceptable — Acceptable

/ / / /

1 2 3 4 5

9. A COMFORTABLE SUPPORTIVE ENVIRONMENT IS A KEY TO SUCCESSFUL LEARNING.

This principle includes the following concepts:

a. *An atmosphere that is open, positive, and supportive of the adult's attempts to learn enhances learning.*

b. *A nonauthoritarian climate, with mutual respect and acceptance of differences, facilitates learning.*

c. *Phsyical conditions such as seating arrangements, room temperature, ventilation, and lighting influence learning.*

APPENDIX E

FINAL QUESTIONNAIRE

Oklahoma State University
School of Occupational and Adult Education
College of Education

THE TREMENDOUS GROWTH IN ADULT EDUCATION NATIONALLY IS BEING TERMED A "REVOLUTION"BY A NUMBER OF LEADING ADULT EDUCATORS. Oklahoma is certainly no exception to this trend. In light of this phenomena, Oklahoma State University (OSU) Extension is participating in a study being conducted by the OSU School of Occupational and Adult Education looking at adult education practices in various settings. It is hoped that the data obtained from this study will have implications for better meeting the needs of the OSU Extension population.

The names for this study were randomly selected from the _____Fall, 1980 class roll. Your response is extremely important to us. Will you please take a few minutes to complete this questionnaire and return it. All aspects of the study have been designed to insure that responses will remain confidential.

The following questionnaire contains numerous statements about teaching/learning activities for adults. For each statement indicate how often <u>your instructor practiced</u> the action described in the item. Using the following scale, check the appropriate response for each item. If the item does not apply to you, please check the space labeled NA (not applicable).

Thank you for your contributions to this most important effort.

Marie Oberle
Marie Oberle

	NA	NEVER	SOMETIMES	FREQUENTLY	ALWAYS
1. Students are helped to relate new learning to their prior experiences.	()	()	()	()	()
2. Errors are accepted as a natural part of the learning process.	()	()	()	()	()
3. Programs are presented which are relevant to the current problems and needs of the various clientele served.	()	()	()	()	()
4. Knowledge and competencies that students possess are utilized to achieve educational objectives.	()	()	()	()	()
5. Students are included in making decisions about the material that will be covered.	()	()	()	()	()
6. An attempt is made to utilize the factors that keep students participating in offerings.	()	()	()	()	()
7. Programs are scheduled at locations that provide the greatest accessibility to as many people as possible.	()	()	()	()	()
8. Students are helped to identify problems that they need to solve.	()	()	()	()	()

Please see reverse

PLEASE CHECK APPROPRIATE RESPONSE.	NA	NEVER	SOMETIMES	FREQUENTLY	ALWAYS
9. Students are encouraged to choose and use the most suitable means to accomplish their goals.	()	()	()	()	()
10. The instructor uses subdued colors rather than sharp contrasts in visual aids.	()	()	()	()	()
11. Instructional objectives are adapted to match the individual abilities of the students.	()	()	()	()	()
12. The meeting room is arranged so that it is easy for students to interact.	()	()	()	()	()
13. Students and instructors relate to each other as partners in learning.	()	()	()	()	()
14. Students are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.	()	()	()	()	()
15. Subject matter is related to problems of everyday living.	()	()	()	()	()
16. Students are helped to diagnose the gaps between their goals and their present level of performance.	()	()	()	()	()
17. Learning situations stress the student's ability to learn based on memorization.	()	()	()	()	()
18. Methods that foster discussion, involvement and class interaction are used.	()	()	()	()	()
19. Learning activities are planned to take into account the student's prior experiences.	()	()	()	()	()
20. Resources for further learning are identified and/or presented.	()	()	()	()	()
21. Students are encouraged to see themselves as the best judges of what they are learning.	()	()	()	()	()
22. Students are presented with new concepts on a regular basis.	()	()	()	()	()
23. Students are encouraged to decide how well they are learning the material.	()	()	()	()	()
24. The instructor presents knowledge and techniques which the students can apply immediately.	()	()	()	()	()
25. Activities are planned that encourage independent learning.	()	()	()	()	()
26. The same training materials are used for all participants.	()	()	()	()	()
27. A time limit is imposed when asking for recall of information and/or completion of tasks.	()	()	()	()	()
28. Learning activities are organized according to real life experiences.	()	()	()	()	()
29. Students are encouraged to make input into the various types of programs conducted.	()	()	()	()	()

PLEASE CHECK APPROPRIATE RESPONSE.	NA	NEVER	SOMETIMES	FREQUENTLY	ALWAYS
30. Previously learned information is reviewed before new material is presented.	()	()	()	()	()
31. Cultural backgrounds of students are considered when planning learning activities.	()	()	()	()	()
32. Competition among students is encouraged.	()	()	()	()	()
33. The instructor speaks rapidly when instructing adults.	()	()	()	()	()
34. Students are helped to develop short-term as well as long-term objectives.	()	()	()	()	()
35. Programs are arranged to minimize conflicts with other activities in which the target audience may be involved.	()	()	()	()	()
36. Extra time is allowed for the eyes of the students to adapt when visual information is presented.	()	()	()	()	()
37. Different instructional techniques are used depending on the material to be taught and the student's needs.	()	()	()	()	()
38. Questions or comments offered by students are treated with importance and given a sincere response.	()	()	()	()	()
39. Adequate lighting is provided in the adult learning environment.	()	()	()	()	()
40. The learning environment is adapted to the student's physical needs.	()	()	()	()	()
41. A comfortable and supportive environment is provided.	()	()	()	()	()
42. No attempt is made to determine what causes people to attend various programs offered.	()	()	()	()	()
43. The program is designed to help people cope with recent or expected changes in their lives.	()	()	()	()	()
44. Students are encouraged to share their experiences with others in the group.	()	()	()	()	()
45. Informal counseling of students is offered when needed.	()	()	()	()	()

COMMENTS:

Please see reverse

Please provide the following information.

1. Age: under 30 () 30-40 () 41-50 () over 50()

2. Sex: M () F ()

3. College represented: A&S () Business () DETA () Education () Home Ec ()

4. Teaching location: _____

5. Teaching status: full time () part time () adjunct ()

6. How many years teaching experience have you had? Full time _____
   Part time _____

7. What is your official job title? _____

8. Indicate the last three (3) academic positions you have held.

   _____ from _____ to _____
   _____ from _____ to _____
   _____ from _____ to _____

9. Indicate the last three (3) non-academic positions you have held.

   _____ from _____ to _____
   _____ from _____ to _____
   _____ from _____ to _____

10. List all degrees attained and areas of specialization:

    _____ _____
    _____ _____
    _____ _____

11. Have you participated in any of the following which helped prepare you for teaching the adult? workshops () inservice () conferences () courses ()
    formal degree program () other _____

12. Please briefly describe the primary factors which you feel contribute to you success in teaching adults. _____

Please provide the following information.

1. Age: under 30 () 30-40 () 41-50 () over 50()

2. Sex: M () F ()

3. Level of education: (12 years indicates a high school graduate)
   below 12 () 12 () 13 () 14 () 15 () 16 () 17 () 17+()

4. What is your official job title? _____

5. Primary reason for taking this course: enrichment () certification ()
   advancement () other () _____

6. This course is being paid for by: employer () self () VA ()
   other () _____

7. Please briefly describe the primary factors which you feel contributed to the effectiveness or lack of effectiveness of your instructor in this course. _____

_____

_____

_____

PLEASE RETURN QUESTIONNAIRE IN THE ENCLOSED STAMPED SELF-ADDRESSED ENVELOPE BY FEBRUARY 25, 1981. THE RESULTS OF THIS SURVEY WILL BE AVAILABLE UPON REQUEST FROM THE OSU EXTENSION OFFICE AFTER SEPTEMBER, 1981.

APPENDIX F

PLACEMENT OF QUESTIONNAIRE STATEMENTS UNDER PRINCIPLES (LIST OF VALIDATORS)

PRINCIPLES OF ADULT LEARNING

Please categorize each of the following questions into one of the nine principles of Adult Learning listed on the separate page. These principles have been identified from an exhaustive and comprehensive review of the literature. Mark the number of one principle at the left of each of the 45 questions. The questions will be used in different adult learning settings, so assume the instructor/student nomenclature to be appropriate for your particular situation (instructor/patient, facilitator/learner, etc.). Please note that some of the items may be stated in a manner contrary to accept principles of adult learning. The first question has been categorized as an example.

4 1. Students are helped to relate new learning to their prior experiences.

____ 2. Errors are accepted as a natural part of the learning process.

____ 3. Programs are presented which are relevant to the current problems and needs of the various clientele served.

____ 4. Knowledge and competencies that students possess are utilized to achieve educational objectives.

____ 5. Students are included in making decisions about the material that will be covered.

____ 6. An attempt is made to utilize the factors that keep students participating in offerings.

____ 7. Programs are scheduled at locations that provide the greatest accessibility to as many people as possible.

____ 8. Students are helped to identify problems that they need to solve.

____ 9. Students are encouraged to choose and use the most suitable means to accomplish their goals.

____ 10. The instructor uses subdued colors rather than sharp contrasts in visual aids.

____ 11. Instructional objectives are adapted to match the individual abilities of the student.

____ 12. The meeting room is arranged so that it is easy for students to interact.

____ 13. Students and instructors relate to each other as partners in learning.

_____ 14. Students are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.

_____ 15. Subject matter is related to problems of everyday living.

_____ 16. Students are helped to diagnose the gaps between their goals and their present level of performance.

_____ 17. Learning situations stress the student's ability to learn based on memorization.

_____ 18. Methods that foster discussion, involvement, and class interaction are used.

_____ 19. Learning activities are planned to take into account the students' prior experiences.

_____ 20. Resources for further learning are identified and/or presented.

_____ 21. Students are encouraged to see themselves as the best judges of what they are learning.

_____ 22. Students are presented with new concepts on a regular basis.

_____ 23. Students are encouraged to decide how well they are learning the material.

_____ 24. The instructor presents knowledge and techniques which the students can apply immediately.

_____ 25. Activities are planned that encourage independent learning.

_____ 26. The same materials are used for all students.

_____ 27. A time limit is imposed when asking for recall of information and/or completion of tasks.

_____ 28. Learning activities are organized according to real life experiences.

_____ 29. Students are encouraged to make input into the various types of programs conducted.

_____ 30. Previously learned information is reviewed before new material is presented.

_____ 31. Cultural backgrounds of students are considered when planning learning activities.

_____ 32. Competition among students is encouraged.

_____ 33. The instructor speaks rapidly when instructing adults.

_____ 34. Students are helped to develop short-range as well as long-range objectives.

_____ 35. Programs are arranged to minimize conflicts wtih other activities in which the target audience may be involved.

_____ 36. Extra time is allowed for the eyes of the students to adapt when visual information is presented.

_____ 37. Different instructional techniques are used depending on the material to be taught and the student's needs.

_____ 38. Questions or comments offered by students are treated with importance and given a sincere response.

_____ 39. Adequate lighting is provided in the adult learning environment.

_____ 40. The learning environment is adapted to the student's physical needs.

_____ 41. A comfortable and supportive environment is provided.

_____ 42. No attempt is made to determine what causes people to attend various programs offered.

_____ 43. The program is designed to help people cope with recent or expected changes in their lives.

_____ 44. Students are encouraged to share their experiences with others in the group.

_____ 45. Informal counseling of students is offered where needed.

COMMENTS:

List of Validators

Dr. Margaret Callsen
Assistant Professor
Oklahoma State University

Dr. Al Campbell
Associate Professor
Adult Education
Texas A&M University

Dr. Neal Chalofsky
Assistant Professor
Adult Education
Virginia Polytechnic Institute
and State University

Dr. Dan Gardner
Assistant Professor
Adult Education
Florida Atlantic University

Dr. Mike Hannah
Urban Extension Agent
Oklahoma State University

Dr. Ken McCullough
Associate Professor
Adult Education
University of Tennessee

Dr. Harvey Nye
Director of Extension
Tinker Air Force Base

Dr. John Peters
Professor
Adult Education
University of Tennessee

Dr. Don Seaman
Professor
Adult Education
Texas A&M University

Dr. Doug Smith
Associate Dean
Continuing Education
Drake University

Dr. Wendell Smith
Dean of Continuing Education/Extension
University of Missouri-St. Louis

APPENDIX G

CORRESPONDENCE TO EXTENSION DIVISION DIRECTORS

January 15, 1980

TO:

FROM: Marie Oberle

SUBJECT: OSU Extension instructors as the population for my dissertation research

Visiting with you before the Holidays regarding the various factors to be considered in using the OSU Extension instructors as the population for my dissertation research was beneficial. I would like to provide a brief review and program update.

In review, five graduate students are conducting an extensive study which will compare data from university extension, agriculture extension, junior college, patient education, and industrial training. This is the first study to begin looking at how the practice of adult education varies from setting to setting. The instructors will be asked to respond to a questionnaire containing 45 statements about teaching/learning activities for adults. This is a study of what is being done in individual programs and thus, there are no right or wrong answers.

Since our visit, I have reviewed the suggestions from each of the extension divisions, received input from Dr. Warde regarding the statistics of the research and refined the questionnaire. In light of this information, the following criteria is being considered for collecting the data;

1. All instructors teaching an OSU extension class providing 2 or more hours of college credit in the fall of 1980 will be mailed a questionnaire for their response, and

2. Three students selected at random from each of the classes being taught by the instructors in #1 will be mailed a questionnaire for their response. (This is to determine any deviation between the instructors' perception of his/her teaching and the students' perception of same).

Your input and support is extremely important to this research. It would be helpful if you would please:

1) advise me if you see any problems with the above criteria for the selection of the instructor and/or the method of collecting the data,

2) supply me with a complete list with address of instructors and students involved in OSU Extension courses in providing 2 or more hours of college credit in your division during the fall semester, 1980, and,

3) let me know if you would like additional items added to the demographic data to be collected. (Demographic Data sheet is attached).

Should you have any questions please call me at extension 6275, or at home, 377-5250. All written suggestions and the list of instructors and students may be sent through campus mail, 406 classroom building, or I will be happy to pick them up.

Thank you again for your interest and support in this research project.

km

Demographic Data

Name of Course:_____

Teaching Site:_____

Extension Division:_____Date_____

Age: Under 30_____ 31-40_____ Over 40_____

Sex: Male_____Female_____

Teaching Status: Full time_____ Part time_____

How long have you been employed in your present job or a similar job?_____

How long have you been in this field of employment?_____

List all degrees attained and areas of specialization:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Are you currently enrolled in a degree program? Yes_____No_____

If so, what is the area of specialization?_____

_____

Have you participated in any of the following which helps prepare you for teaching the adult learner?

Workshop_____ Inservice_____

Courses_____ Other? Please specify_____

_____

Formal degree programs_____

On the Job training_____

Conferences_____

_____

VITA

E. Marie Oberle

Candidate for the Degree of

Doctor of Education

Thesis: AN ANALYSIS OF PERCEPTIONS OF ADULT EDUCATION PRACTICES IN UNIVERSITY EXTENSION

Major Field: Higher Education

Minor Field: Occupational and Adult Education

Biographical:

Education: Received Registered Nurse (RN) degree from Reid Memorial Hospital School of Nursing and Earlham College in 1954; received a Bachelor of Science degree from Indiana State University in Health/Safety Education in 1971; received Masters of Education from Central State University in 1978; completed the requirements for the Doctor of Education degree at Oklahoma State University in December, 1981.

Professional Experience: National Graduate Leadership Development Program awardee, Oklahoma State University, 1978-1981; Coordinator, Health Occupations Education Teachers Orientation Project, Central State University, 1977-1978; Instructor, Health Service Careers, Indian Meridian Area Vocational School, Stillwater, Oklahoma, 1975-1979.

Professional Organizations: American Vocational Association; Oklahoma Vocational Association; Oklahoma Health Occupations Education Association; Pi Lambda Theta; Adult Education Association of the U.S.A.; Phi Delta Kappa; Oklahoma Adult and Continuing Education Association; National University Continuing Education Association.