OKLAHOMA COOPERATIVE EXTENSION SERVICE AGRICULTURAL AGENT'S PERCEPTIONS OF FREQUENCY OF PRACTICE OF ADULT EDUCATION PRINCIPLES

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PREFACE

Much of this study was conducted by a five-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 the principles were a corporate effort. Team members adapted the questionnaire to make it appropriate to their respective research populations. Certain aspects of each member's thesis may be similar or identical since parts of the research was a team effort.

I gratefully acknowledge the contributions of a number of people who helped in the development of this study and made its completion possible. A special thanks to the advisory committee: Dr. Robert Terry, Committee Chairman, Dr. Waynne James, Dr. James Key, Mr. Wendell Bowers, and Dr. Robert Reisbeck.

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CHAPTER I

INTRODUCTION

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 in the field (Jensen et al., 1964). To advance both professionalization of the field and assure more effective adult practitioners, it is important to identify the adult learning priniciples and determine to what degree practitioners implement the principles in programs serving adults.

Within the United States, the Cooperative Extension Service is the single largest program of adult education and learning. During 1978, it involved over 12 million adults in learning opportunities. This represented a 60% margin over the next largest program of adult education.

Writing in the Extension Service Review, Knowles (1963), identifies extension work as essentially adult education in character. The clientele is overwhelmingly adult and the primary channel of influence, even to youth, is through adult volunteers. He goes on to say that in adult education circles the Cooperative Extension Service

is cited as the largest and most successful national adult education agency in the U. S.

In this same article, Knowles (1963) also makes note of the fact that not all Extension workers are primarily adult educators. In fact, most are trained primarily as horticulturists, home economists, or specialists in some other technology. However, almost all Extension workers make use of their technological specialty through adult education means. Their effectiveness is determined, not only by how well they know their subject matter, but also by how skillful they are in helping adults learn what they need to know about it. Because of this, in Knowles' opinion, adult educational competencies are a required component of the Extension worker's role.

In Oklahoma, the Cooperative Extension Service exists as a component of Oklahoma State University. Professional staff members are housed in each of the seventy-seven counties in the state and are responsible for planning and directing local programming. The county staff is supported by additional professional staff at the area, district and state level. Of the 414 professional staff employed by the Oklahoma Cooperative Extension Service as of January, 1980, one hundred and fifty-eight, or 38%, had a least one degree in an educational field. Only 50, or 12%, of the total employees, had a degree in adult education. Of the 158 who had at least one degree in an educational field, the largest majority had either a degree in Agricultural Education or Home Economics Education.

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 Cooperative Extension. The practitioner is the agent for implementing the adult learning principles and is a crucial variable in the teacher-learning transaction. Knowles (1970) believed that the teacher's behavior is probably the most influential factor affecting the character of the learning climate. Many studies reported that teacher characteristics are related to student achievement. Thus, data gained by comparing the teaching of adults in Cooperative Extension with research on how the adult learns best will have implications for future staff development programs, as well as for individual extension staff members who are sensitive to the unique needs of adults.

Purpose

The purposes of this study were to: (1) identify the basic principles of adult learning that provide the foundation for adult education

and (2) determine the extent county level professional staff members involved in the Agricultural Programs of the Oklahoma Cooperative Extension Service perceive themselves as implementing these principles.

The following questions were dealt with in this study:

1. What are the basic principles of adult learning that provide the foundation for adult education.
2. To what extent do county level professional staff members involved in the Agricultural Programs of the Oklahoma Cooperative Extension Service perceive themselves as implementing these principles?
3. Does the extent to which these principles are perceived to be implemented vary with:
   a. Age
   b. Number of years of experience
   c. Academic preparation
   d. Preparation in adult education

Assumptions

The assumptions used for this study were:

1. There are "basic principles" which form the foundation of adult education.
2. The validating jury's rating of the "basic priniciples" served as an accurate indication of their 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 time.

4. County level professional staff members responded accurately to the survey instrument.

Definitions

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 accepted a functionally productive role in his community (Verner, 1964)

Adult Education--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).

Adult Learning--will be used synonymously with adult education.

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

Authoritative Sources--information resources for the generation of principles. These resources include recognized leaders in the field, books, articles, research reports, and unpublished dissertations.

Field of Adult Education--brings together into a definable social system all the individual institutions and associations concerned with the education of adults in the following areas:

a. improvement of methods and materials of adult education,

b. extension of opportunities for adult learning, and

c. advancement of the general level of culture (Knowles, 1962).

Practice--the action or process of performing or doing something.

Principles--accepted or professed rules of action or conduct.

Organization and Scope of the Study

Chapter I introduces the study, presenting the problem, objectives, assumptions, and definition of terms. Chapter II includes a review of literature focusing on the areas of 1) Adult Education and the Cooperative Extension Service, 2) the principles of adult learning, and 3) the design of the research instrument. Chapter III reports the procedures utilized in the study, including the development and validating of the survey instrument, the jury of expert 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.

The research study reported here was part of a group research effort involving five other researchers who conducted similar studies involving four other populations. The review of literature related to the nine basic principles of adult learning, the identification and validation of the nine principles and the development of the research instrument was a group effort. The review of the literature related to adult education and the Cooperative Extension Service and the actual survey and data analysis of perceived frequency of practice of the nine principles by county agricultural agents was done solely by this researcher.

CHAPTER II

REVIEW OF LITERATURE

The review of literature presented in this chapter is divided into three categories:

1. Adult Education and the Cooperative Extension Service,
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 the Cooperative Extension Service

Boone (1970) writing in the 1970 Handbook of Adult Education stated:

> The Cooperative Extension Service, often referred to as 'Agricultural Extension' is the world's largest, publicly supported, informal adult education and development organization. With over a century of recognized achievement, it is America's first (and only) national system of adult education (p. 265).

Houle praises the Cooperative Extension Service as the largest and most successful example of post-secondary adult education in the U.S. (Harrington, 1977). Kidd (1962), a Canadian, also has high praise for the Cooperative Extension Service. He identified it as: ". . . the outstanding agency of continuing adult education in the United States.

Nothing else in the free world compares with it in size and budget or in the number of people served" (p. 124).

The name "Cooperative Extension Service" was derived from a tripartite arrangement of cost-sharing by federal, state, and local units of government. The term "cooperative" is used to describe the special relationship between the Department of Agriculture and Land-Grant universities that evolved from the passage in 1914 of the Smith-Lever Act. The term "Extension" denotes the process of extending the education resources of the U. S. Department of Agriculture and Land-Grant universities to all citizens of the United States. The term "Service" has come to connate an educational role (Boone, 1970).

The distinquishing features of the Cooperative Extension Service are:

> Informal teaching that is designed to make knowledge relevant and help individuals, families, businesses, and communities to identify and solve their problems.
>
> The extensive use of lay advisory committees or councils to assist with planning, executing, and evaluating the educational program.
>
> The extension of its reach and effectiveness by working with (and through) new and existing organizations.
>
> The training of lay leaders.
>
> The support of different levels of government which as encouraged responsiveness to national, state, and local problems.
>
> The reciprocal relationship between services and research, which provides channels for new knowledge to flow to the people and allow human needs and problems to be transmitted to the scientists (Sanders et al., 1966, p. 33).

The Cooperative Extension Service consists of three levels of organization-federal, state and county. The federal level provides the national leadership for the organization and is located in the

Department of Agriculture. The state level provides leadership in developing and administering Extension Programs at the state level. The county level is the basic unit in the system and constitutes the level at which most programs are developed and delivered.

The effectivenesss of the Cooperative Extension Service as an adult education organization has been noted by many adult educators. Verner and Booth (1964), in their book Adult Education, stated:

> The effectiveness of the Extension Service in changing the character of rural life and agricultural productivity is nothing short of phenomenal, and provides an object lesson in the value of systematic education for adults. In addition to operating effective educational programs, the Cooperative Extension Service has contributed extensively through research to the development of the science of adult education. No other single facet of adult education enterprise can claim with equal justification to have educated so many adults so well (p. 16).

Sheets (1953) also had a high opinion of the effectiveness of the Cooperative Extension Service and its impact on adult education.

> In its quiet way the Cooperative Extension Service is one of the outstanding developments in Adult Education. It has demonstrated what can be done thorugh cooperative efforts in developing programs around the interests of families and drawing upon the resources of organized knowledge. It has demonstrated the power of the volunteer and the role of the trained worker. It has combined local, state, and federal contributions in an interesting illustration of a way of approaching the problem of balancing, centralizing and decentralizing forces . . . its evidence that social change toward established goals can be brought about by a program concentrated on the adult citizens of a community (p. 119).

Principles of Adult Learning

In order to determine the extent to which county staff members perceive themselves as implementing adult learning principles, one must first identify the principles. Through a comprehensive review of the literature and a validation process utilizing current experts in the

field, the research team identified nine basic principles of adult learning. The following review of literature provides a summary of the research support for each of the nine principles identified in this study.

Principle #1: Adults Maintain the Ability to Learn

For years there was a prevailing notion that education was for young people and that once a person reached the age of twenty, he was no longer able to learn. This notion began its downfall with the work of Thorndike in the 1920's. His classic study, first reported in 1928 and sometimes referred to as the foundation stone of adult education, revealed that the ability to learn does not end at age twenty. His research found that while the ability to learn does peak at about age 20 it declines only gradually after that age rather than ending abruptly (Thorndike, 1928). Thorndike concluded that "adults can learn rather easily and rapidly and probably would learn much more than they do" (p. 107). Thorndike's findings were supported by additional studies done by Jones and Conrad (1933) and Wechsler (1958) which also showed a peak in learning ability at about age 20 followed by a slow but gradual decline.

Other studies which followed the same adult over a period of time, found that adults actually improved on tests which measured conceptual thinking (Bagley and Odin, 1955; Terman and Odin, 1947; Owens, 1963). Studies by Welford (1951) found that while the performance of older adults was slower and more deliberate than younger individuals the decrease in speed was more than offset by gains in quality and accuracy.

Studies by Lorge (1958), a student of Thorndike, using timed and untimed tests, revealed that on tests conducted with a time limit there was a steady decline with age. However, on tests where time was not a factor, there was no significant decline associated with age. His conclusion was that while the speed of learning did decline gradually with age, the ability to learn did not.

More detailed and refined research on adult intelligence was conducted by Horn and Cattell (1966). Out of this work, Horn and Cattell developed a theory of fluid and crystallized intelligence which provides a basis for better understanding the shifts that occur in the adult's ability to learn various types of tasks.

Fluid intelligence includes the ability to form concepts, perceive complex relationships, and engage in short-term memory and abstract reasoning. It depends on heredity and the accumulation of injury to neural structures and is relatively independent of experience and education. It appears to determine how well individuals will perform in new situations in which they cannot react on the basis of previous experience in a highly similar situation.

Crystallized intelligence is the learned ability to make judgements, find relationships, and use strategies to achieve solutions to problems. This dimension is formed by formal education and active information seeking in which fluid intelligence is mixed with cultural knowledge (Horn and Cattell, 1966).

During childhood and early adolescence both fluid intelligence and crystallized intelligence increase. During late adolescence fluid intelligence tends to peak and then decline gradually during adulthood (Tuddenham, Blumenkrantz, and Wilkin, 1968; Fozard and Nuttat, 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 neurological loss which rarely occurs (Owens, 1953; Deppelt and Wallace, 1955).

In the areas of information recall and retention, studies have shown that these abilities are affected as age increases but not necessarily due to a decline in mental ability. If information is meaningful, the ability to retain and recall it is stable (Schonfield, 1969; Moenster, 1972; Clark and Knowles, 1973;). There is, however, a marked decline in retention with age when material is not meaningful (Wimer and Wigdon, 1958; Wimer, 1960; Hulicka and Rust, 1964). 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 materials.

> 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 they are 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).

The growing body of adult education research studies, provided a positive picture of the learning potential of adults throughout their lifetime. Major conclusions which can be reached by all these studies are as follows:

1. Intellectual abilities are not necessarily lost after early childhood--some may improved, some may remain stable and others may diminish.

2. For most persons the declines that occur in mental ability are not evident until the 40's or 50's.
3. Age patterns in intellectual ability may vary among and within individuals.

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

McClusky (1964) suggested that one of the most fruitful and pervasive concepts that may be employed to interpret the adult condition is that of differentation. He stated that as a person moves through the adult years, there is considerable diversification of abilities, skills, attitudes, and interests, within the individual. According to McClusky this concept has two important implications for adult education. First, it simply means that one is working with highly diverse individuals when working with adults; and second, in order to provide for the motivations, interests, skills and abilities of adults, programming must be largely a "tailor-made" affair. The example he gave is that one should not expect to discover many elements of general interest for large groups over an extensive period of time but rather should be prepared to organize learning experiences around smaller groups whose interest in learning is highly specific.

McBride (1977), agreeing with the diversity of adults, stated that there is no such thing as a non-developing adult. He felt that educators should approach continuing education with some knowledge of adult development, and that adults should be treated as people in the process of change rather than as "butterflies fully shaped at 21" (p.

180).

Adults are also diverse in their learning styles. Some adults are primarily visual learners, some are primarily auditory learners, and others are a combination of both. In addition, 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).

In response to the concept that adults are diverse in their learning styles, numerous studies have been conducted in an attempt to identify teaching techniques that are effective with adult learners. While the research does not show any one technique to be effective in all situations, there are indications that certain teaching techniques are more effective with certain types of learners and certain types of material. Johnstone (1965) reported adults of lower socio-economic status tended to prefer informal learning situations while older adults were more likely to prefer home study or private tutor methods than the formal classroom. Brunner (1959) reported that research studies with agricultural extension have shown that the adult of low education is less likely to attend meetings but rather tends to depend more on "personal interaction" for information.

There has also been considerable work done 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

skill by analyzing the way he or she encodes, processes and then decodes information (Nunnery, 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. Intelligence, in fact, has been described as "skill in a medium" (Olson, 1976). 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 et al. (1975, p. 4) and her 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." 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 (1980) found in working with adult basic education students that field independent adults did significantly better on the General Educational Development (GED) test than 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. Field dependent adults tend to see more of the whole picture and "be more global" in their

outlook. The field dependent person in this study was significantly more likely to drop out of basic education programs.

In his writings, Knowles (1970), provided insight regarding the impart of socio-economic factors on the adult learning environment:

> . . . one of the strong and much-researched presumptions among adult educators is that interests vary greatly according to socio-economic level and 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 socio-economic factors of adult learning. Johnstone and Rivera make the following generalizations:

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 then 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.

Kidd (1973) observed that many studies and observations have reported that older people are rigid and inflexible. McClusky (1964)

used the term "set" to denote this characteristic that is especially relevant for the understanding of the psychology of adult behavior. Kidd (1973) stated that views about politics, religion, morality, and duty may be held fixedly and are not subject to question or a review without displays of emotion. He goes on to say that anyone planning a program or curriculum involving older people must give this factor careful consideration. McClusky (1964) stated that the set of the learner must be known and respected. There must be adequate provisions for readying the learner for the learning situation, and ample opportunity for use of intervals in disengaging a learner from preceding tasks in preparation for later ones.

All these factors point to the conclusion that adults are very diversified in their learning styles and needs and that adults enter the learning environment with widely differing preferences, backgrounds and skills. The result is a strong need to make adult learning situations responsive to the individual needs of the adult learners involved.

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

As research accumulates, the age at which physiological aging needs to be a consideration in learning seems to be moving steadily upward (Cross, 1981). Adult education leaders, however, 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).

Since the body contains cells and capacity that are not essential for normal operation, the influence of biological aging on performance

is less than it would be if this excess capacity was not present (Timiras, 1972). Nevertheless, just as machinery loses some of its efficiency with age so does the human body and intellect (Bischof, 1969). Visual impairment, hearing loss, and decline in reaction time are the more common physical conditions having implications on adult learning.

Visual acuity is at is best somewhere between the middle teens and early twenties (Bischof, 1969). As the eye and nervous system age, the quality and amount of visual information received is reduced. Whitbourne and Weinstock (1979) identified a number of general conditions in the aging eye which should influence the planning of educational activities for adults. As the eye ages, it becomes clouded, creating a need for more light to ensure good vision. The lens of the eye also tends to yellow with age causing a filtering effect which makes blues and violets less distinct and intensifies the yellow, reds, and oranges. Also with aging, the eye may gradually lose its ability to adapt quickly to changes from light to dark or dark to light. There is also a tendency for the eye to be slower in changing focus from near to far or far to near.

Auditory acuity reaches its maximum peak generally between the ages of ten and fourteen years (Timeras, 1972). There is then a general decline until the fifties when the rate increases more rapidly. Women tend to have a greater decline in low frequency discrimination while men tend toward a greater decline in high frequency discrimination (Knox, 1977). Older adults also have more difficulty screening out interfering noises.

Many types of performance entails both reaction and movement time.

Knox (1977) described reaction time as the perception of the stimulus by the sense organ, transmission of the information to the brain, and selection of the response. The movement time or motor phase entails carrying out the response or action selected. The peak reaction time for a human being occurs at about age twenty followed by a gradual slowing during adulthood (Timeras, 1972). By age fifty it has returned to about the average level of age fifteen. The slowing of reaction time is generally greater than the slowing of movement time. Adults typically compensate for reduced speed by increased accuracy and attentiveness (Kidd 1973; Knox, 1977; Cross, 1981).

The effects of the gradual decline in physical and sensory capabilities which occur as an adult ages are important factors to consider in adult education programming. The present body of literature clearly indicates that visual impairment, hearing loss and decline in reaction time are the most common physical conditions which have implications on adult learning. An important point to keep in mind though is that these declines only represent general trends and are not necessarily characteristic of all adults.

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

Lindeman (1962), writing in The Meaning of Adult Education, identified experience as ". . . the resource of highest value in adult education" and credited it with being the ". . . adult learner's textbook". Knowles strongly agreed with Lindeman's philosophy regarding experience as a major resource in the learning situation. Knowles (1970) felt that an adult defines himself largely in terms of

his experiences. As a result the adult has a deep investment in the value of his experience and if he is placed in a situation where his experience cannot be used, or its worth is minimized, he is likely to feel rejected and unhappy (Knowles, 1970).

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, but instead is mixed with existing knowledge to bring a new perspective. He termed this concept "perspective transformation" and stated it is one of the most significant aspects of adult learning. He added ". . . we are caught in our own history and are reliving it . . . new experience is assimilated to—and transformed by—one's previous experience" (p. 101).

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 relating it to other stored information limits the ability to retrieve such information at a later date. It is important, therefore that learning be tied to past experiences and to expected future use in order for it to be retrieved and used without difficulty. The importance of facilitating this connection is futher supported by Knox (1977). He felt that a more positive approach to learning would result when a person better understands the connections between organized learning and personal experience.

The significance of experience and its different impact on the learning situation for adults as compared to children has three important consequences for learning according to Knowles (1970):

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

source 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 experience).

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

Numerous adult educators support the ideal of using individual experience as a major resource in group learning (Houle, 1964; Knowles, 1970; Knox, 1977). They maintain that adults can learn a great deal form 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). Lindeman (1926) noted that the core methodology of education is the analysis of experience.

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

An important psychological aspect of adults which is dealt with in the literature is the theory of self-concept. McClusky (1970) provided one view of the implications an individual's self-concept can have on the adult education process. He concluded 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 adults 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. The adult, therefore is conditioned to view himself as a non-learner. McClusky (1970) felt that this failure to

internalize the learner role as a central feature of self is a substantial restraint in the adult's realization of his learning potential. According to McClusky, if and when an adult thinks that studying, learning, and the intellectual adventure is as much a part of his life as his occupation or his family, he will be much more likely to achieve a higher level of intellectual performance.

In his Trainer's Guide to Andragogy, Ingalls (1972) provided a good discussion of the change in self-concept that normally occurs as an individual matures. He stated that the self-concept of the child is that of being a dependent person. As the child moves toward adulthood, however, he become increasingly aware of being able to make decisions for himself. This change from a self-concept of dependency to one of autonomy indicates, in Ingalls view, that a person has achieved psychological maturity or adulthood. Because of this, Ingalls noted, 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 or being judged or otherwise treated like children.

One of the four main assumptions of Knowles' (1978) andragogical theory is that as a person grows and matures, his self-concept moves increasing toward self-directness. Knowles explained this assumption and its implications as follows:

> Andragogy assumes that the point at which an individual achieves a self-concept of essential self-direction is the point at which he psychologically becomes an adult. A very critical thing happens when this occurs, the individual develops a deep psychological need to be perceived by others as being self-directing. Thus, when he finds himself in a situation in which he is not allowed to be self-directing, he experiences a tension between that situation and his self-concept. His reaction is bound to be tainted with resentment and resistance (p. 56).

Often there is another ingredient in the self-concept of adults that affect their learning role (Houle, 1964; Knowles, 1970; Cross, 1981). These authors addressed the implication a negative self-concept can have on the learning situation. This negative self-concept may result from a carry over from previous experiences with schooling that resulted in the adult preceiving he or she cannot learn. Knowles (1970) noted the implication of this situation to be as follows:

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

Knowles also suggested that a challenge for adult education, 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 self-concept for adult education, pointed out by Knowles (1970), is that even though adults may overcome the necessary barriers to enter the classroom, they may still expect to be treated like children. In fact, many times adult students will put pressure on their teachers to behave toward them in this manner. However, Knowles emphasized, ". . . once a teacher puts adult students into a dependent role . . . he is likely to experience a rising resistance and resentment" (p. 40).

In summary, it is clear that current thinking on self-concept as it relates to adult learning, centers on the philosophy that self-concept moves from a dependent to independent state as an individual matures and that one measure of adulthood is the ability to be self-directing.

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, revealed that 83% of the adults in the study identified some past or future change in their lives as a reason for them to learn. Some event in their career lives such as promotion, a new job, or a company relocation, triggered more than half to begin learning. Changes in family situations, such as divorce, increase in income, or moving to a new location, motivated 35% to learn, while 16% of the respondents said they were learning to cope with family transitions (Cross, 1978).

Havinghurst (1961) 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 skill. The term "teachable moments" is now used extensively in adult literature to indicate a point at which educational possibilities are very high.

The following writers also addressed the need for adult education to be life-centered. In his writings, Dewey (1966) stated:

> . . . 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, p. 25) stated: "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". He furthered stated that "education should be life itself, not a preparation for living" and that "learning should be directly related to the interests of the learner" (p. 48). Tough (1971, p. 51) stated ". . . the adult learns because he expects to use or apply the knowledge and skill directly in order to achieve something." In his reasearch 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 immediately in order to do something, produce something, or decide something.

In his book, The Adult-Learner: A Neglected Species, Knowles (1978) stated that as an individual matures, his readiness or desire to learn is decreasingly the product of his biological development and academic pressures and is increasingly the product of developmental tasks which are required for the performance of his evolving social roles. Adults are motivated to learn those things that they need to know because of developmental phases they are approaching in their roles as workers, spouses, parents, organizational members and leaders, leisure time users, etc. Knowles called this concept "readiness to learn" and felt that the critical implication of it is the importance of timing learning experiences to coincide with the learner's developmental tasks.

Ingalls (1972) provided additional insight into this concept. He stated that as an adult moves through life from early adulthood through middle age and into later maturity, he experiences many different "teachable moments" which result from the needs of his changing life

situations.

Another popular area of interest related to the adults life-centered orientation to learning are the studies concerning life stages and life crises. A number of researchers believe that adults pass through identifiable stages of development at specific ages resulting in some predictable patterns of educational needs.

Frenkel-Brunswick (1936) conducted one of the first studies on life phases. However, it is Erikson's theory of the eight stages of ego development (1963) 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, supported Erikson's theory that persons enter either-or identity situations at different stages of their lives.

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 similar to that of all other adults.

Another school of thought regarding adult development parallels the "stages" theories, but postulates 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,

1979, vi, Preface). 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. This school of thought 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" (cited in Whitbourne, 1979, p. 7). Differentation is defined as the process of refinement while integration is the process of synthesis. Erikson (1963) 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. Differentation is responsible for change in identity with integration providing overall consistency. Identity differentation is stimulated when there is a perceived discrepancy between one's experiences and one's identity.

In summary, the present body of literature indicated that the educational needs of adult learners are significantly influenced by changing life roles and situations; and that "teachable moments" are created by the need to gain knowledge to effectively deal with these changes. The literature also indicated that adult learners tend to have an expectation of immediate application of knowledge gained in the learning situation.

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

One of the most popular theories of motivation was 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 maintained 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.

The impact of this concept of man moving through a hierarchy of need motivation was 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, achieving a better self-understanding, and 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 his 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.

Cross (1981) discussed the lack of motivation of adults 55 and older for learning. 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), Lengrand (1971), and others agreed that group work can not exist when students are competing against each other. Cross (1981)added that while the 55 and older adult is the most under-represented of all subgroups in adult education activities, there has been considerable growth in this group 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.

Ingalls (1972) reinforced this concept in his Trainer's Guide to Andragogy. He 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 (1961) 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" (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 continous 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 (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.

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 little 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.

In summary, the literature identified a variety of motivating factors which influences the adults involvement in a learning situation. There does, however, appear to be general agreement that the lower order needs on Maslow's hierarchy are a greater motivating force until they are met than are the higher order needs.

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, 1962; Maslow, 1962; Bergevin, 1967;

Rogers, 1969; Knowles, 1970; Kidd, 1973; and others). For Lindeman (1962) 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) 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 of 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 acceptance of 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 believe in this ability. Thus, when teachers of adults view the locus of responsibility 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, addressed 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 n a productive way, to deal with conflict in the learning situation and share in the evaluation fo their learning experience. This we call active participation in the learning situation (p. 8).

Knowles (1970) 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).

The present body of literature on the role of the adult learner in the learning process clearly favors a high level of participation. It is felt that adult learning occurs best when the learner fully participates in identifying needs, setting goals, and evaluating progress and that the quality of learning is directly related to the quality of interaction between the instruction and the learner.

Principle #9: A Comfortable, Supportive Environment Is a Key to Successful Learning

A common thread running throughout adult education literature is the concept that adults <u>are</u> influenced by the environment in which they attempt to learn. Knowles (1970) states that modern adult

education theorist are placing increasing emphasis on the importance of building an educative environment in all institutions and organizations that attempt to help people learn. They believe an adult may possess all of the internal preconditions for learning, but may still fail because of conditions in the immediate learning situation over which they have no control. Adult leaders categorize these factors under various headings but they generally agree that the educative environment (some use the term climate) consists of the physical settings as well as the emotional atmosphere (Verner, 1959).

Of the literature reviewed, Knowles (1970) and Ingalls (1972) presented the strongest arguments regarding environmental factors and adult learning. Ingalls placed ". . . setting a climate for learning" as the first step in his seven step continuous development process for adult learners (p. 10). Knowles succinctly describes a supportive learning climate as being ". . . characterized by physical comfort, mutual respect, mutual helpfulness, freedom of expression, and acceptance of differences" (p. 52). 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. Thus, 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) states that care should be given to assure the physical cnditions are comfortable; such as seating, smoking, temperature, ventilation, lighting, and decorations. He also, suggests a seating arrangement conducive to interaction (i.e., no person sitting behind another person).

Knowles (1970) theorizes, 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 management of these two key variables in the learning process--environment and interaction--which together define the substance of the basic unit of learning (p. 51).

Often many adaptions need to be made in the environment for special needs, such as when there is low sound volume, poor acoustics, and background noise that interfer with hearing. Under such circumstances, a hearing aid may not help, and if the room is to be satisfactory for adults with hearing impairments, sound amplication 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).

Verner (1959), Houle (1961), Knowles (1970), Ingalls (1972), Knox (1977), and others support 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 behaviors 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" (Knowles, 1970, p. 7). This has particular meaning to adult students returning to a classroom for addititonal 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. In a positive classroom climate with the absence of threat where the teacher accepts each student as a person of worth, mutual trust may build.

Knowles (1970), Knox (1977), and Tough (1971) among others, discourage 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 interfer with the learning process itself. Evidence of such stress would probably not be found in learning climates characterized by mutual helpfulness. Knowles 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 judgementalness" (Knowles, 1970, p. 52).

Classroom climate is based on nonverbal as well as verbal communication. Mehrabian (1981), a noted psychologist, concludes that 93% of what we learn from the communication process is carried in verbal cues. Other estimates range from 55% 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 expressions that

support students, denote enjoyment, or praise. 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.

In summary, one of the most critical factors in adult learning is the general environment in which learning is expected to take place. Adults who view school as an unpleasant place because of past experience are especially sensitive to the atmosphere. The effective adult educator finds ways of helping students relax and feel a part of the group.

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, two 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" (Conti, 1979, 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 ommitted using this criteria, it usefulness to this study was limited.

Summary of Literature Review

It is apparent from the literature that the Cooperative Extension Service is viewed as a major adult education organization in the U. S. and that as such, extension workers are clearly, in the purest sense of the word, adult educators.

Furthermore, a review of the literature in the field of adult education reveals some unique principles of adult learning that need to be considered by teachers of adults. These principles are as follows:

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 tends 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.

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, and 2) to determine the extent professional staff members involved in the Agricultural programs of the Oklahoma Cooperative Extension Service perceived themselves as implementing these principles. This chapter outlines the methodology and procedures used in the four phases of the study which were: 1) identification and validation of the principles of adult education, 2) development of the data collection instrument, 3) collection of data, and 4) analysis of data.

Identification and Validation of Principles

The first phase of the study involved the identification and validation of the basic principles of adult learning that form the foundation of adult education. The identification and validation of these principles involved a comprehensive review of the literature and a two step valition process utilizing two separate juries of experts in the field of adult education.

The literature reviewed included textbooks, published reports of research, journal articles and unpublished doctoral dissertations. This review was conducted by a six member research team with each team

member reviewing literataure in one or more of the following areas of adult education: philosophical, psychological, social and socio-economic, cognitive, environmental, physical and methodological. Out of these reviews, each team member prepared a written report for the group summarizing his or her findings. In addition, each member compiled a list of the major principles of adult education which could be identified from the literature he or she received. The individual lists were then combined into a single list and through corporate efforts, the principles were grouped into categories and synthesized into concise statements. From this combined list, the team, through consensus, established a tentative list of eight principles with one or more short explanatory statements for each principle.

The tentative list of eight principles along with explanatory statements was then submitted to a jury of experts, hereafter referred to as Jury I, in the field of adult education. Jury I was asked to express agreement or disagreement concerning the importance of each principle as basic to the practice of adult education. A modified Likert scale, with values of 0 to 5 was used to measure this agreement or disagreement. Jury I was also asked to respond in writing with suggestions for modification of the eight principles to make them consistant with what they perceived were the basic theoretical foundations of adult education. For the purposes of this study only principles receiving a mean score of 3.75 or greater were considered to be among the valid principles underlying adult education. Appendix A contains a listing of Jury I along with a listing of the eight principles with supporting statements.

General agreement was expressed by Jury I that the eight

principles were indeed basic to the practice of adult education. In response to suggestions by Jury I, the research team refined the eight principles by making some minor modifications in wording and by adding some additional concepts to the explanatory material. Also in response to the Jury I's suggestion a ninth principle was added. The added principle (number 7), "Adults are Motivated to Learn by a Variety of Factors", focused on concepts which the team had previously included under Principle #2 and Principle #5. Jury I's suggestion, which the team concurred with, was that these concepts warranted separate emphasis.

A second jury (Jury II) consisting of adult education leaders with a high degree of visibility in the field of adult education, having geographical dispersion, and philosophical heterogeneity was utilized to validate the importance of each of the nine refined principles. Jury II was again asked to express agreement or disagreement concerning the importance of each of the refined principles as basic to the practice of adult education. A modified Likert scale, with values of 0 to 5, was used to measure this agreement or disagreement. Principles had to receive an average of 3.75 or more to be considered basic principles of adult learning. All nine principles received a value of 4.54 or higher from Jury II. See Appendix B for a list of the refined principles, the cover letter requesting assistance and the names of Jury II.

Development of the Questionnaire

The second phase of this study consisted of creating a data collection questionnaire. This process included field-testing,

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 resulting statements were incorporated into a data collection questionnaire designed to test the extent of application of the nine principles. The initial questionnaire consisted of 47 statements, four to six for each nine principles. Placement order in the questionnaire was achieved by a random drawing. Six statements were worded in such a manner so that the expressed concept was contrary to the identified adult learning principle. The research team deliberately included the negatively worded statements 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.

Respondents to the questionnaire were asked to indicate how often they practiced the activity described in each statement by checking one of five levels of frequency. The five levels were: 1) Always, 2) Frequently, 3)Sometimes, 4) Never, and 5) Not Applicable. A modified Likert Scale was used to apply numerical values to the ratings. Definition and range for each point on the scale were as follows:

"Not Applicable" (0 to .49) - does not apply to respondent.

"Never" (.50 to 1.49) - respondent does not practice this action.

"Sometimes" (1.50 to 2.49) - respondent practiced this action a few time in the past year.

"Frequently" (2.50 to 3.49) - respondent practices this action more than does not practice.

"Always" (3.50 to 4.00) - respondent consistently practices this action.

Five different field tests of the questionnaire were conducted using adult educators in Oklahoma and graduate students in adult education courses at Oklahoma State University as respondents. Following each field test, the team refined and revised the questionnaire to improve its readability and usefulness. The final questionnaire was reduced to 45 statements and is presented in Appendix C.

As was stated earlier the initial placement of the questionnaire statements under each principle was made by the research team. In order to validate these placements, a jury of experts (Jury III) were asked to assign a principle number to each statement. A strong degree of consensus by Jury III indicated the final placement of each statement. All but two statements received at least 70% agreement by Jury III for placement under specific principles. Statements 9 and statement 14 however, were approximately evenly divided between Principles #2 and #8 and Principles #1 and #2 respectively. In response to this, the research team elected to place statement 9 under both Principles #2 and #8 and statement 14 under both Principles #1 and #2. In the analysis of data, means for these statements were therefore counted under both principles. The following list contains the final placing of the statements under individual principles. The numbers in parentheses indicate the negatively worded statements:

Principle	Statements
1	14, (17), 22, (27), 30
2	9, 11, 14, (26), 31, 37
3	(10), (33), 36, 39, 40
4	1, 4, 19, 44
5	13, 21, 23, 25
6	3, 8, 15, 24, 28, 43
7	6,7, 20, 35, 42,
8	5, 9, 16, 18, 29, 34
9	2, 12, (32), 38, 41, 45

See Appendix D for the cover letter and questionnaire which was sent to the Jury III as well as a listing of their names and respective institutions.

Reliability

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

Questionnaire Adaption

Because the terminology for each population to be studied by the research team differed significantly, it was necessary to adapt the questionnaire to each field. Each team member changed only those terms inappropriate for their areas. 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 (i.e., instructor, teacher, trainer, facilitator), 3) the location of the eductional activity (i.e., classroom, setting, program), and 4) the educational activity (i.e.

course, activities, class, seminar, programs, workshop). Other than these modifications, the questionnaire statements remained identical for each population.

Collection of Data

The research team selected five different adult education fields in which to investigate the extent the established principles were practiced. The specific fields chosen were university extension, business and industry, hospital patient education, agricultural extension, and community junior colleges. Each team member selected a field according to his/her interest area, training, background, relation to their individual field of study and the degree to which adult learners were present in the field. The steps for collecting data involved identification of the population to study and the method for collecting data.

Selection of the Population

The research population for this study was composed of those individuals identified as having primary responsibility for adult programming at the county level with the agricultural program area of the Oklahoma Cooperative Extension Service. Those individuals were identified by job title from a current staff directory of the Oklahoma Cooperative Extension Service. This particular population was selected because of the researcher's specific interest in adult education in the Cooperative Extension Service and because of his current job responsibilities as a state specialist with the Agricultural program area of the Oklahoma Cooperative Extension Service. The research population was limited to county staff members because they have the

greatest responsibility for all phases of program development, implementation and evaluation of adult programming in the Oklahoma Cooperative Extension Service.

Data Collection Method

Permission to distribute the questionnaire constructed by the research team and modified by this researcher as previously described was obtained from the Associate Director of the Oklahoma Cooperative Extension Service. From a current staff directory, 82 county staff members were identified by job title as having primary responsibility for adult programs in the agricultural program area.

On January 10, 1982, questionnaires were mailed to the 82 county staff members with a suggested return date of January 22, 1982. Included with the questionnaire was a stamped self-addressed return envelope. The return envelopes were coded with a 3-digit number in order that the researcher could determine who had responded. Instructions to the staff members asked them to response to the questionnaire in relation to how often they practiced the action described in each statement. See Appendix E for a sample of the cover letter and questionnaire mailed to each staff member. A total of 60 questionnaires were returned by the first deadline.

On Janary 28, 1982, a second questionnaire was mailed to the 22 individuals from whom the researchers had not yet received a response. A self-addressed stamped envelope was included. This appeal resulted in 17 additional responses for a total of 77 returned and usable questionnaires. This represented a response rate of 94%. An analysis of the characteristics of the five non-respondents indicated that they

did not differ in any specific way from the respondents so the decision was made to discontinue efforts to collect additional questionnaires. Appendix E contains samples of correspondence which were sent out with the questionnaires.

Data Analysis

Of the 82 questionnaires mailed out, a total of 77 were returned. The data from the returned questionnaire was coded and entered on computer cards. Data analysis was done using a computer program entitled the Statistical Analysis System (SAS). Actual analysis consisted of computing mean values for each of the 45 questionnaire statements and for each of the nine principles. Mean values for each of the principles were computed by combining the mean values for the specific group of statements which were grouped under each principle as explained on page 45 of this chapter. Principle means were also computed for each of the demographic characteristics included in the demographic portion of the questionnaire.

CHAPTER IV

PRESENTATION OF FINDINGS

This chapter presents the findings of the research study which sought to indicate, in terms of means, the extent to which county agricultural agents perceived themselves as practicing the nine principles of adult learning which were identified in the study. This chapter is organized to present the mean values of the individual statements, the rank order of the principles, and a breakdown of the mean values for each principle by demographic variables. The following sections are presented in this chapter: 1) The mean values for individual statements, 2) the rank order of the nine principles, and 3) a breakdown of principle means by variables according to age, length of Extension work experience, length of related work experience, academic degree discipline and preparation for teaching adults.

The Mean Values of Individual Statements

The mean for each of the forty-five questionnaire statements was calculated as indicated in Chapter III. Table I presents the statement means. The means ranged from a low of 2.04 (statement 27) to a high of 3.74 (statement 38). The value of 2.04 for statement 27 indicated the perceived extent of practice as "sometimes", while the value of 3.74 for statement 38 indicated the perceived extent of practice as "always". (A description of the modified Likert scale used for assigning perceived

TABLE I

MEAN VALUES FOR INDIVIDUAL QUESTIONNAIRE STATEMENTS AND PRINCIPLES

Principle Mean		Principles of Adult Education	Statement Mean
2.54	1.	Adults maintain the ability to learn.	
	14	Participants are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.	2.46
	*(17)	Learning activities stress the participant's ability to learn based on memorization.	3.17
	22	Participants are presented with new concepts on a regular basis.	2.76
	(26)	A time limit is imposed when asking for recall of information and/or completion of tasks.	2.98
	30	Previously learned information is reviewed before new material is presented.	2.28
2.73	2.	Adults are a high diversifed group of individuals with widely differing preferences, needs, backgrounds, and skills.	
	9	Participants are encouraged to choose and use the most suitable means to accomplish their goals.	3.12
	11	Instructional objectives are adapted to match the individual abilities of the participants.	2.64
	14	Participants are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.	2.46
	(27)	The same material are used for all participants.	2.04

TABLE I (Continued)

Principle Mean		Principles of Adult Education	Statement Mean
	31	Cultural backgrounds of participants are considered when planning learning activities.	2.45
	37	Different instructional techniques are used depending on the material to be taught and the participant's needs.	3.13
3.15	3.	Adults Experience a gradual decline in physical/sensory capabilities.	
	(10)	The instructor uses subdued colors rather than sharp contrasts in visual aids.	2.82
	(33)	The instructor speaks rapidly when instructing adults.	3.37
	36	Extra time is allowed for the eyes of the participant's to adapt when visual information is presented.	2.93
	39	Adequate lighting is provided in the adult learning environment.	3.52
	40	The learning environment is adapted to the participant's physical needs.	3.09
2.90	4.	Experience of the learner is a major resource in the learning situation.	
	1	Participants are helped to relate new learning to their prior experiences.	2.94
	4	The many competencies that participant's possess are utilized to achieve educational objectives.	2.91
	19	Learning activities are planned to take into account the participant's experiences.	2.72
	44	Participants are encouraged to share their experiences with others in the group.	3.03

TABLE I (Continued)

Principle Mean		Principles of Adult Education	Statement Mean
2.64	5.	Self-concept tends to move from dependency to independency as an individual grows in responsibilities, experience and confidence.	
	13	Participants and instructors relate to each other as partners in learning.	2.89
	21	Participants are encouraged to see themselves as the best judges of what they are learning.	2.62
	23	Participants are encouraged to decide how well they are learning the material.	2.32
	25	Activities are planned that encourage independent learning.	2.66
3.06	6.	Adults tend to be life-centered in their orientation to learning.	
	3	Programs are presented which are relevant to the current problems and needs of the various clientele served.	3.61
	8	Participants are helped to identify problems that they need to solve.	2.97
	15	Subject matter is related to problems of everyday living.	3.09
	24	The instructor presents knowledge and techniques which the participants can apply immediately.	2.97
	28	Learning activities are organized according to real life experiences.	2.89
	43	The program is designed to help people cope with recent or expected changes in their lives.	2.81

TABLE I (Continued)

Principle Mean		Principles of Adult Education	Statement Mean
2.92	7.	Adults are motivated to learn by a variety of factors.	
	6	An attempt is made to utilize the factors that keep the participants participating in offerings.	3.21
	7	Programs are scheduled at locations that provide the greatest accessibility to as many people as possible.	3.40
	20	Resources for further learning are identified and/or presented.	2.75
	35	Programs are arranged to minimize conflicts with other activities in which the target audience may be involved.	3.07
	42	An attempt is made to determine what causes people to attend programs offered.	2.87
2.82	8.	Active learner participation in the instructional/learning process contributes to learning.	
	5	Participants are included in making decisions about the material that will be covered.	2.70
	9	Participants are encouraged to choose and use the most suitable means to accomplish their goals.	3.12
	16	Participants are helped to diagnose the gaps between their goals and their present level of performance.	2.42
	18	Methods that foster discussion and class interaction are used.	2.78
	29	Participants are encouraged to have input into the various types of program conducted.	3.21
	34	Participants are helped to develop short-range as well as long-range objectives.	2.59

TABLE I (Continued)

Principle Mean		Principles of Adult Education	Statement Mean
3.20	9.	A Comfortable supportative environment is a key to successful learning.	
	2	Errors are accepted as a natural part of the learning process.	2.96
	12	The meeting room is arranged so that it is easy for participants to interact.	3.05
	(32)	Competition among participants is encouraged.	3.24
	38	Questions or comments offered by participants are treated with importance and given a sincere response.	3.74
	41	A comfortable and supportive environment is provided.	3.23
	45	Informal counseling of participants is offered where needed.	2.97

*( ) Indicates negatively worded statements whose scores were reversed for analysis.

levels of practice is discussed in Chapter III, p. 43). Of the 45 statements, 3 (6.5%) had values indicating a perceived level of practice as "always", while 35 (78%) had values indicating the perceived level of practice as "frequently", and 7 (15.5%) had values indicating the perceived level of practice as being only "sometimes".

Rank Order of Principles

Once the statement means were calculated, the means for the nine principles were calculated by combining means from the individual statements and calculating a means of the means according to the following groups:

	Statements
Principle #1	14, 17, 22, 26, 30
Principle #2	9, 11, 14, 27, 31, 37
Principle #3	10, 33, 36, 39, 40
Principle #4	1, 4, 19, 44
Principle #5	13, 21, 23, 25
Principle #6	3, 8, 15, 24, 28, 43
Principle #7	6,7, 20, 35, 42,
Principle #8	5, 9, 16, 18, 29, 34
Principle #9	2, 12, 32, 38, 41, 45

Each principle was then ranked in order by mean from high to low. Table II presents the rankings of the nine principles. The means for the nine principles ranged from a high of 3.20 (Principle #9) to a low of 2.54 (Principle #1). The range of 2.54 to 3.20 indicated that the perceived level of practice for all nine principles was within the range of "frequently" as defined in Chapter III, p. 43.

Principle #9 ("A comfortable supportive environment is a key to successful learning"), ranked the highest with a value of 3.20. Principle #3 ("Adults experience a gradual decline in physical/sensory capabilities"), was ranked second with only a slightly lower mean value of 3.15. Principle #1 ("Adults Maintain the Ability to Learn"), ranked

TABLE II

RANK ORDER OF PRINCIPLES

Principle Number	Principle	Mean	Rank
9	A comfortable supportive environment is a key to successful learning.	3.20	1
3	Adults experience a gradual decline in physical/senory capabilities.	3.15	2
7	Adults are motivated to learn by a variety of factors.	3.06	3
6	Adults tend to be life centered in their orientation to learning.	3.06	
4	Experience of the learner is a major resource in the learning situation	2.90	4
8	Active learner participation in the instructional/learning process contributing to learning.	2.82	5
2	Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.	2.73	6
5	Self-concept tends to move from dependency to independency as an individual grows in responsibility, experience, and confidence.	2.64	7
1	Adults maintain the ability to learn.	2.54	8

the lowest with a mean value of 2.54, only just barely into the "frequently" value range of 2.50 to 3.49.

Mean Values For Each Principle By Age

The mean values for each principle were calculated for to the following age categories: (1) under 30, (2) 31-40, (3) 41-50, and (4) over 50. These mean values are presented in Table III. The respondents were almost evenly divided among the four age groups with 19 (24.5%) in the under 30 group, 22 (28.5%) in the 31-40 group, 18 (23.5%) in the 41-50 group, and 18 (23.5%) in the over 50 group.

The over 50 group scored the highest means on all but Principle #1 (ability to learn) where its score was second lowest. The 41-50 age group scored the lowest means on five of the nine principles and was second lowest on two others. With the exception of the under 30 age group on Principle #1 (ability to learn) with a mean value of 2.35 and the 41-50 age group on Principle #5 (self-concept) with a mean value of 2.46, all age groups scored values within the range of 2.50 to 3.49 which indicated that they perceived themselves as practicing the nine principles "frequently".

Mean Values for Each Principle
by Terminal Degree

Mean values for each principle were calculated according to the terminal degree held by the respondents at the time of the study. Of the 77 respondents in the study, 38 (49.35%) had a Bachelor's degree, 38 (49.35%) had both a Bachelor's and a Master's degree, and 1 (1.3%) had a Doctor's degree). Table IV presents the mean values for each

TABLE III

MEAN VALUES FOR EACH PRINCIPLE BY AGE

Principles	<30 n=19	31-40 n=22	41-50 n=18	>50 n=18
1. Ability to Learn	2.35	2.59	2.67	2.52
2. Diversity	2.59	2.77	2.71	2.84
3. Physical Change	3.09	3.17	3.06	3.30
4. Experience	2.85	2.84	2.82	3.11
5. Self-Concept	2.52	2.70	2.46	2.88
6. Life-Centered Orientation	3.07	3.04	3.03	3.13
7. Motivation	3.02	2.97	3.09	3.18
8. Active Participation	2.69	2.80	2.79	3.01
9. Supportive Environment	3.21	3.21	3.12	3.26

TABLE IV

MEAN VALUES FOR EACH PRINCIPLE BY TERMINAL DEGREE

Principle	B. S. Degree n=38	MS Degree n=38	PhD n=1
1. Ability to Learn	2.56	2.51	3.00
2. Diversity	2.72	2.74	2.75
3. Physical Change	3.15	3.18	2.60
4. Experience	2.83	2.96	3.25
5. Self-Concept	2.59	2.68	3.00
6. Life-Centered Orientation	3.00	3.12	3.00
7. Motivation	3.01	3.11	3.20
8. Active	2.79	2.85	2.83
9. Supportive Environment	3.19	3.20	3.40

principle by terminal degree category.

On all principles except Principle #1 (ability to learn) the Master's degree group scored higher than did the Bachelor's degree group. All scores for both groups, however, were within a range which indicated that the perceived level of practice of the nine principles was "frequently". From the observed data it appeared that while the individuals with a Master's degree did tend to score higher than did those with a Bachelor's degree, both groups indicated that they "frequently" practiced all nine principles. Because of the very small size of the group with a Doctor's degree (N=1) comparisons between this group and the other two groups were not appropriate.

Mean Values for Each Principle by
Bachelor's Degree Discipline

Mean values for each of the nine principles were calculated according to respondent's Bachelor's degree discipline. Table V presents the mean values for each of the nine principles by Bachelor's degree discipline. Of the 77 respondents 28 (36%) had a Bachelor's degree in Agricultural Education; 32 (42%) had a Bachelor's degree in Animal Science; 7 (9%) had a Bachelor's degree in Agronomy; 5 (6.5%) had a Bachelor's degree in Horticulture; and 5 (6.5%) had a Bachelor's degree in some other discipline. The five in the "others" category consisted of degrees in Forestry (N=1), Agricultural Economics (N=3), and Entomology (N=1).

The observed data for principle means by Bachelor's degree discipline showed very little variation between discipline groups. The greatest variation occurred on Principle #1 (ability to learn) with the

TABLE V

MEAN VALUES FOR EACH PRINCIPLE BY BACHELOR'S DEGREE DISCIPLINE

Principle	Ag. Ed. n=28	An. Sci. n=32	Agron. n=7	Hort. n=5	Others n=5
1. Ability to Learn	2.49	2.54	2.58	2.35	2.86
2. Diversity	2.79	2.67	2.88	2.83	2.71
3. Physical Change	3.18	3.15	3.12	3.00	3.28
4. Experience	2.89	2.90	2.89	2.89	2.90
5. Self-Concept	2.66	2.62	2.60	2.65	2.80
6. Life-Centered Orientation	3.11	3.04	3.02	3.12	2.99
7. Motivation	3.05	3.08	3.03	3.00	3.16
8. Active Participation	2.84	2.83	2.95	2.63	2.63
9. Supportive Environment	3.22	3.19	3.20	3.12	3.28

Horticulture group having the low mean value of 2.35 and the "others" group having a high mean value of 2.86. The least amount of variation occurred on Principle #4 (experience) where the three groups had mean values of 2.89 and the other two groups had mean values of 2.90. With the exception of the Agricultural Education and Horticulture groups, which had mean values of 2.49 and 2.35 respectively on Principle #1 (ability to learn), all groups had mean values for the nine principles within the range indicating that they perceived themselves as "frequently" practicing the principles.

Mean Values for Each Principle By
Master's Degree Discipline

Of the 77 respondents in this study, 39 (50.5%) had a Master's degree. The six categories used for comparing the mean values for each principle by Master's degree discipline were:

Agricultural Education	N = 10 (25.5%)
Animal Science	N = 3 (7.75%)
Rural Adult Education	N = 17 (43.5%)
Horticulture	N = 3 (7.75%)
Education	N = 3 (7.75%)
Others	N = 3 (7.75%).

The "others" category included one Master's degree each in Entomology, Agricultural Economics and Agronomy. Table VI presents the mean values for each principle by Master's degree discipline.

The observed data indicated some variation among groups on several of the principles. For Principle #1 (ability to learn) respondents with Master's degrees in Agricultural Education, Horticulture and

TABLE VI

MEAN VALUES FOR EACH PRINCIPLE BY MASTER'S DEGREE DISCIPLINE

Principle	Ag Ed n=10	An Sci n=3	RAE n=17	Hort n=3	Educ n=3	Others n=3
1. Ability to Learn	2.47	2.58	2.55	2.20	2.33	2.83
2. Diversity	2.52	2.86	2.83	2.89	3.08	2.35
3. Physical Change	3.09	3.36	3.24	3.00	3.10	2.93
4. Experience	2.90	3.17	3.01	3.20	2.83	2.67
5. Self-Concept	2.56	3.09	2.73	2.80	2.73	2.33
6. Life-Centered Orientation	3.20	3.18	3.12	3.27	3.28	2.56
7. Motivation	3.13	3.33	3.12	3.13	3.27	2.60
8. Active Participation	2.79	2.94	2.97	2.80	2.81	2.57
9. Supportive Environment	3.27	3.06	3.24	3.29	3.06	3.13

Education indicated that they perceived themselves as only practicing this principle "sometimes". The other three degree groups indicated that they perceived themselves as practicing this principle "frequently". For Principle #2 (diversity) and Principle #5 (self-concept), the "others" group indicated that they perceive themselves as only "sometimes" practicing these principles while the other five groups indicated "frequent" perceived practice. Because of the small size (N=3) of four of these groups this data should be used with caution and more research should be conducted for the Master's degree discipline variable.

Mean Values for Each Principle By
Terminal Degree Discipline

The terminal degree as used in this study is the highest degree held by the respondent at the time of the study. The discipline categories used for this comparison were as follows:

Agricultural Education	N = 22 (28.5%)
Animal Science	N = 22 (28.5%)
Rural Adult Education	N = 17 (22.0%)
Agronomy	N = 3 (4%)
Horticulture	N = 5 (6.5%)
Education	N = 3 (4%)
Others	N = 5 (6.5%)

The "others" category included one degree each in Forestry, Adult Education, and Entomology and two degrees in Agricultural Economics. The mean value for each principle by terminal degree discipline is presented in Table VII.

TABLE VII

MEAN VALUES FOR EACH PRINCIPLE BY TERMINAL DEGREE DISCIPLINE

Principle	Ag Ed n=22	An Sci n=22	RAE n=17	Agron n=3	Hort n=5	Educ n=3	Others n=5
1. Ability to Learn	2.45	2.58	2.55	2.45	2.35	2.33	2.95
2. Diversity	2.67	2.72	2.83	2.40	2.83	3.08	2.60
3. Physical Change	3.17	3.16	3.24	2.87	3.00	3.10	3.12
4. Experience	2.82	2.93	3.01	2.92	2.89	2.83	2.75
5. Self-Concept	2.63	2.64	2.73	2.25	2.65	2.73	2.60
6. Life-Orientation	3.13	3.02	3.12	2.67	3.00	3.27	3.00
7. Motivation	3.06	3.07	3.12	2.67	3.00	3.27	3.00
8. Active Participation	2.83	2.80	2.97	2.71	2.63	2.81	2.53
9. Supportive Environment	3.23	3.21	3.24	3.00	3.12	3.06	3.18

Respondents with a terminal degree in Agronomy scored the lowest mean values on six of the nine principles while those with a terminal degree in Rural Adult Education scored the highest on five of the nine principles. For Principle #1 (ability to learn) four of the categories (Agricultural Education, Agronomy, Horticulture, and Education) indicated that they perceived themselves as only "sometimes" practicing this principle. The other three categories (Animal Science, Rural Adult Education, and "others") had mean values which indicated "frequent" perceived practice. For Principle #2 (diversity) and Principle #5 (self-concept) those respondents with a terminal degree in Agronomy indicated they perceived themselves as only practicing these principles "sometimes".

Because of the relatively small size of four of the categories ($N \leq 5$) these data and comparisons should be used with caution. Further research should be conducted for the terminal degree discipline variable to more clearly determine its influence.

Mean Values for Each Principle By Years
of Extension Work Experience

The mean values for each principle were calculated for the following categories of years of Extension work experience and are presented in Table VIII:

0 - 5	N = 27 (35%)
6 - 10	N = 9 (11.5%)
11 - 15	N = 8 (10.5%)
16 - 20	N = 5 (6.5%)
21+	N = 28 (36.5%)

TABLE VIII

MEAN VALUES FOR EACH PRINCIPLE BY YEARS OF EXTENSION WORK EXPERIENCE

Principle	0-5 n=27	6-10 n=9	11-15 n=8	16-20 n=5	21+ 28
1. Ability to Learn	2.47	2.69	2.52	2.38	2.57
2. Diversity	2.66	2.78	2.76	2.74	2.77
3. Physical Change	3.17	3.07	3.11	2.95	3.21
4. Experience	2.86	3.00	2.66	2.74	3.01
5. Self-Concept	2.57	2.69	2.48	2.86	2.70
6. Life Centered Orientation	3.03	3.17	3.06	3.20	3.04
7. Motivation	3.00	3.16	2.90	3.05	3.13
8. Active Participation	2.73	2.94	2.68	2.75	2.91
9. Supportive Environment	3.20	3.31	3.25	3.00	3.18

For Principle #1 (ability to learn), the 0-5 group and the 16-20 group had mean values which indicated that they perceived themselves as only practicing this principle "sometimes". The other three groups indicated a perceived level of practice as "frequently". For Principle #5 (self-concept) all groups except the 11-15 group had mean values within the "frequent" range. The 11-15 group had a mean value within the "sometimes" range. On all other principles the groups had mean values within the "frequent" range of perceived practice.

Mean Values for Each Principle By Years
Of Related Work Experience

For the variable, years of the related work experience, the categories were: 0-2 years [N=58 (75%)]; 3-5 years [N=11 (14%)]; and 6 years and over [N=8 (11%)]. Mean values for each principle were calculated for each of these three categories and are presented in Table IX.

All categories had mean values which indicated that the respondents "frequently" practiced all nine principles. The 6 and over category had the highest mean values on seven of the nine principles and had the second highest value on Principle #9. It did, however, have the lowest mean value on Principle #5. The 0-2 year category had the lowest mean values on six of the nine principles and had the second lowest mean value on the other three. From the observed data it appeared that additional years of related work experience tended to increase the likelihood that a respondent would perceive himself as practicing the nine principles more frequently.

TABLE IX

MEAN VALUES FOR EACH PRINCIPLE BY YEARS OF RELATED WORK EXPERIENCE

Principle	0-2 n=58	f-5 n=11	6 and over n=8
1. Ability to Learn	2.51	2.61	2.67
2. Diversity	2.67	2.95	2.96
3. Physical Change	3.16	3.00	3.30
4. Experience	2.88	2.90	3.06
5. Self-Concept	2.63	2.74	2.58
6. Life Centered Orientation	3.03	3.05	3.32
7. Motivation	3.07	3.05	3.20
8. Active Participation	2.79	2.87	2.96
9. Supportive Environment	3.18	3.27	3.25

Mean Values for Each Principle By Preparation For Teaching Adult Learners

Table X presents the means for each principle in relation to preparation for teaching adult learners. All respondents had participated in one or more categories with the greatest numbers indicating participation in workshops (N=73), in-service training (N=75) and conferences (N=73). Sixty-two (62) indicated they had taken course work which prepared them for teaching adult learners while 36 indicated they had been in a formal degree program which prepared them for teaching adult learners.

The observed data presented in Table X indicates there is little variation among the various catagories in terms of their mean value of perceived practice. All categories indicated that they perceived themselves as "frequently" practicing all nine principles and the mean values for each principle by catagory closely approximates the overall principle means which were presented in Table II.

TABLE X

MEAN VALUES FOR EACH PRINCIPLE BY PREPARATION FOR TEACHING ADULT LEARNERS

Principle	Workshops n=73	In-Service Training n=75	Conf n=73	Courses n=62	Formal Degree n=36
1. Ability to Learn	2.54	2.54	2.54	2.55	2.55
2. Diversity	2.74	2.73	2.76	2.75	2.80
3. Physical Change	3.16	3.15	3.16	3.16	3.20
4. Experience	2.88	2.89	2.90	2.93	2.96
5. Self-Concept	2.63	2.62	2.65	2.71	2.71
6. Life Centered Orientation	3.05	3.05	3.07	3.11	3.18
7. Motivation	3.06	3.05	3.06	3.11	3.13
8. Active Participation	2.81	2.81	2.82	2.88	2.92
9. Supportive Environment	3.19	3.19	3.20	3.20	3.25

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Discussion in this chapter is presented in three parts. The first section presents a summary of the study. The researcher's conclusion are presented next, and recommendations for research and practice are discussed in the last section of the chapter.

Summary

The purposes of this study were to: 1) identify the basic principles of adult learning that provide the foundation for adult education, and 2) determine the extent county level professional staff members involved in the Agricultural Program area of the Oklahoma Cooperative Extension Service perceived themselves as practicing these principles.

Through a comprehensive literature review, a research team of six individuals identified nine principles of adult learning. These principles were validated and refined in a two step process by two separate juries 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 reliabilty and then adapted for the five different populations to be 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 those individuals identifed as having primary responsibility for adult programming at the county level with the agricultural program area of the Oklahoma Cooperative Extension Service. Out of 82 questionnaires sent out, 77 were returned representing 94% of the survey population. From the data collected, descriptive statistics, including means, were computed to indicate the extent to which the respondents perceived that they practice each of the nine principles. Mean values were calculated for each of the questionnaire statements and then the appropriate groups of statement means were combined to calculate principle means. The principles were then rank ordered by means, and the mean values for each principle were examined in terms of the following variables: age, academic degree, Bachelor's degree discipline, Master's degree discipline, terminal degree discipline, years of extension work experience, years of related work experience, and preparation for teaching adults. The study was based on observed data, and no statistical tests were utilized.

The major findings of this study can be summarized as follows:

1. Nine basic principles of adult learning were identified.
2. County extension staff in the agricultural program area of the Oklahoma Cooperative Extension Service perceived themselves as "frequently" practicing all nine principles.
3. The over 50 age group perceived themselves as practicing the principles to a somewhat greater extent than did the other age groups.
4. Individuals with Master's degrees tended to perceive

themselves as practicing the principles to a somewhat greater extent than did individuals with only a Bachelor's degree.

5. There was very little variation between Bachelor's degree discipline groups in terms of how they perceived themselves practicing the principles.
6. While there was some variations on individual principles between Master's degree disciplines, the overall comparison indicated no clear cut categories which practiced the principle either to a greater or lessor extent.
7. Individuals with a terminal degree in Agronomy tended to perceive themselves as practicing most of the principles to a lesser extent than other terminal degree discipline groups. Individuals with terminal degrees in Rural Adult Education tended to perceive themselves as practicing most of the principles to a somewhat greater extent than other discipline groups.
8. The observed data showed no apparent relationship between years of Extension work experience and the extent to which an individual perceived himself implementing the principles.
9. Additional years of related work experience tended to increase the extent to which an individual perceived himself as practicing the nine principles.
10. The observed data showed little variation between the various categories of preparation for adult learning. This can be most likely attributed in to the fact a large percentage of all respondents participated in all categories except the formal degree program.

Conclusions

The conclusions from the study are as follows:

1. This study effectively identified nine basic principles of adult learning.
2. The developed questionnaire is a potentially effective tool for analyzing adult education practices in the Cooperative Extension Service setting. It's primary value is in the exploration of the application of the nine principles identified in the study.
3. The study demonstrated that county agricultural staff in the Oklahoma Cooperative Extension Service perceived themselves as "frequently" practicing all the principles of adult learning identified in the study.
4. The study also demonstrated that the individual's perception of the extent of practice of specific principles may vary according to age, academic degree, degree discipline and years of work experience.

Recommendations

Based upon this study the following recommendations are made for further research and practice:

1. Further research on the principles should be conducted to identify significant differences that may exist among the variables presented in this study in order that inferences may be made to other populations.
2. The present study dealt with the perceived practice of the principles by the county agricultural staff. Future research

should concentrate on measuring the actual practice of the principles in the learning environment by the use of appropriate observational techniques.

3. This study should be extended to additional extension program areas and/or to other states.
4. The questionnaire should be used again with other populations to further measure the perceived practice of the nine principles of adult learning.
5. The results of this study should be examined for their use in developing preservice and inservice education programs for extension workers.
6. This study should be correlated to the other studies conducted by the research team.
7. Further research is needed with a larger population to determine the extent of uses of these principles according to degree disciplines.
8. Additional studies are needed to determine the effect length of extension work experience has on the perceived practice of these principles.
9. Additional research is needed to determine the effect that different kinds of preparation for teaching the adult learner can have on the extent of actual practice of the principles of adult learning.

BIBLIOGRAPHY

Bayley, Nancy and Melita H. Odin. "The Maintenance of Intellectual Ability in Gifted Adults". Journal of Gerontology, Vol. 10 (January 1955), pp. 91-107.

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

Bergevin, Paul and John McKinley. Participation Training for Adult Education. St. Louis: Bethany Press, 1965.

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

Boone, Edgar. "The Cooperative Extension Service". Handbook of Adult Education. Edited by Robert Smith, George F. Ader and J. R. Kidd. New York: MacMillan Company, 1970.

Brunner, Edmond et al. An Overview of Adult Education Research. Chicago: Adult Education Association, 1959.

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

Conti, Gary J. "Principles of Adult Scale". (Paper presented at the Twentieth Annual Adult Education Research Conference, Ann Arbor, Michigan, April, 1979). Ann Arbor, Michigan: University of Michigan, 1979.

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

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

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

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

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.

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

Forzard, J. L. and R. L. Nuttat. "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.

Gould, Samuel B. "Prospects for Non-Traditional Study". Exploraton in Non-Traditional Studies. Edited by Samuel B. Bould and K. Patricia Cross. San Francisco: Jossey-Bass, Inc., 1972.

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

Harrington, Fred Harvey. The Future of Adult Education. San Francisco: Jassey-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.

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

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. 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. The Design of Education. San Francisco: Jassey-Bass, Inc., Publishers, 1972.

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

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. Waltman, MA: Data Education, Inc., 1972.

Jensen, Gale, A. A. Liverright, 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: Association Press, 1973.

Kidd, J. R. Financing Continuing Education. New York: Scarecrow Press, 1962.

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

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

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

Knowles, Malcolm. "What Does Graduate Study in Adult Education Offer". Extension Service Review, Vol. 34, Number 17 (January, 1963), pp. 5-6.

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

Lindeman, Edward C. The Meaning of Adult Education. Montreal: Harvest House Ltd., 1962.

Lengrand, Paul. An Introduction to Lifelong Education. New York: UNESCO Publication, 1971.

Lorge, Irving. "Capabilities of Older Adults". Education for Later Maturity. Edited by Wilma Donahue. New York: Whiteside and William Morrow and Company, Inc., 1955.

Maslow, Abraham H. Toward a Psychology of Being. Princeton, New Jersey: Van Nostrand, 1962.

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. "An Approach to Differential Psychology of the Adult Potential". Adult Learning Instruction. Washington: Adult Education Association of the U. S. A., 1970.

McClusky, Howard Y. "The Relevance of Psychology for Adult Education". Adult Education--Outlines of an Emerging field of University Study. Edited by Gale Jensen, et al. Washington: Adult Education Association of the U. S. A., 1964.

Mehrabrian, 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.

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

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.

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

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

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

Peterson, R. E. et al. Lifelong Learning in America: An Overview of Current Practices, Available Resources, and Future Prospects. San Francisco: Jossey-Bass Publishers, 1979.

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. Merriel Publishing Company, 1969.

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

Sanders, H. C. et al. eds. The Cooperative Extension Service. Englewood Cliffs, NJ: Prentice Hall, 1966.

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

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

Sheets, Paul H. et al. Adult Education: The Community Approach. New York: The Dryden Press, Inc., 1953.

Terman, L. M. and M. H. Odin. The Gifted Child Grows Up. Stanford, CA: Stanford University Press, 1947.

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

Timiras, P. S. Developmental Physicology and Aging. New York: The MacMillan Company, 1972.

Tough, Allen. The Adult's Learning Projects. Toronto, Contario: 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.

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

Verner, Coolie. "Definition of Terms". Adult Education: Outline of an Emerging Field of University Study. Edited by Gale Jensen, et al. Washington, D.C.: Adult Education Association of the U. S. A., 1964.

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

Welford, A. T. Aging and Human Skill. London: Oxford Press, 1958.

Werner, H. Comparative Psychology of Mental Development. New York: International Unversities 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.

APPENDICES

APPENDIX A

PRELIMINARY STATEMENTS OF PRINCIPLES AND JURY I

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 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 experiences 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 supportative environment is a key to a successful learning experience.

   a. Physical conditions such as seating arrangements, room temperature, ventilation, 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.

Jury I

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 B

REFINED PRINCIPLES AND JURY II

(COVER LETTER)

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. Physical conditions such as seating arrangements, room temperature, ventilation, and lighting influence learning.

JURY II

1.	Dr. Art Burrichter	Professor of Adult Ed., Florida Atlantic University
2.	Dr. Mary Grefe	President, American Association of University Women/Post
3.	Dr. Roger Heimstra	Professor of Adult Ed., Syracuse University
4.	Dr. Carol Kasworm	Assistant Professor Adult Education University of Texas
5.	Dr. Chester Kelvins	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 Resource for Educators of Adults Syracuse 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

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 various 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 cycel factors in Adult Learning

e. Physiological/Environmental methodology for Adults

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

APPENDIX C

FINAL QUESTIONNAIRE

DIRECTIONS: The following questionnaire contains numerous statements about teaching/learning activities for adults. For each statement please indicate how often you practice the actior described in the item. If the statement does not apply to you, please check the space labeled N/A (not applicable).

PLEASE CHECK APPROPRIATE RESPONSE	N/A	NEVER	SOMETIMES	FREQUENTLY	ALWAYS
1. Participants 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. The many competencies that the participants possess are utilized to achieve educational objectives.	()	()	()	()	()
5. Participants are included in making decisions about the material that will be covered.	()	()	()	()	()
6. An attempt is made to utilize the factors that keep people participating in program offerings.	()	()	()	()	()
7. Programs are scheduled at locations that provide the greatest accessibility to as many people as possible.	()	()	()	()	()
8. Participants are helped to identify problems that they need to solve.	()	()	()	()	()
9. Participants 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 participants.	()	()	()	()	()
12. The meeting room is arranged so that it is easy for participants to interact.	()	()	()	()	()
13. Participants and instructors relate to each other as partners in learning.	()	()	()	()	()
14. Participants are allowed to work at their own rate regardless of the amount of time it takes them to learn a new concept.	()	()	()	()	()
15. Program content is related to problems of everyday living.	()	()	()	()	()

	N/A	NEVER	SOMETIMES	FREQUENTLY	ALWAYS
16. Participants are helped to diagnose the gaps between their goals and their present level of performance.	()	()	()	()	()
17. Learning activities stress the participant's ability to learn based on memorization.	()	()	()	()	()
18. Methods that foster discussion and interaction among program participants are used.	()	()	()	()	()
19. Learning activities are planned to take into account the participant's prior experience.	()	()	()	()	()
20. Resources for further learning are identified and/or presented.	()	()	()	()	()
21. Participants are encouraged to see themselves as the best judges of what they are learning.	()	()	()	()	()
22. Participants are presented with new concepts on a regular basis.	()	()	()	()	()
23. Participants are encouraged to decide how well they are learning the material.	()	()	()	()	()
24. The instructor presents knowledge and techniques which the participant can apply immediately.	()	()	()	()	()
25. Activities are planned that encourage independent learning.	()	()	()	()	()
26. A time limit is imposed when asking for recall of information and/or completion of tasks.	()	()	()	()	()
27. The same materials are used for all participants.	()	()	()	()	()
28. Learning activities are organized according to real live experiences.	()	()	()	()	()
29. Participants are encouraged to have input into the various types of programs conducted.	()	()	()	()	()
30. Previously learned information is reviewed before new material is presented.	()	()	()	()	()
31. Cultural backgrounds of participants are considered when planning learning activities.	()	()	()	()	()
32. Competition among participants is encouraged.	()	()	()	()	()
33. The instructor speaks rapidly when instructing adults.	()	()	()	()	()
34. Participants are helped to develop short-range as well as long-range objectives.	()	()	()	()	()
35. Programs are arranged to minimize conflicts with other activities in which the target audience may be involved.	()	()	()	()	()

	N/A	NEVER	SOMETIMES	FREQUENTLY	ALWAYS
36. Extra time is allowed for the eyes of the participant to adapt when visual information is presented.	()	()	()	()	()
37. Different instructional techniques are used depending on the material to be taught and the participant's needs.	()	()	()	()	()
38. Questions or comments offered by participants 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 participant's physical needs.	()	()	()	()	()
41. A comfortable and supportive environment is provided.	()	()	()	()	()
42. An attempt is made to determine what causes people to attend programs offered.	()	()	()	()	()
43. The program is designed to help people cope with recent or expected changes in their lives.	()	()	()	()	()
44. Participants are encouraged to share their experiences with others in the group.	()	()	()	()	()
45. Informal counseling of participants is offered where needed.	()	()	()	()	()

COMMENTS:

PLEASE PROVIDE THE FOLLOWING INFORMATION:

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

(2) Sex: M () F ()

(3) Education Background:

	Degree	Area of Specialization
1.	_____	_____
2.	_____	_____
3.	_____	_____

(4) Years of experience in Cooperative Extension Work: _____

(5) Years of related experience (i.e. vocational agriculture, public school teaching, etc.): _____

(6) Have you participated in any of the following which helped prepare you for teaching adults:

Workshops _____

In-Service Training _____

Conferences _____

Courses _____

Formal Degree Program _____

APPENDIX D

PLACEMENT OF QUESTIONNAIRE STATEMENTS

UNDER PRINCIPLES AND JURY III

PRINCIPLES OF ADULT LEARNING

Please categorize each of the folloowing questins into one of the nine principles of Adult Learning listed on the separate page. These principes have been identified from a exhaustive and comprehensive review of the literature. Mark the number of one one principles at the left of each of the 45 questions. The questions will be usedin differrent adult learning settings, so assume the instructor/student nonenclature 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 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 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 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 students' prior experiences.

____20. Resources for further learning are indentified 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 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 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 providedin 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 groups.

____45. Informal counseling of students is offered where needed.

COMMENTS:

JURY III

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
Associte 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 E

CORRESPONDENCE TO COUNTY EXTENSION STAFF

December 30, 1981

Extension Ag Engineering
Room 216 Ag Hall
Phone: 405/624-5427

Dear Co-Worker:

I am presently involved in a study with several other researchers in which we are attempting to measure the level of perceived practice of a number of educational concepts related to helping adults learn. As you know, our county agricultural program is one of the largest and most extensive informal adult education systems in the state, and I need your assistance in obtaining information related to this program.

The attached questionnaire is designed to take as little of your time as possible and still obtain an indication of the level at which you practice the different activities. The questionnaire was designed to be used with four other organizations besides Cooperative Extension, so if some of the items don't apply to you, so indicate. The information collected will be kept confidential and at no time will you be identified in the data reported.

Your prompt attention to this matter will be greatly appreciated. If possible, I would appreciate your response by January 22, 1982. For your convenience, please return the questionnaire in the self-addressed, stamped envelope. Thank you for your assistance.

Sincerely,

Joe Gerling

Joseph F. Gerling
Extension Safety Specialist

JFG/djt

Enclosure

January 28, 1982

Extension Ag Engineering
Rm 216 Ag Hall
Phone: 405-624-5427

Dear Co-worker:

A couple of weeks ago you received a questionnaire from me concerning the practice of educational activities related to helping adults learn. If you have not completed the questionnaire, would you please take a few minutes from your busy schedule to complete and return it? In case you have missplaced the first questionnaire, I have enclosed another, along with a stamped self-addressed envelope for your convenience.

If you have already mailed the questionnaire, please accept my sincere appreciation for your prompt response. If I can be of any assistance to you now or in the future, please let me know.

Thank you for your cooperation and time in this matter.

Sincerely,

Joseph F. Gerling
Extension Safety Specialist

JFG/jeh

Enclosure

VITA

Joseph F. Gerling

Candidate for the Degree of

Doctor of Education

Thesis: OKLAHOMA COOPERATIVE EXTENSION SERVICE AGRICULTURAL AGENT'S PERCEPTIONS OF FREQUENCY OF PRACTICE OF ADULT EDUCATION PRINCIPLES

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Lockport, New York, June 14, 1950, the son of Francis J. Gerling and Alice May Gerling; Married Kristen Ann York, June 17, 1972; two children--Shelly York Gerling and Andrew York Gerling.

Education: Graduated from Newfane High School, Newfane, New York, in June, 1968; Received a Bachelor of Science degree in Agricultural Technology from Cornell Unviersity in 1973; received a Master's of Professional Studies degree in Agricultural Technology from Cornell University in 1976; completed requirements for the Doctor of Education Degree at Oklahoma State University in May, 1982.

Professional Experience: Assistant Professor/Extension Safety Specialist, Department of Agricultural Engineering, Oklahoma State University, 1976 - 1982; Technical Aide, Department of Agricultural Engineering, Cornell University 1972 - 1975; Draftsman, McIntosh and McIntosh, Land Surveyors, Lockport, NY 1970 - 1972.

Professional Organizations: American Society of Agricultural Engineers; National Institute for Farm Safety; Alpha Zeta National Agricultural Honorary.