



Learning strategies preferred by older individuals  
by Helen Magdalene Quarles

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University

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Abstract:

The population of the United States is aging and individuals struggle with the consequences of aging on a daily basis. The purpose of this study was to describe the relationship that the level of independent living, demographic characteristics, and present activities have on an older individual's choice of learning strategies for real-life situations in Great Falls, Montana.

Levels of independent living were identified as self-reliant living in the community; residing in senior or retirement housing, and living in assisted living centers. Ninety-eight individuals older than 65 years of age were interviewed and administered the Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS). Multivariant techniques of discriminative and cluster analysis were used for quantitative analysis. Reflective use of interview data enlivened description of the clusters.

Discriminant analysis discovered no significant relationship between preferences for learning strategies and groups of older individuals when categorized according to gender, age, marital status, or level of independent living. Cluster analysis identified three groupings of older individuals based on learning strategy preferences. The clusters were named Strategists, Resource Users, and Pleasure Seekers based on results of the analysis of variance.

The major conclusions of the study were learning strategies are not a useful tool for discriminating among levels of independent living nor demographic groupings according to age, gender, or marital status, and in Great Falls, Montana, distinct groups of older learners exist in independent living according to their use of learning strategies. Recommendations for theory focuses the need to identify or expand adult education theories in regard to developing learning strategies to meet specific needs of older individuals. For practice, recommendations included specific approaches oriented to the older individual's learning needs, aiding adjustment to the increased abundance of knowledge, and learning beneficial uses of new technologies. It was recommended that research connected with programming and methods to maintain the older individuals' maximum level of cognitive functioning be explored.

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MONTANA STATE UNIVERSITY  
Bozeman, Montana

April 1998

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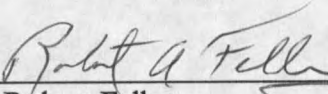
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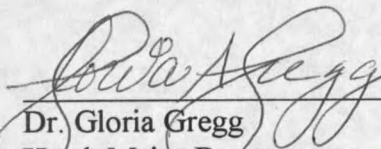
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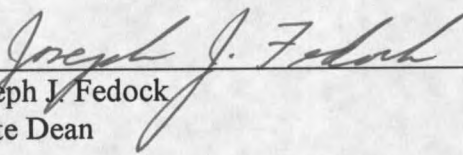
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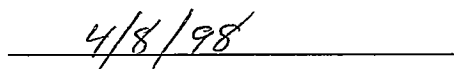
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## ABSTRACT

The population of the United States is aging and individuals struggle with the consequences of aging on a daily basis. The purpose of this study was to describe the relationship that the level of independent living, demographic characteristics, and present activities have on an older individual's choice of learning strategies for real-life situations in Great Falls, Montana.

Levels of independent living were identified as self-reliant living in the community; residing in senior or retirement housing, and living in assisted living centers. Ninety-eight individuals older than 65 years of age were interviewed and administered the Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS). Multivariate techniques of discriminative and cluster analysis were used for quantitative analysis. Reflective use of interview data enlivened description of the clusters.

Discriminant analysis discovered no significant relationship between preferences for learning strategies and groups of older individuals when categorized according to gender, age, marital status, or level of independent living. Cluster analysis identified three groupings of older individuals based on learning strategy preferences. The clusters were named Strategists, Resource Users, and Pleasure Seekers based on results of the analysis of variance.

The major conclusions of the study were learning strategies are not a useful tool for discriminating among levels of independent living nor demographic groupings according to age, gender, or marital status, and in Great Falls, Montana, distinct groups of older learners exist in independent living according to their use of learning strategies. Recommendations for theory focuses the need to identify or expand adult education theories in regard to developing learning strategies to meet specific needs of older individuals. For practice, recommendations included specific approaches oriented to the older individual's learning needs, aiding adjustment to the increased abundance of knowledge, and learning beneficial uses of new technologies. It was recommended that research connected with programming and methods to maintain the older individuals' maximum level of cognitive functioning be explored.

## CHAPTER 1

## INTRODUCTION

Background for the Study

Concern for the general aging of the population and consequences of aging are so pervasive they are often mentioned in both professional literature and the popular press. Issues often addressed include the graying of America, meeting the needs of the elderly, maintaining Social Security and Medicare programs, medical conditions with frequent addressing of dementia and Alzheimer's Disease, and early retirement and its effects on individuals, businesses and the country.

Concerns regarding the general aging of the population of the United States are often addressed in popular literature such as Newsweek and Modern Maturity. Tom Morganthau (Newsweek, 1/27/97) reported that the total United States population would double from the 1990 census to 500 million persons within sixty years. By 2030, the number of Americans over 65 will nearly double from 39 million to 69 million. Twenty percent of the population will be elderly, that is 65 or older. It is expected that 33 million elderly will be receiving social security and Medicare. By 2050, more than 18 million Americans will be over 85 (p.60). In Modern Maturity (1997, Jan-Feb.), Linda Stern pointed out the effect of the aging population. Sixteen workers paid into Social Security in 1950 for each recipient. In 1997 the ratio was three for one. By 2030 it is expected to be two for one. The Social Security program cannot remain as it is. The

anticipated demand on financial programs and the increase in dependent care has raised awareness of the need for planning.

National interest is demonstrated by the White House Conferences on Aging that have been held every ten years since 1961. Miniconferences were held to discuss 42 specialized issues prior to the 1981 Conference. One of these issues was lifelong learning (Timmermann, 1985). Experts in gerontology, education, and other related fields contributed to the discussion on lifelong learning and aging. According to Timmermann (1985) prior policy and programs viewed education for elderly persons as an enrichment activity unrelated to actual needs. Participants of the 1981 Miniconference on Lifelong Learning recommended lifelong learning for self-sufficiency. They believed the elderly could help themselves, be less dependent on outside sources such as the government, and be empowered to help others (p.29). The Conference participants concluded that:

Learning experiences should strengthen, enlarge, and enhance the capacities of older people to deal with the major problems of their lives. The types of education so essential to acquiring self-sufficiency are: 1) Surviving: Learning for Economic Sufficiency; 2) Coping: Learning for Practical Life Skills; 3) Giving: Learning for Community Contribution; and 4) Growing: Learning for becoming a fuller human being (p. 30).

These four categories of self-sufficiency skills were seen by participants in the 1981 Miniconference on Lifelong Learning as important for helping deal with the multiple needs of a fast growing population of elderly at a time when the country faces insufficient financial resources (p. 29). Concerns were raised that these types of educational programs might not be supported because they are sometimes challenged as less necessary

than income maintenance, crime and health care. "Yet, if viewed from the self-sufficiency perspective, education may be one of the best mechanisms to meet these pressing needs of older persons and to help solve major social problems" (Timmermann, 1985, p. 29).

The government attempts to control federal costs by encouraging the least restrictive environment for senior citizens requiring supervised care and support services. The individual requiring support services such as housekeeping and meal preparation can choose between retirement communities and senior citizen apartments. If some personal care and/or medication supervision is needed, assisted living apartments are available using personal funds or Medicaid. Higher levels of supervision or medical services require admission to a nursing home or hospital. In summary, independent living situations are considered to include living self-reliantly in the community, senior housing or assisted living centers. These three levels require higher cognitive skills and learning ability for some degree of self-sufficiency.

Many studies found in the literature examine specific cognitive skills such as memory and whether certain approaches or training efforts affect these skills. The concern is whether the older person can learn and what features of aging interfere with learning related to real-life situations. Roger Hiemstra (In Tuijnman, 1992) stated that research has demonstrated the ability of most adults to learn throughout life. Many older adults wish to assume responsibility for their own learning. He referred to studies that have investigated physiological problems adults may face as they age and the impact on learning. For example, decline in vision results in a decline in remembering recently

acquired information. Hearing loss seems to affect long-term memory. Visual perception impairment affects short-term memory (p.54). Susan Clark (1994) elaborated on physiological changes associated with aging. She identified adaptations to diminish or eliminate the negative consequences in the learning environment. The older person with visual limitations may need eye glasses, increased lighting, reduced glare, and additional time adjusting from dark to light. Hearing losses include high pitched or low intensity sounds as well as difficulty screening out interfering background noises. Reaction time slows in general and with increased choices or unfamiliarity with the task. Memory requires a greater strength and lengthened exposure to the stimulus. Reduced distractions, short intervals between information, and time to attend to new information are needed. In general, older adults can usually learn if given adequate time and reasonable environmental adaptations.

Tuijnman (1992) discussed learning to learn concepts for the older learners. He found a primary educational need of the older person was in making meaning of past experience in order to validate one's life. Reminiscing was a technique for extracting meaning from experience. This process had potential value for learning. It offered possibilities of enhancement through training. He identified that the older person is likely to need support in overcoming doubts about his/her ability to learn and the need to stay involved in educational activities (p. 180).

Involvement in education by older citizens was found to be increasing by Greenberg and Powers (1987). Between 1969 and 1975, participation in adult education

by persons over 55 years of age increased by 55.2% according to the National Center for Educational Statistics (1978). They cited Tough (1977) as reporting that 98% of all adults, regardless of age, participate in at least one 'learning project' each year. They believed these high levels of adult participation in educational activities suggest the need for educators and concerned others to explore the abilities and needs of adults in the classroom.

While educational materials designed for the elderly are increasing, research regarding learning by older adults has been minimal (Owens, 1988). When examining creative powers, Simonton (1990) reported that these abilities do not necessarily decrease with age nor due to the frailties of advanced age. Creativity can be affected by outside influences and the functions of the individual's career-age. Summarizing a review of studies regarding causes of the cognitive decline associated with aging, Zec (1995) identified disuse, disease, and aging per se. With age and/or retirement previous activities are often discontinued or at least are of decreased complexity. Specific intellectual and memory skills are more prone to deterioration with age. It is commonly acknowledged that regular practice of mental skills is necessary to maintain one's cognitive status lest gradual deterioration of cognitive skills occur. Sensory deficits, general health, motivation and attitudes are among the factors affecting cognitive test performance other than aging per se. Zec (1995) believed that too few longitudinal studies had been done to draw conclusions about the effect of exercise on cognition of the elderly. After citing several research studies, Owens (1988) concluded that research indicated little decrease in memory capacities with age and that forgetting is due to ineffective search and retrieval

processes. He recommended strategies to improve adults' success in learning situations. Recommended strategies focus on developing learning skills, using effective processing strategies, and teaching approaches for effective learning.

Lifelong learning has become a necessary skill due to the information age, the dramatic development of technology, and a period of unprecedented longevity. Learning styles, according to Keefe (1982, p.44, as quoted in Conti & Fellenz, 1991), are "cognitive, affective, and physiological traits that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment."

Physiological changes whether due to disuse, disease or aging, can be compensated for by the careful choosing of the physical properties of instructional materials (Owens, 1988, p.23). Learning strategies are, "the techniques or skills that an individual elects to use in order to accomplish a specific learning task" (Conti & Fellenz, 1991, p. 64).

For this reason it is important to examine learning strategies, how they relate to the elderly person's learning for self-sufficiency goals, and how learning strategies can be measured. Kolody & Conti (1995) stated that educators recognized individual differences exist in how students approach learning and that "a trend is emerging that considers the concept of learning strategies as a means of identifying and accounting for those individual differences in learners" (p.1). Learning strategies are a matter of individual preference. They are developed throughout life but vary by task. The success of strategies depends more on the situation than on the individual. "Rather than skills in note taking, outlining, and test passing, learning strategies tend to focus on solving real problems involving



metacognitive, memory, motivational, and critical thinking strategies” (Fellenz, 1993, p. 64). The Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS) was developed by Fellenz and Conti to measure learning strategies. SKILLS consists of a series of twelve scenarios depicting real-life learning situations which necessitate various levels and types of learning. Each scenario is followed by 15 questions which assess how likely an individual is to use specific learning skills or techniques in resolving that learning issue (Fellenz, 1993, p. 65). The 15 strategies in SKILLS represent 5 specific learning areas. These areas are metacognition, metamotivation, memory, critical thinking, and resource management.

It seems appropriate when studying the learning strategies of the elderly population, age 65 and over, to use an instrument like SKILLS whose content is based on real-life learning situations. The four broad goals elaborated by the 1981 Miniconference to the White House Conference on Aging addressed lifelong learning needs for self-sufficiency, namely, learning for economic sufficiency, for practical life skills, for community contribution, and for becoming a fuller human being. If there is to be improvement in maximizing the potential of elderly citizens, learning experiences for any of the self-sufficiency goals must be based on learning strategies used by the elderly. Maintaining the skills to live at the most independent level possible would benefit the elderly and all of the country.

### Problem Statement

Increased awareness and interest in aging-related issues is evident in the literature. The need for lifelong learning has been discussed in relation to economic sufficiency including retraining after retirement. Continued learning is needed as one ages to deal with practical life skills and adjustments to changing living situations. Learning may be needed when training for community contributions. Personal development for enrichment, health, and spiritual development requires lifelong learning as well.

Research has shown most adults have the ability to learn throughout life and that adults wish to be self-directed in educational pursuits. Physiological changes as one ages impact learning when affecting vision, hearing and visual perception. Adaptations such as adequate time and environmental adjustments can compensate for these limitations and their effect on the learning environment.

Older individuals have a choice of independent living situations to meet their needs for support services. Self-reliant living, senior housing/retirement living and assisted living centers can be identified by the services offered. It is not known how the different living styles affect the learning of the elderly.

High levels of older adult participation in educational activities indicates a need for research on the abilities and needs of adults in the classroom. Which learning strategies older individuals elect to use as they age and adjust to increasingly dependent living situations have not been researched.

### Purpose

The purpose of this study was to describe the relationship that the level of independent living, demographic characteristics, occupational and educational activities have with an older individual's choice of learning strategies for real-life situations. Some of these factors include level of independent living, age, gender, marital status, pet ownership, level of formal education, type of occupation, retirement status and current educational activities.

### Research Questions

To investigate the relationship between learning strategies used by older individuals and demographic and personal characteristics this study examined the following questions:

Question 1: What is the learning strategies profile of older individuals living self-reliantly in the community, in senior/retirement housing, and in assisted living in Great Falls, Montana?

Question 2: Among Great Falls individuals over 65, is it possible to use learning strategies scores as measured with SKILLS to discriminate between groups formulated by the following demographic variables: age; gender; marital status; and level of independent living?

Question 3: Is it possible to identify distinct clusters of older individual learners living in Great Falls using SKILLS?

Question 4: If distinct groups of learners exist, how can these clusters be described?

#### Scope of the Study

The goal of adult education is to facilitate the learning of adults for their real-life needs. With the graying of America, there is emphasis on life-long learning to meet the varied needs of the aging individual. It was assumed learning needs and strategies vary according to independent living status. This case study described learning strategies used by older individuals as they adapted to three different levels of independent living situations to support the frailties of aging, disease or disuse. The levels provide more assistance and increased supervision as the individual's needs increase. Self-reliant living is the most self-directed situation as the person remains in their own home or apartment with support services as warranted. The second level includes senior housing and retirement arrangements where support services include housekeeping and the availability of prepared meals. The third level is assisted living which offers personal care services and medical supervision in addition to housekeeping and prepared meals. Nursing home placement would be ranked fourth but was not included as it was considered a dependent level of care under 24 hour medical supervision.

Modifications to usual survey procedures prepared to deal with sensory limitations that occur with unwanted frequency in older individuals included: copies of the SKILLS instrument with a special answer sheet, templates to isolate columns on the answer sheet, availability of magnifier sheets, and individual assistance.

Demographic and personal information about study participants was gathered using a data sheet or, where needed, individual interviews. Information sought included age, gender, levels of formal education, level of independent living, occupational category, retirement status and recent educational activities.

#### Definition of Terms

**Allen's Cognitive Level Test:** a standardized leather-lacing task used as a screening tool. Scoring is based on the complexity of the lacing stitch that the elder is able to imitate, and a numerical score is assigned that represents the elder's cognitive level (Allen, 1985, p. 589).

**Alzheimer's Disorder:** A chronic progressive disorder that accounts for more than 50% of all dementias. The most common form occurs in people over 65. Characteristic pathological changes in the brain are plaques and neuronal tangles. The disease begins with mild memory loss which then progresses to deterioration of intellectual functions, personality changes, and speech & language problems. In the terminal stage, patient is dependent on others. (Taber's Medical Dictionary, 18th edition).

**Assisted living:** "Is a residential environment equipped with professionally delivered personal care services in a way that avoids institutionalization and keeps older, frail individuals independent for as long as possible" (Regnier et al., 1991, p. 387).

**Critical Thinking:** "Identifying and challenging assumptions, challenging importance of context, imagining and exploring alternatives, and reflective skepticism" (Brookfield, 1987; p. 12).

**Dementia:** A broad term that refers to cognitive deficits including memory impairment. There are many causes (Taber's Medical Dictionary, 18th edition).

**Elderly individual or older individual:** Refers to individual 65 years of age or more.

**Independent living:** Ability to care for oneself and to manage one's personal affairs.

**Learning styles:** "Cognitive, affective, and physiological traits that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Keefe, 1982, p. 44, in Fellenz, 1991).

**Learning Strategies:** "The techniques and skills that an individual elects to use in order to accomplish a specific learning task. Such strategies vary by individual and by learning objective. Often they are so customary to learners that they are given little thought; at other times much deliberation occurs before a learning strategy is selected for a specific learning task" (Fellenz, 1991, p. 1).

**Personal care:** "Means the provision of services and care for residents who need some assistance in performing the activities of daily living" (Section 50-5-101 Montana Codes Definitions).

**Memory:** Learning strategies which help adults in remembering in real-life situations. These include rehearsal of information, organization and elaboration of information, use of external aids, and the application of self-knowledge about memory and use of pneumatic techniques (Fellenz, 1990, p. 5-9).

**Metacognition:** "Thinking about the process of learning and emphasizing self-regulatory tactics to insure success in the learning endeavor" (Fellenz & Conti, 1989, p. 2).

**Metamotivation:** "Tactics and techniques used by the learner to provide internal impetus in accomplishing learning tasks" (Keller, 1987). These are based on Keller's ARCS model that emphasizes focusing attention, anticipating reward, fostering confidence, and enjoying learning activities.

**Metamotivation:** a term used to emphasize learner control of motivational strategies (Fellenz, 1991, p. 68).

**Resource Management:** The "identification of appropriate resources, critical use of such resources and the use of human resources in learning" (Fellenz, 1993, p. 3).

**Retirement home:** "means a building or buildings in which separate living accommodations are rented or leased to individuals who use those accommodations as their primary residence" (Section 50-5-101: Montana Codes' Definitions).

**Routine Task Inventory:** designed as a practical observational measure of performance within Allen's framework for describing cognitive disabilities and serves to identify qualitative differences in functional performance (Allen, 1992, p. 589).

**Self-reliant living:** Ability to maintain oneself in a home, apartment, or condominium.

**SKILLS:** An acronym for the Self Knowledge Inventory of Lifelong Learning Strategies.

This is a learning strategies inventory with established validity and reliability which asks respondents to rate 15 learning strategies in scenarios commonly found in everyday life and which call for a learning effort on the part of the respondent.

Participants in this study responded to four scenarios.

## CHAPTER 2

## REVIEW OF THE LITERATURE

Adult Education

Just as history is helpful in gaining perspective to governmental matters, the current status of organizations or a family's functioning, the history of adult education helped frame its concerns. Cyril O. Houle (1972) concisely summarized the beginnings of adult education in The Design of Education when he wrote:

In one way or another, adult education has been a continuing aspect of man's history from the time he emerged from the darkness of pre-history, but the first effective expression of the term adult education did not appear until after World War I (p. 3).

Houle then reported that people involved through various professional roles "in what was essentially a field of practical operation rather than of abstract thought had no deep sense that they were all engaged in the same fundamental activity" (p. 4). In time, it was recognized that there are many points of service, areas of application, and forms to adult education. As adulthood lasts many years and there are diverse lifestyles, the education of adults is varied and occurs in a broad range of settings.

John Dewey's Pragmatic approach strongly influenced the developing field of adult education. His systems were based on the cultivation of individuality, free activity, and learning through experience. Dewey saw the acquisition of skills and techniques as a means of attaining goals which had popular appeal. He encouraged making the most of



opportunities and of being familiar with the changing world. The act of thinking was seen to be a process of solving problems (Houle, 1972, pp. 10-12). His influence eventually permeated the methodological thought of the emerging field.

It was Ralph W. Tyler's strategies, presented in 1950, that encouraged building programs and organizing to produce desired results. He addressed formulating objectives for instruction, selecting learning experiences and teaching according to certain principles or to conform to categories of goals. He designed processes of evaluation to measure the extent to which identified objectives had been achieved. He encouraged the use of this knowledge in future planning.

Program-design theories also developed from Kurt Lewin's change theory. His practices and theoretical foundations had roots in social psychology. Lewin brought with him strong influences from the group dynamics movement to impact on adult education. Every socialized learning situation was treated as a group (Houle, 1972, pp. 16-18).

Community development systems' focal idea was that residents in a community should be helped to act collectively to solve problems which affect all of them. These strategies followed Dewey's problem-solving approach and methods (p. 21).

In the 1960's systems analysis was formulated. A system was defined as "a set of interrelated ideas, principles, or practices which form a collective entity" (p.23). Concern began with a way of thinking, then proceeded to its application. Programmed learning and program budgeting were based on this theory. Systems and their analysis in terms of input, throughput, and output became common (p. 24).

Houle felt that some systems had been misapplied to adult education. The purpose of public relations, service, recreation, esthetic appreciation, welfare and therapy are different from learning or teaching. He thought the best corrective move against confusing other allied but essentially different functions with adult education was to develop and use a strong system of practice based wholly on learning (p. 30).

### Adult Learning

“During the two decades between 1960 and 1980, we gained more knowledge about the unique characteristics of adults as learners and the learning processes than had been accumulated in all previous history” (Knowles, 1984, p. 6). In the 1970 edition of The Modern Practice of Adult Education: Andragogy Versus Pedagogy, Knowles viewed education as two dichotomous approaches; one for children and the other for adults. In the 1980 revision of this book, the subtitle “From Pedagogy to Andragogy” reflected that traditional levels of students also learned better when exposed to the andragogical model (p. 6). Knowles felt there was substantial knowledge about adult learners and their learning. He thought it warranted organization into a systematic framework including assumptions, principles, and strategies. Knowles wrote, “I feel more comfortable thinking of it as a system of concepts that, in fact, incorporates pedagogy rather than opposing it” (pp. 7-8).

Knowles contrasted five assumptions about learners in the pedagogical model with assumptions about learners in the andragogical model. First, the pedagogical model

viewed the learner as a dependent person. The teacher has full responsibility for decisions regarding learning. The learner submissively carries out the teacher's decisions. In the andragogical model, the learner is viewed as self-directing. Adults have a psychological need to be perceived and treated as capable of taking responsibility for themselves. They experience resentment and resistance when they feel others are imposing their wills on them.

The second contrast addressed learners' backgrounds. In the pedagogical model, the experience of the learner was viewed as having little value as a resource for learning. It is the experience of the teacher, textbook writer, and audiovisual aids producer that counts. Methodology emphasizes transmission of knowledge techniques. In the andragogical model, it is assumed that adults enter into educational activity with experience of greater volume and different quality than the experience of youth. Adult education emphasizes techniques to make use of the experiences of the learners.

The third point of contrast regarded learning readiness. In the pedagogy model, readiness to learn is viewed as focusing on grade level and age. In andragogy, it is assumed that adults become ready to learn when they experience a need to know or do something in order to perform more effectively in some aspect of their lives. The chief sources of readiness are the developmental tasks associated with moving from one stage of development to another.

The fourth point of contrast addressed organization of the curriculum. Pedagogy has a subject-centered orientation to learning. The curriculum is organized according to content units and sequenced according to the logic of the subject matter. In andragogy,

motivation is believed to be based on a need in the adults' life situation. It is important to organize learning experiences for adults around life situations and to develop the adult's need to know.

The fifth point of contrast is the source of motivation to learn. In pedagogy, it is believed the motivation to learn is from external pressure such as parents and teachers, competition for grades, or the consequences of failure. In andragogy, it is believed adults respond to external motivators like a better job or increased salary. Internal motivators such as self-esteem, recognition and better quality of life are seen as more potent motivators. Knowles recommended the choice of model to use is dependent on familiarity and the needs of the learners, not necessarily age (Knowles, 1984, pp. 6-12).

Technology and the information age are changing the nature of adult learning. All individuals must be able to function in a fast-changing society. This necessitates continued learning. Technology is both making learning mandatory and providing many of the mechanisms for learning to occur. Examples currently include computer-assisted instruction, teleconferencing, and interactive videodisc. Technologically sophisticated delivery systems are creating new roles for educators and trainers such as information counseling, facilitation of individual learning, and instruction specialists (Merriam & Caffarella, 1991, pp. 16-17).

When discussing factors that enhance or inhibit learning Merriam and Caffarella referred to Knowles' (1980) writing, "The quality of learning that takes place in an organization is affected by the kind of organization it is . . . it (an organization) provides an environment that either facilitates or inhibits learning" (p. 66). Knowles outlined four

basic characteristics of educative environments for all types of organizations attempting to help people learn: (1) respect for personality; (2) participation in decision making; (3) freedom of expression and availability of information; and (4) mutuality of responsibility in defining goals, planning and conducting activities, and evaluating (1980, p. 67). Merriam and Caffarella (1991) summarized that an organization must be innovative and democratic if it is to provide a climate conducive to learning (p. 31).

After some discussion concerning the difficulty of defining learning, Merriam and Caffarella (1991, p. 124) chose to define learning as "a relatively permanent change in behavior or in behavioral potentiality that results from experience and cannot be attributed to temporary body states such as those induced by illness, fatigue, or drugs" (Herganhahn, 1988, p. 7 in Merriam & Caffarella, p. 124). Most adults participate in at least informal learning as a part of daily life. Everyday experiences present adults with multiple opportunities for self-directed learning. Formal learning opportunities come from educational, occupational, health, religious, or social settings in which adults participate. "Not surprisingly, the motivation to learn in adulthood is most often directly linked to an adult's life situation, and that frequently is related to his or her work domain" (Merriam & Caffarella, 1991, p. 38). Work and love are the strongest motivators for an adult. Love of learning and the opportunity for social interaction that accompanies learning activities are also strong motivators. Adults can potentially learn from formal and informal educational experiences. "For learning to occur, the experience must be attended to and reflected on" (Merriam & Caffarella, 1991, p. 208).

Paul E. Blair (1996) authored a recent article on "Searching for a Philosophy for Adult Education". He saw an important aim of education for everyone as revolving around the movement from dependence to independence to interdependence. This involves teaching people how to learn inside and outside of a classroom. Blair compared continuing education of adults to what Bergevin called the civilizing process (1967). "The realization of higher ideals, the constant struggle for growth, the choice of good over evil, and the acceptance of one's responsibilities in a democratic society are all part of the civilizing process" (Blair, 1996, p. 41). Education's important goal is the personal growth, fulfillment, and achievement of the individual. Each person needs to develop autonomy. As social creatures, the development of collaboration and interdependence is necessary for a functioning society. "Combining an emphasis on personal growth with Bergevin's civilizing process, the importance of learning how to learn, and learner self-directedness gives a powerful view of the aims of adult education" (Blair, 1996, p. 42).

Adults learn through experiencing. These experiences may be internal as well as external. Experiences can result from thinking, from use of one's imagination, or from memory. Blair encouraged adult educators to use and make available a variety of experiences for the adult learner. Educational experiences are more valuable to adults when the content possesses meaning for them. Encouraging self-direction and active participation in the selection of learning projects makes the learning more meaningful. Adults must learn where to find resources, how to engage in learning projects, and how to find others engaged in similar learning projects. Adults must become comfortable participating in the planning, execution, and evaluation of learning activities (Blair, 1996).

“All education is culture dependent” (Blair, 1996, p. 43). American society demands active participation of its citizens. The adult population can contribute best to the democratic society when highly educated. Adults should be able to participate in all phases of American life. Those who cannot care for themselves need to be taken care of. From childhood, we need to teach all children how to learn on their own. All adults need educational programs that are meaningful and enlightening. Society would benefit from encouraging lifelong learning. “We teach our citizenry how to participate but we don’t teach them to participate” (p. 43).

Alan Knox (1977) wrote about characteristics of the individual and of the context that affect learning and intellectual performance. Characteristics included physiological condition and health, substantial personal or social maladjustment, whether or not the learning tasks are meaningful and of interest to the individual, if learners can proceed at their own pace, and socioeconomic circumstances. Social change can create differences between older and younger age group participants because of the experiences and values internalized in their youth. Personal outlook and personality characteristics can affect the way an adult deals with types of learning situations (pp. 411-412).

### Learning and Age Factors

“Age trends in learning ability are associated with such factors as physical condition, social class, and personality” (Knox, 1977, p.422). Deterioration in learning ability by older adults sometimes reflects pathological conditions. Deterioration can also

result from mental and physical inactivity (Jarvik, 1975). Some adults are affected at each age level by these factors, but many are not. Additional factors associated positively with learning ability and age are social class level and extent of education. "Social class level and extent of education are consistently far more associated with learning ability than is age" (Fozard & Nuttal, 1971; Birren & Morrison, 1961, quoted in Knox, 1977).

Education and social activities in later life appear to be very valuable in this regard (Jarvik, 1975, in Knox, 1977). A third factor associated with learning ability is personality (Schaie & Strother, 1968; Honzik & McFarlane, 1973 in Knox, 1977). "The range of individual differences in personality as well as learning increases with age at least until the sixties" (Knox, 1977, p. 423). Negative viewpoints regarding older individual's cognitive abilities can be countered with the fact that almost all adults can learn almost anything they want. A main exception is that some older adults experience a terminal decline or severe health condition that reduces the ability to remember, learn and modify behavior deliberately. Those who help adults learn typically confront a wider range of interest, background, and ability when the learner's age is older (Knox, 1977, p. 424).

### Learning and the Elderly

This country, as well as others, is undergoing dramatic changes in life style among older people. Coupled with a declining birthrate, longevity has brought about a population shift in American society. "By the year 2000, it is estimated that nearly 30 percent of the American population will be over fifty" (Boyar in Vermilye, 1974, p. 7).



Formerly, it was expected that formal education took place as one grew out of youthful days of freedom, but before one went to work. New life patterns are now emerging as mid-career people use some leisure time to continue their education. They seek additional job skills, new occupational choices, or personal development.

Increased longevity and the informational age have created new social stresses. Individuals not yet ready to choose retirement face early obsolescence. "They are outdistanced by the pace of change and forced into premature retirement while still productive" (Boyar in Vermilye, 1974, p. 7). Others retire earlier, live longer, and desire second careers. Later life must be a more productive time, enriched by continued learning, formal and informal. "For the first time in our history higher education may be viewed not only as a prework tradition but as a process to be pursued from eighteen to eighty-five" (Boyar, 1974, p. 7).

Knox (1977) found that although the evidence is mixed, there were indications of some deterioration of problem-solving performance in old age. Some of the factors that seem to contribute to deterioration of problem-solving performance were:

1. Decline in short-term memory capacity;
2. Increased difficulty organizing complex material;
3. Greater interference from previous learning;
4. More difficulty disregarding irrelevant aspects in the learning situation; and
5. Reduced ability to discriminate between stimuli.

(Canestrari, 1967 in Knox, 1977).

“Some of the changes with age in learning effectiveness reflect the interaction of experience and intelligence” (p. 456). The learning of a specific topic or task may be facilitated or inhibited depending on the fit between the new learning and the individual’s prior learning. Practice helps increase learning effectiveness by analyzing current understanding of the new topic, then making an effort to include additional areas of understanding. In the performance of life tasks, motivation and circumstances are more important to the results than intelligence or other measures of learning ability. Adults can be helped to learn by giving them assistance with activities and approaches (p. 456). Knox’s advice was to use generalizations about adult learning to design educational activities and materials to facilitate optimal learning. One should give attention to structure, pacing, and feedback. “Assistance with learning approach entails helping adults understand their own characteristic learning strategy” (p. 457).

### Learning Strategies

A variety of concepts have been examined during attempts to define the differences noted in individual learners. Cognitive styles have been defined as “the individual’s typical modes of information processing” (Knox, 1977, p. 447). Knox realized that as adults engage in intentional learning activities, they do more than acquire knowledge, skill and attitudes. They also modify the strategies they use for learning. Learning strategies partly reflect the individual’s cognitive style, based on intelligence, personality, and past experience. Learning strategies also reflect the characteristics of the content, including

complexity and problem-solving, critical thinking, or creativity. With age, adults tend to acquire a larger repertoire of strategies. According to Knox, older adults may concentrate on selecting from their available repertoire and may not recognize when novel solutions or approaches are needed. He encouraged practitioners to help adults acquire a more satisfactory repertoire of learning strategies (p. 452).

Learning strategies are a matter of individual preference, developed throughout life, and vary by task. The success of strategies depends more on the situation than on the individual. "Rather than skills in note taking, outlining, and test passing, learning strategies tend to focus on solving real problems involving metacognitive, memory, motivational, and critical thinking strategies" (Fellenz, 1993, p. 64). The Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS) was developed by Conti and Fellenz to measure learning strategies. Each of the five aspects of learning in SKILLS: metacognition, metamotivation, memory, critical thinking, and resource management are addressed by three specific categories of learning strategies.

Metacognition is thinking about the process of learning and having control over one's learning processes. "The learner who is conscious of his or her learning processes exercises more control over those processes and becomes a more effective learner" (Conti & Fellenz, 1991, p. 66). Three areas of metacognitive strategies are planning, monitoring and adjusting. (1) "Metacognitive planning focuses on the best way for one's self to proceed with a specific learning activity" (Fellenz, 1993, p. 7). (2) Monitoring was seen by Flavell (1979) as "useful to check or test the interaction among cognitive knowledge,

tasks, goals, and strategies in relationship to one's own abilities and with respect to the learning enterprise" (Fellenz, 1993, p. 8). (3) "Adjusting is the modifying and revising done to learning plans in relationship to the learner's evaluation of the process" (Fellenz, 1993, p. 8).

Metamotivation is the "component to identify it specifically as motivation of the individual to learn and to distinguish it from factors relating to reasons for participating in educational programs" (Fellenz, 1993, p. 12). (1) "Attention is the focusing of an individual's learning abilities on material to be learned" (Fellenz, 1993, p. 12). (2) Reward describes "the motivational factor of anticipating or recognizing the value to one's self of learning specific material" (Fellenz, 1993, p. 13). (3) Confidence relates to the "belief that one can complete the learning task successfully as an important factor in motivation to learn" (Fellenz, 1993, p. 13). (4) "Enjoyment includes both the fun of learning and the satisfaction with the outcome of the learning activity" (Fellenz, 1993, p. 13).

"Memory is defined as the storage, retention, and retrieval of knowledge" (Fellenz, 1993, p. 21). Memory strategies include organization, external aids, and memory application. (1) "Organizational strategies use structuring or processing of information to store, retain, and retrieve knowledge" (Fellenz, 1993, p. 21). (2) "External aids or strategies which rely on manipulation of the environment are useful to reinforce memory" (Fellenz, 1993, p. 21). (3) Memory applications are strategies that assist in planning and carrying out learning (Fellenz, 1993, p. 21).

Critical thinking is the important process of reflecting back on prior learning to determine whether what has been learned is justified under present circumstances (Mezirow, 1990, p. 5). According to Brookfield's (1987) model in Developing Critical Thinkers, four components in critical thinking are identifying and challenging assumptions, challenging the importance of context, imaging and exploring alternatives, and reflective skepticism. Critical thinking learning strategies are testing assumptions, generating alternatives, and conditional acceptance. (1) Testing assumptions is the process of identifying assumptions and being willing to examine them. (2) Generating alternatives is the encouragement of hypothesizing within the confines of reality or putting additional effort into the identification of other solutions. (Fellenz, 1993, p. 27). (3) Conditional acceptance involves monitoring results of one's learning and evaluating consequences of one's conclusions.

Resource management means acknowledging and valuing the human and social impacts on learning efforts. The three related learning strategies are identification of resources, critical use of resources, and use of human resources. (1) Identification of resources includes both the learner's awareness of appropriate resources and willingness to use the sources. (2) Critical use of resources is a combination of skills involving judgment about the recency, source, and purposes of information. (3) Use of human resources to support learning may involve not only awareness and listening, but dialogue and networking (Fellenz, 1993, p. 30).

SKILLS consists of two series of six scenarios depicting real-life learning situations which necessitate various levels and types of learning. Each scenario is followed by 15 questions which assess how likely an individual is to use specific learning skills or techniques in resolving that learning issue (Fellenz, 1993, p. 65). The 15 strategies in SKILLS represent 5 specific learning areas. These areas are metacognition, metamotivation, memory, critical thinking, and resource management. Each of the five aspects of learning in SKILLS is addressed by three specific categories of learning strategies. Metacognition is thinking about learning and having control over one's learning processes. Three strategies included as metacognitive strategies are planning, monitoring, and adjusting. (1) Planning strategies - progressively developing a learning project; (2) Monitoring - attending to ongoing resources related to learning; (3) Adjusting - conforming assets to learning needs. Metamotivation emphasizes self-control of motivational strategies including the three strategies of: (4) Attention - applying mental effort on the task at hand; (5) Reward/Enjoyment - having the use of positive benefits from the learning effort, (6) Confidence - assurance of personal abilities in the learning effort. The third aspect of learning is memory or the process of storing, retraining and recalling information over a period of time. Memory strategies include: (7) Organization - systematic arrangement of information to facilitate storage, retention, and recall; (8) External Aids - using devices or methods to aid memory processes; (9) Memory Application - recalling retained information for further processing or practical use. The fourth area of learning strategies is critical thinking, also known as executive functions i.e., "The self-regulation and control functions that direct and organize behavior" (Parente,

1996, p.149). Three critical thinking strategies are: (10) Test Assumptions - thinking rationally and formulating problems; (11) Generate Alternatives - problem-solving, developing plan of action and goal-selection; (12) Conditional Acceptance - choose relevant tactics, execute plan; compare solution to the problem, satisfaction and closure (Zoltan, 1996, p.161). The fifth aspect of SKILLS is resource management which includes the three strategies: (13) Identification of Resources - seeking and using relevant and reliable sources of information; (14) Critical Use of Resources - thoughtful application of information from relevant resources; and (15) Use of Human Resources - contacting knowledgeable people for ideas and opinions to aid learning.

## CHAPTER 3

## METHODS AND PROCEDURES

Introduction

This study is a case study examining the learning strategies used by older adults in various stages of independent living. A case study is anchored in real-life situations and deals with multiple variables. The case study is a means of investigating complex social units involving "multiple variables of potential importance in understanding the phenomenon" (Merriam, 1988, p. 32). "Bromly (1986, p. 23) writes that case studies, by definition, 'get as close to the subject of interest as they possibly can, partly by means of direct observation in natural settings, partly by their access to subjective factors, thoughts, feelings, and desires'" (Merriam, 1988, p. 20). Combining casual comparative techniques with case study methods facilitates quantification of the data and study results.

Casual comparative research attempts to determine the reasons, or causes, for the existing differences in the behavior or status of groups of individuals. The effect and cause have already occurred and must be studied in retrospect. Casual comparative studies involve comparison of two (or more) groups and one independent variable. "The researcher attempts to determine what difference between the groups has led to the observed difference on some dependent variable" (Gay, 1992, p. 285).

The research project also involved identifying and describing clusters of older learners that existed among the participants. Clusters were identified using a SPSS Quick



Cluster procedure. The clusters were based on the learning strategy preferences, the independent living status, and the functional level of communication skills of the older adults. The learning strategy preferences were assessed using the Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS). The three levels of independent living studied were self-reliant living in the community, senior/retirement apartments, and assisted living centers. The communication skills of listening, talking, reading, and writing were measured. A discriminant analysis of the clusters was also conducted to determine the variables that separated the groups (Conti, 1996, p. 71).

Interest in the learning strategies of older individuals developed from the researcher's frequent treatment of individuals over 65 years of age in an Occupational Therapy Program and from an awareness of the emphasis on lifelong learning advocated by Adult Education leaders. Lifelong learning is encouraged by the federal government for everyone including older individuals. Experts from many disciplines participated in the White House Conferences on Aging and endorsed, in 1981, a recommendation for lifelong learning. Conference participants believed that the elderly could help themselves, be less dependent on outside resources, and through continued education be empowered to help others (Timmermann, 1985).

### Population

"The primary purpose of a case study is to determine the factors, and relationships among the factors, that have resulted in the current behavior or status of the subject of the study" (Gay, 1992, p. 236). Various groups of elderly citizens living in Great Falls,

Montana were the social group examined in this case study. Schaie (1985) addressed sampling methods "Instead (of a random sample) it may suffice to identify population frames whose demographic characteristics are known and which are broadly representative of the general population" (p.67). An older individual was defined as a person over the age of 65, as defined by Social Security and the currently established retirement age. Such individuals require different living situations with specific services because of functional changes related to disease, disuse, or aging per se (Zec, 1995). The population studied were those living independently on three different levels. The first and most independent level of older individuals lived self-reliantly in the community in homes, condominiums, or apartments. These individuals may or may not have had support services in the home. The second level resided in senior or retirement apartments. Services available to them included housekeeping and prepared meals. The third level resided in assisted living centers with general and medical supervision available, but not 24-hour care. Personal care services were available including housekeeping and meals. Titles and regulations for these housing alternatives vary from state to state. General managers of two facilities in Great Falls agreed that the above distinctions were common in Montana.

### Sampling

In causal comparative studies it is recommended that a minimum of 30 subjects be included in each group studied (Gay, 1992, p. 137). The goal for this study was 50 individuals per level of independent living. Specifically, that was 50 living self-reliantly, 50

in retirement housing, and 50 in assisted living centers. In order to study the learning strategies of individuals over 65 years of age on their specific levels of independent living, a purposive sample was needed. The Self-Reliant Living sample was sought at public places where people over 65 years of age from Great Falls, Montana frequent. These were the Holiday Village Mall and Great Falls Senior Center. Holiday Village Mall granted permission to conduct the study there on October 29, 1997. The researcher had to agree to sit at the designated table and could greet people, but could not approach them. The older individuals had to voluntarily approach and show interest. These restraints resulted in three older individuals completing the Self Knowledge Inventory for Lifelong Learning Strategies (SKILLS) instrument during the six hours.

During October and November, 1997, the researcher and an assistant carried out the study in senior/retirement homes and the assisted living centers. Regardless of titles, the living status of residents was determined on an individual basis by services. These residences included: Eagles Manor Retirement Home; Rainbow Retirement Community; Cambridge Place Retirement Community; and Cambridge Court Retirement Community. These are the largest homes in Great Falls, Montana. Five to twenty-six percent of each population participated. The researcher solicited study participants at Great Falls Senior Citizen Center on October 29, 1997. Of the fifteen individuals approached, three agreed to participate. The sample for this case study was composed of willing participants over 65. In discussing sample size, Gay said, "Finding adults willing to participate in a study, is generally not an easy task" (1992, p. 136). This was very true in this study of older individuals (See Table 1).

Table 1. Participants from Independent Living Sources.

Source	Actual	Possible	Percent of Participation
<b>Self-Reliant Living</b>			
Holiday Village Mall	3		
Great Falls Senior Citizen Center	3	15	20
Cascade County Extension Clubs	49	54	91
Independents	20		
<b>Senior/Retirement/Assisted Living</b>			
Cambridge Place	15	60	25
Cambridge Court	19	74	26
Rainbow	4	74	5
Eagles Manor	16	141	11

It became evident a second effort was necessary to reach the self-reliantly living population. Due to the popularity of the Cascade County Extension Clubs, information about specific clubs was requested from the county agent. After explanations to the club chairs, the researcher was welcomed at four group meetings. A total of 49 club members participated. In addition, twenty other self-reliantly living people over 65 years of age became aware of the study by chance and agreed to participate.

A total of 129 people over the age of 65 in the three levels of independent living in Great Falls made up the sample for this study examining learning strategies. Thirty-one cases had to be excluded from data analysis because they did not complete even one scenario of the SKILLS instrument. The 98 remaining cases made up the sample of this study.

### Instrument

The Self Knowledge Inventory of Lifelong Learning Strategies (SKILLS) was used as the instrument for assessing learning strategies. The SKILLS instrument consists of six scenarios in two equivalent forms. For use with a specific population six scenarios depicting real-life situations were to be chosen by the examiner. Participants would then be asked to select four of the six scenarios which were most relevant to them. Each scenario necessitates various types and levels of learning (Conti & Fellenz, 1991, p.65). Each scenario requires the participant to rate 15 possible learning strategies according to the likelihood of their use of that strategy in responding to the scenario. The individual ranks the use of each strategy into one of three categories: Definitely Use, Possibly Use, or Not Likely Use. The possible responses include learning strategies in the areas of metacognition, metamotivation, memory, critical thinking, and resource management.

SKILLS has been tested and proven to be both a valid and reliable instrument (Conti & Fellenz, 1991). Construct and content validity were established for SKILLS. Construct validity assesses underlying theory of the test and the extent the test measures the hypothetical constructs that explain some aspect of human behavior (Gay, 1992, p.157). Construct validity for SKILLS was determined by literature reviews and obtaining judgment on the constructs from adult education and educational psychology professors expert in the field. Content validity refers to the sampling adequacy of the content of the instrument (Kerlinger, 1973, p.458). For SKILLS, content validity is concerned with the degree to which the items are representative of learning strategies used by adults in

real-life situations (Conti & Fellenz, 1991, p.70). Content validity was determined through expert judgment. Item validity is concerned with whether the test items measure the intended content area (Gay, 1992, p.156). This was established for SKILLS by having diverse groups of adults from throughout the country respond to the scenario sets. Thus both sampling and item validity were established on SKILLS.

Reliability is the degree to which a test consistently measures whatever it measures. Reliability insures the same results upon retesting (Gay, 1992, p.163). SKILLS is composed of 12 scenarios, each containing 15 items with similar types of responses. The scenarios were divided into two groups of six to establish reliability within the instrument which was taken by various groups of adults. A coefficient of equivalence was calculated to compare the participants' responses. The equal length Spearman-Brown correlations of .83 and the Guttman split half of .83 established that SKILLS is a reliable instrument for assessing adult learning strategies in real-life situations (Conti & Fellenz, 1991, p.71).

Each of the five aspects of learning in SKILLS: metacognition, metamotivation, memory, critical thinking, and resource management are addressed by three specific categories of learning strategies. Metacognition is thinking about the process of learning and having control over one's learning processes. "The learner who is conscious of his or her learning processes exercises more control over those processes and becomes a more effective learner" (Conti & Fellenz, 1991, p. 66). Three metacognitive strategies are planning, monitoring, and adjusting. (1) "Metacognitive planning focuses on the best way

for one's self to proceed with a specific learning activity" (Fellenz, 1993, p. 7). (2)

Monitoring was seen by Flavell (1979) as "useful to check or test the interaction among cognitive knowledge, tasks, goals, and strategies in relationship to one's own abilities and with respect to the learning enterprise" (Fellenz, 1993, p. 8). (3) "Adjusting is the

modifying and revising done to learning plans in relationship to the learner's evaluation of the process" (Fellenz, 1993, p. 8). Metamotivation is the "component to identify it

specifically as motivation of the individual to learn and to distinguish it from factors relating to reasons for participating in educational programs" (Fellenz, 1993, p. 12). (1)

"Attention is the focusing of an individual's learning abilities on material to be learned"

(Fellenz, 1993, p. 12). (2) Reward describes "the motivational factor of anticipating or recognizing the value to one's self of learning specific material" (Fellenz, 1993, p. 13).

"Enjoyment includes both the fun of learning and the satisfaction with the outcome of the learning activity" (Fellenz, 1993, p. 13). (3) Confidence relates to the "belief that one can

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knowledge" (Fellenz, 1993, p. 21). Memory strategies include organization, external aids, and memory application. (1) "Organizational strategies use structuring or processing of

information to store, retain, and retrieve knowledge" (Fellenz, 1993, p. 21). (2) "External

aids or strategies which rely on manipulation of the environment are useful to reinforce memory" (Fellenz, 1993, p. 21). (3) Memory applications are strategies that assist in

planning and carrying out learning (Fellenz, 1993, p. 21). Critical thinking is the important

process of reflecting back on prior learning to determine whether what has been learned is

justified under present circumstances (Mezirow, 1990, p. 5). Four critical thinking components identified in Brookfield's (1987) model Developing Critical Thinkers, are identifying and challenging assumptions, challenging the importance of context, imaging and exploring alternative, and reflective skepticism. SKILLS includes: (1) Testing assumptions - the process of identifying assumptions and being willing to examine them; (2) Generating alternatives -the encouragement of hypothesizing within the confines of reality or putting additional effort into the identification of other solutions (Fellenz, 1993, p. 27); and (3) Conditional acceptance - monitoring results of one's learning and evaluating consequences of conclusions. Resource management means acknowledging and valuing the human and social impacts on learning efforts. (1) Identification of resources includes both the learner's awareness of appropriate resources and willingness to use the sources. (2) Critical use of resources is a combination of skills involving judgment about the recency, source, and purposes of information. (3) Use of human resources to support learning may involve not only awareness and listening, but dialogue and networking (Fellenz, 1993, p. 30).

The Communication Scale from the Routine Task Inventory (RTI) was used to objectify observations of participants' functional cognitive skills. The RTI is part of, and correlated with, The Allen Cognitive Level Test (ACL) (Allen, 1985). The ACL is a standardized task used as a screening tool. A significant correlation between the Allen Cognitive Level score of patients with dementia and caregivers' ratings of performance in activities of daily living was found by Heying in 1985 (Allen, 1985, p. 111). A part of Allen Cognitive Level Test was the Routine Task Inventory (RTI). The RTI was



designed as a practical observational measure of performance. It serves to identify qualitative differences in functional performance. James in ROTE, p. 589 wrote, "Perhaps the most useful tool to assess levels of cognitive capacities and limitations in the elderly is the Routine Task Inventory (Allen et al., 1992)". The Routine Task Inventory was expanded in 1990 to include a communication scale. This scale was to be used by professionals or caregivers for observing skills in listening, talking, reading, and writing. The scale lists "behaviors to be observed and scoring guidelines indicative of function and dysfunction" (James, p.589). Scores from the Routine Task Inventory correspond to Allen's six cognitive levels:

- Level 1: Automatic Actions
- Level 2: Postural Actions
- Level 3: Manual Actions
- Level 4: Goal-directed Actions
- Level 5: Exploratory Actions
- Level 6: Planned Actions.

It was Heimann (1985) who did the initial reliability and validity study on the RTI. Significant interrater ( $r = .98$ ) and test-retest ( $r = .91$ ) reliabilities were established. "The most encouraging finding was the internal consistency with an alpha coefficient of .94 ( $N = 41$ )" (Allen, 1992, p. 34). Internal consistency examined task equivalence among all the activities on the RTI. The Spearman's rank correlation between the ACL and the RTI was  $r = .54$  (range 3-6,  $X = 4.39$ ,  $SD = .86$ ) for concurrent validity according to Heimann, Allen and Yerxa in 1989 (Allen, 1992, p. 34). The Spearman's correlation between the

Mini-Mental State (MMS) examination by Folstein et al. and the Routine Task Inventory was  $r = .61$ , "supporting the notion that mental impairments are associated with a decline in functional activities" (Allen, 1992, p. 34). An acceptable level of reliability depends on the type of test. A coefficient over .90 would be acceptable for any test (Gay, 1992, p. 67).

### Procedures for Data Collection

Presentations explaining the study were made to the administrative staff or general managers of the Holiday Village Mall, Senior Citizens Center, Cambridge Place Retirement Community, Eagle's Manor Retirement Home, Rainbow Retirement Home, and Cambridge Court. These represented the main congregates of people over 65 in the three levels of independent living in Great Falls, Montana. Oral and/or written permission was obtained for all sites visited.

Four of the twelve SKILLS scenarios appropriate to the activities of older individuals were selected for the study. The scenarios on auto insurance, pet care, cholesterol level, and dental care were chosen because of the commonality of the topics to real-life problems dealt with by people 65 and over. These choices were confirmed with two people over age 65 and with three managers of retirement homes. The answer sheet was designed to visually separate the answer columns for the study population. Additional modifications were prepared to deal with sensory or cognitive limitations that occur with unwanted frequency in older individuals. Modifications included supplying magnifiers, providing templates to isolate each column for registering answers, and plans

to provide adequate individual assistance. Research assistants were either teachers or occupational therapy personnel. Each was individually instructed about the purpose and procedures of the study.

In consideration of the study's population, personal administration of the SKILLS instrument was necessary. Therefore additional information and comments were gathered on the personal data sheets and during the interviews. Focus groups were not a feasibility as used in related studies (Gehring, 1997; Lockwood, 1997; Kolody, 1997; Hays, 1995). Data were collected at each of the sites by requesting voluntary participation and assuring anonymity. Demographic and personal information were gathered using a personal data sheet. Information sought included age, gender, marital status, pet ownership, education level, primary occupation, retirement status, current educational activities, hours per week engaged in a learning activity, living status, and supportive services received. This involved significant time for rapport building and interviewing. The instructions for SKILLS were printed on each page, verbally explained, and when needed, simplified for the participant. Each was asked to rate the frequency of use for each of the 15 statements of the individual scenario. Each participant was encouraged to complete the four scenarios. This was often not possible cognitively. Participant statements were noted during interviews and the taking of SKILLS. Observations and communication ratings were documented after each visit.

A concerted attempt was made to involve fifty people in each of the independent living categories. When efforts to recruit self-reliantly living individuals at the Holiday

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