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AN ANALYSIS OF LEARNING STYLES AMONG
YOUNG-OLD ADULTS (AGE 65-74) AND OLD-OLD ADULTS (AGE 75-99)
AND THE AFFECT ON AGING

By

Edith R. Ginsberg

A DISSERTATION

Submitted to the Faculty
of Lynn University
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy in Educational Leadership
with a Global Perspective

Boca Raton, Florida

May 2002

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ABSTRACT

An Analysis of Learning Styles Among Young-Old Adults (Age 65-74) and
Old-Old Adults (Age 75-99) and the Affect on Aging

By Edith R. Ginsberg

May, 2002

This dominant/less dominant design uses two methods (phenomenological and quantitative) to study, describe, examine, and analyze the learning style of two groups of older adults. The first group consists of Young-Old adults, who are between the ages of 65 and 74. The second group consists of Old-Old adults, who are between the ages of 75 and 99.

The researcher used the Kolb Learning Style Inventory Version 3 to determine the preferred learning style of each participant within each group. The results of the inventory for each participant was analyzed and compared between the two age groups. The analysis includes a within-case analysis and a cross-case analysis identifying differences and similarities among the members of each group and between the two groups.

The researcher used an audio-recorded interview of each participant. Each participant was asked 12 questions about how stages of maturity affected perceived learning styles. Each participant described awareness and perceived problems of aging applicable to learning. The responses to questions of perceived problems of learning of new information were compared with the results of the Kolb Learning Style Inventory (LSI-3).

The predominant learning styles among older adults are assimilating and diverging and five of ten participants demonstrated use of more than one learning style. There was corroboration between the LSI-3 and self-perceived learning style. There were no differences between age groups and learning style, and learning style appeared stable. Because learning new knowledge, information, and skills can occur after 65, it is important that studies be conducted that contribute to the understanding of learning in older adults.

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CHAPTER I

Introduction

Background of the Problem

Older adults have experienced learning from the moment of their birth that continues to life's end. Such a lifelong engagement by people needs to be the very best it can be for each to promote successful aging and continue to make lifelong contributions to society. Likewise society needs to be accepting of the contributions of older adults. In most developed countries of the world, such as the United States, Japan, Germany, Italy, Great Britain, and others, populations are aging rapidly (United Nations, 2001). The number of older adults in developed countries is growing exponentially. Better health and medical services have helped increase longevity. "The greatest social challenges of the 21st Century will be the aging of human society" (Wolff, 2000, p. 1). People find that a pattern of learning style persists through life which they believe is most effective for them (Rogers, 1998). However, people may need to develop more than one learning style in order to cope with different situations as one ages (Kolb, 2000). To ensure that lifelong learning can endure and be the most exciting motor that can drive the rest of our lives, research is needed to study learning styles of older adults and discover whether changes occur during the aging process.

Laslett (1990) has divided life into four stages. The first stage refers to the initial period of preparation for adult life marked by dependency, socialization, and schooling. In other words, this stage refers to childhood and adolescence. Employment, homemaking, and child rearing mark the second stage. The third stage is one for leaving

the workplace and being free to satisfy personal ambitions and needs. The fourth stage is one of dependency and death.

Aging populations are now living in what has been recently labeled as the “Third Age” of their lives (Williamson, 2000), possibly looking at 20 to 30 years of active life ahead of them. There is a large number of Third Agers who are pursuing opportunities to continue their education. In order to facilitate learning, people need to identify their preferred learning modality. In this Age of Information, when individuals depend more and more on being adept learners, educational goals must encourage effective lifelong learning (Williamson, 2000).

Each individual develops, through experience, one of four identifiable learning modalities: active, reflective, theoretical, and experimental. Active learners prefer to learn through participation and discovery. Reflective learners prefer to “wait and see”. They first watch others doing the task, reflect before they give an answer, and then perform. Theorizing learners possess an intrinsic desire (need) to understand the whole principle related to the task. Theorizers think problems through, step by step, then act upon the task. Finally, there are experimental learners, who solve problems in new and effective ways (Kolb, 1984).

Included in learning modalities are physical, environmental, cognitive, emotional, and socioeconomic factors. To improve learning performance, one must discover how these factors impact individual learning (Kolb, 1984). Individuals have unique learning styles directly affected by one’s particular aptitudes and experiences that makes self-assessment highly important. Some individuals handle numbers more easily than others. Other individuals develop strategies for memorizing facts, like telephone numbers.

Additionally, other individuals need to visually observe information in a written format in order to comprehend fully. For others, the spoken word is relied on more for complete comprehension (Kolb, 1984). Kolb's learning style inventory has been used extensively with adults.

The pace for learning for individuals also varies. For those who have direct experience of the subject matter, learning is faster. If the new subject matter does not conflict with existing knowledge, older learners are reported to learn faster than younger learners, who have less such experience. However, when older learners have less experience, as in the case of technology literacy, they tend to take longer than younger learners to learn technology (Rogers, 1998).

While individuals do not approach each learning task exactly the same way, they do develop a set of behaviors with which they are most comfortable. In examining one's learning style, one must understand individual behavior patterns to discover one's preferred learning modality that leads to more adept learning (Kolb, 1984).

As one approaches a learning task, personality and behavior interact as an expression of the stability and characteristics of one's learning style. Identifying individual learning styles assists educators in understanding how people perceive and process information in different ways. Garger and Guild (1984) described learning styles as "stable and pervasive characteristics of an individual, expressed through the interaction of one's behavior and personality as one approaches a learning task" (p. 10). According to Cano, Gaston, and Raven (1992), one of the most widely studied learning-style theories contrasts field-dependence and field-independence. The Group Embedded Figure Test (GEFT), a standardized cognitive test, is administered to determine the

preferred learning styles of learners as either field-dependent or field-independent. Oltman, Raskin, and Witkin (1971) state that learning styles suggest that field-dependent learners tend to approach a problem from a more global perspective, are more socially oriented, prefer collaboration, and are extrinsically motivated. In contrast, field-independent learners tend to approach a problem more analytically, rely on self-structured situations, prefer competition, and are intrinsically motivated.

As people age, they go through physical, cognitive, and emotional changes. For some the changes are gradual, while others experience change more abruptly. Regardless, these are realities that must be dealt with. Some of the most frustrating changes are those dealing with mental processes. Current research reports that one of the significant changes is in the working memory. It is commonly accepted that working memory does decrease with age. However, it is not known what exactly is responsible for that decrease (Norman, Kemper, Kynette, Cheung, & Anagnopoulos, 1992).

Norman, et al. (1992) conducted a study on the working memory of older adults. The study concludes that continued research in the area of working memory could lead to an eventual understanding about this extremely complex system. Norman et al (1992) claimed that a review of previous studies found that no easy answer about working memory is reported. Norman et al. (1992) found that memory functioning is negatively correlated with age upon entry into late adulthood. In the first study by Norman et al. (1992), reading comprehension was found to decline in the same way that working memory declines with age. The research reported that the decline in working memory is to blame.

The research of Norman et al. (1992) provides evidence that working memory does not function so well in old age. Many people wonder if there is something that can be done to keep the memory functioning at a higher level, as one gets older. Various theories suggest different aspects of life that may correlate with high memory functioning until death (Norman et al., 1992). Also important is the discovery of which specific components of the memory process are responsible for the decline. One theory by Gerard, Zacks, Hasher, & Ravansky, (1999) focused on the retrieval processes. The idea is that interference in the retrieval processes is the key to decline in older adults' working memory. The research reported that the more facts that are learned about a particular concept, the longer it takes to retrieve any of the facts and increases the likelihood of committing errors. Interference occurs because facts, sharing the same concepts, compete with each other at retrieval. It was theorized that inhibiting attentional mechanisms do not function in old age and more irrelevant information gains access to working memory, causing interference (Gerard et al., 1999).

Salthouse (1991) dedicated a large portion of his research to studies about working memory. He has also attempted to find some evidence about how working memory functions. In one area of research, Salthouse (1991) conducted three consecutive studies that focused on the role that working memory and speed of processing play in the differences in cognition of adults dependent upon one's age. The results indicated that age-related effects of cognitive functioning were mainly mediated by age-related reduction in working memory. The results also showed a large proportion of age-related differences in working memory are mediated by processing speed. It was

reported then that as one ages, an individual's cognitive functioning is reduced because working memory is reduced.

Purpose of the Study

World populations are aging rapidly. "Aging is often viewed as relating to diseases, something we have no control over. But aging is heterogeneous in nature and there are many people who view aging as an opportunity for growth and self-learning" (Gugliucci, 2000, p. 1). As people age they need to develop more than one learning style to adapt and to cope with different situations. There is much research on learning styles with youth, but there is little research literature that describes learning styles of older adults. The opportunity is present to contribute to the body of knowledge in this field of learning in older adults. The purpose of the study is to conduct a naturalistic inquiry to answer two specific questions:

1. What are the differences in the learning styles between the Young-Old (people aged 65 to 74) and the Old-Old (people aged 75 to 99)?
2. How does self-perception of learning style compare with the results of the Kolb Learning Style Inventory?

Definitions of Terms

Older Adults

Theoretical definition. "Although the elderly are commonly referred to as if they were one group, they are as diverse as the general population. The elderly population can be viewed as several distinct market groups: the Young-Old (65-74 years) who are

generally active and still married; the old (75-84 years) who are slowing down and often widowed; and the very old (age 85 and older) who often need help in daily activities” (Rubin & Nieswiadomy, 1994, p. 1).

Operational definition. For the purposes of this study, only two groups are used to describe older adults. The Young-Old group consists of members that are 65-74 and the Old-Old age group consists of people that are 75—99, combining Rubin’s and Nieswiadomy’s (1994) categories of the old and very old.

Learning Style

Theoretical definition. “As a result of our unique set of experiences, we each develop a preferred style of learning. This learning style is simply the way we prefer to absorb and incorporate new information. Our learning style affects the way we solve problems, make decisions, and develop and change our attitudes and behavior” (Kolb, 2000, p. 1). Our learning style explains how an individual perceives new information or experience, and how one processes information that one perceives (Kolb, 2000). In this study, learning style is operationally defined in two ways.

Operational definition #1. The Kolb Learning Style Inventory, Version 3 (LSI-3) is a 12 item, structured self-report questionnaire that through measurement, results in four learner styles: diverging, assimilating, converging, and accommodating.

Operational definition #2. The Self-Perception of Learning Style Interview is a 12 item in-depth, semi-structured interview, that is tape recorded. This results in perceptions of participant’s own view of how they learn, beliefs and feelings about aging and past learning styles. (See Appendix A).

Significance of the Study

In contemporary America, the population is realizing more clearly the need for intellectual growth. The rapidity of social change, the complexity of urban life, and the developmental changes of the individual force more and more adults to seek assistance in intellectual development. The availability of increasing amounts of leisure time and greater financial resources have allowed people of all ages to enroll in a variety of educational settings, leading to what has been called “a learning society.” This view that learning and education must continue across one’s life span is becoming more widely accepted (Sherron, 1990).

As neurons shrink and connections wither, thinking can become slower and attention may wander (Bigley, 2001). However, the changes are often unnoticeable. The aging brain loses about 10,000 neurons per day, starting around the age of 65, or even as early as 30. Even in the brain, with a hundred billion neurons, losing 10,000 neurons every day was once perceived as threatening. That was neurological dogma until now. Today, scientists have shown that any loss of brain cell is minimal, and has few if any real consequences. Even a brain older than 65 is capable of generating new cells (Wagster, 2000). Because learning new knowledge, information, and skills can occur after 65, it is important that studies that contribute understanding of learning in old adults be conducted. Studies that examine ways to facilitate learning so older adults may continue as productive citizens as well as successfully age are ongoing in the field of educational gerontology (McClusky, 1971).

Howard McClusky, Professor Emeritus of Education at the University of Michigan, stands out as one of the major speakers and thinkers in the field of educational

gerontology. His background paper for the 1971 White House Conference on Aging, his articles, and papers are widely used to help others develop programs for older people. He reports that education would ultimately change the patterns of the nation and improve the involvement of older people in daily life (McClusky, 1971). This study may contribute to developing educational programs for older people.

The number of people reaching age 65 will be larger, and they will have higher levels of formal education, higher socioeconomic status, better health, and greater involvement in adult education. The growing numbers of “baby boomers” are coming. As the younger clientele of colleges decline in numbers, education agencies will increase their willingness to serve older people (Sherron, 1990).

Sherron (1990) provided insights into how learning styles of older adults differ as they age. Studies such as Sherron’s may provide suggestions on how the education of older adults might be improved. More appropriate methodologies for teaching new knowledge to older adults could follow. The research may encourage more understanding and respect for older adults, leading to greater respect for aging. This research may provide foundations for other studies that lead to understand the aging process and accept that older people can learn and be productive as they age.

Scope and Delimitations

This study was limited to a sample of 10 participants from a South Florida residential community. The volunteers were required to meet the following eligibility criteria:

1. They must have been a resident at the facility for a minimum of one year.
2. They must not have suffered a stroke or other type of brain injury or dysfunction.

3. They must be healthy, functional, and mobile.
4. They must be actively involved in a learning activity.
5. They must be between the ages of 65-74 and 75-99.
6. They must have at least a high school diploma plus 2 years of college
7. They must be willing to participate freely in the study.
8. They must be interested in knowing about their learning style.

Chapter I provides the background and purpose of the study about learning styles in older adults. This chapter identifies the study questions, the significance of the study, and scope and delimitations of the study. Chapter I also notes the limitations of the research. Chapter II examines the relevant research studies and a review of the literature. Central issues, ideas, and other pertinent information regarding aging and learning styles associated with aging are presented. The research methodology is discussed in Chapter III. The research setting, instrumentation, data collection, procedures, and analysis techniques are described in detail in this chapter. Chapter IV reveals the results of the study. The differences of learning styles that exist between Young-Old and Old-Old adults are reported in an analysis using a within-case analysis and a cross-case analysis. Finally, Chapter V summarizes the research. Chapter V provides conclusions and recommendations for suggested further research.

CHAPTER II

Literature Review

Aging

The changes in fertility and mortality of the 20th Century have produced an entirely new age profile for the United States and for industrial countries in general (Germany, Japan, Great Britain, France, Italy, etc.) The growth in life expectancy combined with stable fertility rates has produced a population with a greater share of older people and a declining share of young people. These changes are shifting the U.S. age profile to one where there are roughly equal numbers of people in every age group (Riche, 2000).

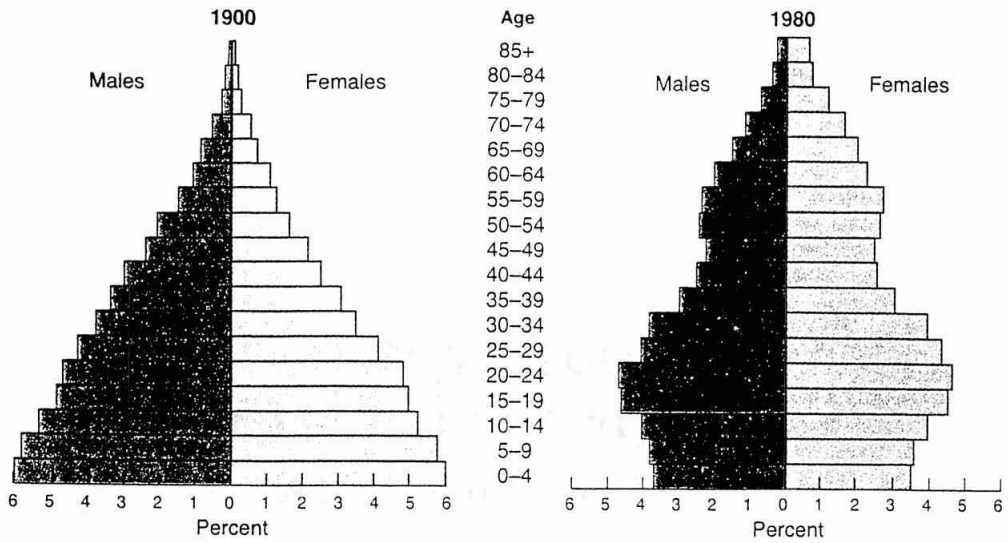
Riche (2000) reports

The age pyramid showing a picture of a population by age has had a relatively small group of older people at the top, a middling amount of middle-aged people in the middle and the bulk of the population made up of young adults, teenagers, and children. By 1980, the shape was less defined. The depression years cinched that pyramid around the middle, the post-war baby boom widened it just above the bottom, while the baby bust cut away at the bottom. Now the American age structure no longer resembles a pyramid but rather a pillar. There are more older people and more middle-aged people relative to young people, than ever before.

(p. 20)

The U.S. population by age and sex, 1900, 1980, 2000 with projections for 2020, is presented in Figure 1.

U.S. Population by Age and Sex, 1900, 1980, 2000, and Projections for 2020



Sources: U.S. Census Bureau. (1900 data) *Current Population Reports*, P23-178 (1992): table 2-1; *General Population Characteristics: United States Summary PC(1)-B1* (1970): table 53; *Historical Statistics of the United States: Colonial Times to 1970* (1975); (1980 data) Accessed online at: www.census.gov/cgi-bin/ipc/idbsprdm <http://www.census.gov/cgi-bin/ipc/idbsprdm> on March 15, 2000; (2000 and 2020 data) Accessed online at: www.census.gov/population/projections/nation/summary/, on March 15, 2000.

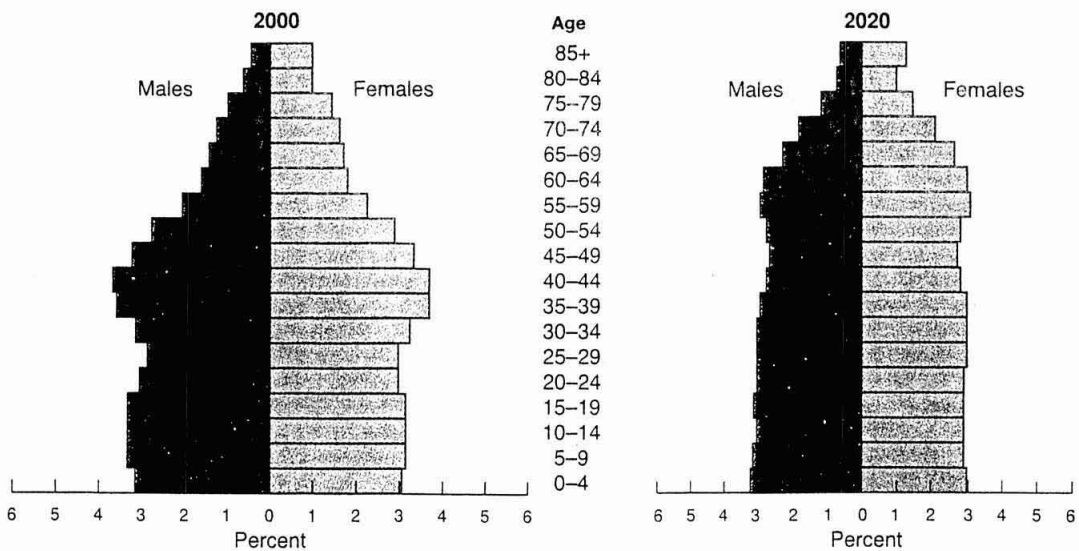


Figure 1

U.S. Population by Age and Sex, 1900, 1980, 2000, and Projections for 2020

The baby boom will soon cause a sharp spurt in the proportion of the population ages 65 and over. In 1999, nearly 13 percent of the population was made up of “senior citizens” about 35 million people. By 2025, this proportion is projected to jump to nearly 19 percent or almost 63 million Americans. The growth of the older population is projected to continue with the generations that follow, reaching 23 percent in 2010. In 1910 people under age 18 accounted for 38 percent of the population. This was 26 percent of the population in 1999, but it is projected to decline slowly but steadily over the 21st Century. At the end of the 21st Century, the population under age 18 and the population aged 65 and older are expected to be about the same size (Riche, 2000).

It is unlikely that 65 will be the age by which demographers delineate the nations older population. When 65 was set as the age threshold for social security benefits in 1935, average life expectancy at birth was about 62 years. By 2050, the Census Bureau projects that Americans ages 85 and older will be almost as large the proportion that was age 65 or older in 1930. Also by 2050, the proportion under age 18 will be considerably smaller, down from 35 percent in 1930. When the social security system was originally proposed 70 was set as the age to collect benefits. Unemployment was so high at the time because of the Great Depression, that 65 was chosen in order to free up some jobs for younger people (Riche, 2000).

The concept of retirement was largely developed in the 20th Century. In the early 1900s, the majority of men age 65 and older was still in the labor force. Taeuber and Taeuber (1958) indicate nearly three in four older men were gainfully employed in 1890, as were nearly three in five in 1930. By 1999, just one in six older men and one in 11

older women were employed according to the Bureau of Labor Statistics. Most people retire before age 65, and for most of them, retirement is a process rather than a clearly delineated event-influenced by their income, their health, and their preferences (Riche, 2000).

The number of years Americans tend to live after age 65 has increased from about 12 years in 1900 to 16 years for men and 19 years for women in 1997, and is projected to increase even more in the 21st Century. Rubin and Nieswiadomy (1994) state

As recently as 1970, published data from the census lumped all people ages 65 and older into a single population, but as the numbers increased and life expectancy lengthen, demographers began to perceive that the older population comprised multiple life stages. For convenience, these can be differentiated by age: 65-75, 75 to 84 and 85 and older. Although the elderly are commonly referred to as if they were one group, they are as diverse as the general population. The elderly population can be viewed as several distinct market groups: the Young-Old (65-74 years) who are generally active and still married; the old (75-84 years) who are slowing down and often widowed; and the very old (age 85 and older) who often need help in daily activities. (p. 1)

In the next few decades, the baby boom will make growth particularly rapid among the population ages 65-74, often referred to as the "young-old". This group will be the majority of older Americans until about 2030, when the aging of the baby boom will contribute to making people ages 75 and older the majority of older Americans. By 2050, the combined impact of the baby boom and continuing mortality declines at advanced ages will focus population growth on people ages 85 and over (Riche, 2000).

Because the improvement in mortality rates at older ages is relatively recent, mostly occurring after 1960, Americans will tend to view old age with stereotypes based on the past. Many Americans assume, for example, that increases in life expectancy are simply adding unhealthy years to the end of life, and consequently, that the coming wave of older Americans will create an extraordinary need for more health professionals, hospitals, and long-term care facilities. But research from Duke University suggests that healthy life expectancy is growing just as fast as life expectancy and that each new generation entering old age is less “old” than its predecessor. A new standard of energy and vitality in the population (based as much on a population that is better educated about health as it is on medical advances) seems to have pushed old age well into the 70’s and beyond (Riche, 2000). Table 1 presents the U.S. Life expectancy at birth and at age 45, by sex from 1900 to 1998 (Riche, 2000, p. 48).

Given the large growth in the older population, Americans will no doubt revise their assumptions about what “old” means for individuals. Assumptions that people will spend their entire work life in one occupation, or that career ladders can only be climbed in one direction, may prove ill suited to a potentially longer work life (Riche, 2000).

The American population is participating in a new and diverse economy at the end of the 20th Century. Success in that economy requires more education than ever before, and education opens more doors than ever before (Riche, 2000). Throughout American history, each generation has tended to have more education than the generation that preceded it. For those Americans born around 1900, 25 percent attained a high

Table 1

U.S. Life Expectancy at Birth and at Age 45, by Sex, 1900 to 1998

Year	Life expectancy in years					
	At birth			At age 45		
	Both sexes	Men	Women	Both sexes	Men	Women
1900	47.3	46.3	48.3	24.8	24.1	25.4
1910	50.0	48.4	51.8	24.5	23.8	25.4
1920	54.1	53.6	54.6	26.3	25.8	26.7
1930	59.7	58.1	61.6	25.8	24.9	26.9
1940	62.9	60.8	65.2	26.9	25.5	28.5
1950	68.3	65.6	71.1	28.5	26.6	30.6
1960	69.7	66.6	73.1	29.5	27.1	32.1
1970	70.8	67.1	74.7	30.1	27.2	33.1
1980	73.7	70.0	77.4	32.3	29.2	35.2
1990	75.4	71.8	78.8	33.4	30.7	35.9
1998	76.7	73.9	79.4	34.2	32.0	36.3

Sources: U.S. Census Bureau, *Historical Statistics of the United States, Colonial Times to 1970* (1975) and National Center for Health Statistics, *National Vital Statistics Reports*, 47, no. 25 (1999): Table 16.

school diploma. For those Americans born in the 1960's, 80 percent attained a high school diploma (Riche, 2000). As the economy continues to reward people for investing in education, more adults are attending and completing college. In 1999, a record 25 percent of all Americans ages 25 and older had at least a bachelors' degree, compared with just 5 percent in 1940 (Riche, 2000).

As the working-age population shifts from a pyramid dominated by young adults to a pillar with about equal numbers of people in all ages, work-life patterns will continue to diversify. The old model of climbing up a career ladder makes better sense in such a population. Instead, the longer work life is more likely to be characterized by a variety of transitions, including mid-career changes and mid-life education. As careers come to a natural end while people still have energy and inclination to work, along with a need to fund a longer retirement, more messy transitions may take place. Overall the U.S. population will experience the effects of the globalization world economy, and contribute to it.

Underwood and Watson (2001), in their article *Thanks for the Memories*, tell us that we are frightened by memory loss, because our memories involve more than just names and dates. Memories are the record of our lives. They hold the key to our personalities and identities. Eighty million baby boomers recount stories about not being able to remember a person's name or a place. The information they report is right there, "on the tip of their tongues," but they cannot get it out.

Gold et al (1995), informs us that when a seventy year old cannot find her keys, she blames her memory. In fact, Gold et al say, the seventy-year-old woman may have been misplacing things for decades. He continues by saying that, if you ask people how

good their memories were ten years ago, they usually say they were less forgetful than they are now, which may or may not be true. Gordon (as cited in Gold et al, 1995), head of the Memory-Disorders Clinic at Johns Hopkins School of Medicine and author of the book *Memory: Remembering and forgetting in everyday life*, says that no one knows exactly why the brain slows down as we age.

Educational Gerontology

Educational gerontology is an attempt to apply what is currently known about aging and education in order to extend the healthy and productive years and improve the quality of life for older people. Education may be a primary mechanism used to prevent the physical, psychological, and social decline of the individual. Education may also be used to evaluate lifelong experience and provide insight regarding the importance and meaning of that experience (Sherron, 1990).

Moody (1978) theorized that younger people generally perceive older people as being limited in economic value and as representing the antithesis of what society values: productivity, power, beauty, and youth. Essentially, older people are seen as expendable in a technological society. Moody claims that an attempt is made to isolate older people on the grounds that they have little value or meaning in modern America. The result of such an attitude leads to the belief that, since older people are worth less, it is inappropriate to expend economic resources to educate them. Today, most people in the field of gerontology would reject this view (Moody, 1978).

McClusky (1971) contends that older people should continue to participate in the mainstream of American society because they have skills and abilities that may help

overcome some of the societal problems facing the nation. He continues to say that education can preserve the individual dignity. Educational programs based on this position encourage and facilitate activities and programs that prepare individuals for second careers and volunteerism. Through meaningful participation, older people can improve the quality of life in the country, generally, while assisting themselves and their age mates in adjusting to their changing circumstances (McClusky, 1971).

Bolton, in his article *Instructing Experienced Adult Learners*, reports that research regarding memory and information processing is beginning to unlock the mysteries of how learning and memory change developmentally as one ages. Cognitive psychologists are beginning to explore the unique and developmentally different, but not necessarily the declining learning power elderly people possess (Adams, 1988). Price (1982) points out that when people learn, they perceive and think. They also interact with resources, methods and environments. The tendencies and preferences that accrue from this personal experience bring about one's learning style, own characteristic ways of processing information, feeling, and behaving in learning situations (p. 49). Research has begun to affirm that learning style preferences have direct correlation with learning achievement and satisfaction outcomes (Brockett & Hiemstra, 1991). The differences between older versus younger learners are based more on the learner's experience than on their ages. Experience, not age, would seem to be a critical interpreter of how learning is to occur and how effective it will be (Bolton, 1990). Age, as an independent factor, does not have much to do with how older adults learn (Brockett & Hiemstra, 1991). What has been firmly established is that older adults are able to learn, although in different ways and at different rates, with different expectations for both process and outcome (Bolton,

1990). Members of one age cohort (people born within a given five-year period) can differ significantly from members of another age cohort due to the models of education present at their time. Life course variables suggest that people in different stages of life differ, sometimes greatly due to the standards that existed during their growth and development. Health status also has a great deal to do with both participation in learning experiences and the instructional environment (Bolton, 1990).

Common roles held throughout life by today's older adults would also be a significant factor. Some would characterize older people in negative and stereotypical ways, such as stubborn, rigid, authoritarian, religious, or dogmatic. Many of these characteristics were acquired because of the way they were expected to perform various roles as they matured (Bolton, 1990). Life expectancy, as a life course variable, can have its effect. Not only does life expectancy vary between cohorts as a product of previous and present-day health status, but it also has implications for motivating learners (Bolton, 1990).

According to Perlmutter et al (1987), age deficits in cognitive performance can be linked directly to cohort differences. It is important to what experiences have been confounded by historical events since the completion of a person's formal education (Bolton, 1990). "The two guiding concepts, life course and cohort effect, and individual differences provide for additional differentiation among learners of a given generation and between generations. These guiding concepts are especially important as we discover the magnitude of differences in personality, learning ability, educational attainment, goals, and anticipated outcomes that elderly adults bring to each learning experience" (Bolton, 1990).

We are beginning to expose a new view of adult development, new avenues of research, and new goals as they relate to learning in later life. The timeworn and comfortable assumptions that are held about the abilities of older adults are eroding (Labouvie-Vief, 1990). In 1974, Toffler (as cited in Labouvie-Vief, 1990) observed that phenomena are changing at a faster rate than researchers are able to provide useful data about them.

Learning

The various researchers in the field of learning have adopted different learning theories. Some call themselves behaviorists, others humanists, some do not believe in any of these theories, but set learning as a social learning process. Hilgard and Bower (1966) report

It is extremely difficult to formulate a satisfactory definition of learning so as to include all the activities and processes which we wish to include and eliminate all those which we wish to exclude the difficulty does not prove to be embarrassing because it is not a source of controversy as between theories. The controversy is over fact and interpretation, not over definition. (p. 6)

The idea that learning involves change is the premise for Crow and Crow (1963), who describe learning as follows:

It is concerned with the acquisition of habits, knowledge, and attitudes. It enables the individual to make both personal and social adjustments. Since the concept of change is inherent in the concept of learning, any change in behavior implies that learning is taking place or has taken place. Learning that occurs during the process of change can be referred to as the "learning process". (p. 1)

Burton (1963) defines learning in the following manner: "Learning is a change in the individual, due to the interaction of that individual, and his environment, which fills a need and makes him capable of dealing adequately with his environment" (p. 7). There is agreement upon the definition of learning as being reflected in a change in behavior as a result of experience (Haggard, 1963). These learning theorists see learning as a process by which behavior is changed, shaped, or controlled. However, other theorists prefer to define learning in terms of growth, development of competencies, and fulfillment of potential (Knowles, 1980). Hilgard and Bower (1966) maintain that there is no disagreement about the definition of learning.

Edward L. Thorndike conducted the first systematic investigation in this country of the phenomenon called learning. It was a study of learning in animals, first reported in his *Animal Intelligence*, published in 1898 (Knowles, 1984). In 1928, Thorndike conceived of learners to be empty organisms who responded to stimuli more or less randomly and automatically. A specific response is connected to a specific stimulus when it is rewarded. It was the original stimulus-response psychology of learning (as cited in Knowles, 1984).

In Russia, Ivan Pavlov (1849-1936) the Russian physiologist inaugurated his experiments which resulted in the concept of conditioned reflex. Pavlov developed several concepts and accompanying techniques which were then incorporated into the behaviorist system. John B. Watson (1878-1958) was generally credited with being the father of behaviorism (Knowles, 1984).

The behaviorists then and now had and have: in common the conviction that a science of psychology must be based upon a study of that which is overtly observable:

physical stimuli, the muscular movements and glandular secretions which they arouse, and the environmental products that ensure. The behaviorists have differed among themselves as to what may be inferred in addition to what is measured, but they all exclude self-observation (Hilgard & Bower, 1966).

The next major advance in behaviorists psychology was the result of the work of B. F. Skinner and his associates. At a Training Research Forum seminar in 1971, Skinner brought literally every learning principle he has ever stated back to a six word premise: Behavior is determined by its consequences (as cited in Knowles, 1984). Skinner's book, *Beyond Freedom and Dignity*, brought about a response that was more extensive, more antagonistic and more intensely stated than any other book published during 1971. The book was number three on the best seller list; he was on any number of talk shows, and interviewed by a large number of publications (as cited in Knowles, 1984). Skinner, too, objects to theories. His objection is to the hypothesis-formation-and testing procedures. He believes that these procedures are wasteful and misleading. Skinner believes that the results of scientific investigation are in the functional relationship described in the data (as cited in Knowles, 1984).

Jerome Bruner (1960) observes, "It is easy enough to use one's chosen theory of explaining modifications in behavior as an instrument for describing growth; there are so many aspects of growth that any theory can find something that it can explain well" (p. 27). Bruner lists these six benchmarks" about the nature of intellectual growth:

1. Growth is characterized by increasing independence of response from the immediate nature of the stimulus.

2. Growth depends upon internalizing events into a “storage system” that corresponds to the environment.
3. Intellectual growth involves an increasing capacity to say to oneself and others, by means of words or symbols, what one has done or what one will do.
4. Intellectual development depends upon a systematic and contingent interaction between a tutor and a learner.
5. Teaching is vastly facilitated by the medium of language, which ends by being not only the medium for exchange but the instrument that the learner can then use himself in bringing order into the environment.
6. Intellectual development is marked by increasing capacity to deal with several alternatives simultaneously, to tend to several sequences during the same period of time, and to allocate time and attention in a manner appropriate to these multiple demands. (pp. 4-6)

Carl Rogers (1963) carried the thoughts of the Association of Humanistic Psychology which was founded in 1963, a bit further. He defined the elements which are involved in experiential learning:

It has a quality of personal involvement-the whole person in both his feeling and cognition, aspects being in the learning event. It is self-initiated. Even when the impetus or stimulus comes from the outside, the sense of discovery, of reaching out, of grasping and comprehending, comes from within. It is pervasive. It makes a difference in the behavior, attitudes, perhaps even the personality of the learner. It is evaluated by the learner. He knows whether it is meeting his need,

whether it leads toward what he wants to know, whether it illuminates the dark area of ignorance he is experiencing. The locus of evaluation, we might say, resides definitely in the learner. Its essence is meaning. When such learning takes place, the element of meaning to the learner is built into the whole experience. (p. 5)

Maslow, on the other hand, sees the goal of learning to be self-actualization. He conceives of growth toward self-actualization as being determined by the relationship of two sets of forces operating within each individual. We go forward with the delights of growth, and the anxieties of safety are greater than the anxieties of growth and the delights of safety (Maslow, 1972, p. 44).

Other educational psychologists question the proposition that learning can be defined as a single process. Gagne (1972) identified five domains of the learning process, each with its own praxis:

1. Motor skills which are developed through practice.
2. Verbal information, the major requirement for learning being its presentation within an organized, meaningful context.
3. Intellectual skills, the learning of which appears to require prior learning of prerequisite skills.
4. Cognitive strategies, the learning of which requires repeated occasions in which challenges to thinking are presented.
5. Attitudes, which are learned most effectively, through the use of human models and "vicarious reinforcement." (pp. 1-8)

The difficulty of defining learning is summarized by Smith (1982) in these words:

1. It has been suggested that the term *learning* defies precise definition because it is put to multiple uses. Learning is used to refer to:
 2. The acquisition and mastery of what is already known about something.
 3. The extension and clarification of meaning of one's experience.
 4. An organized, intentional process of testing ideas relevant to problems. In other words, it is used to describe a product, a process, or a function. (p. 34)

Adult educators are beginning to see clearer directions in the field of adult learning (Knowles, 1984). Knowles believes that we know more about how animals learn than about how children learn, and we know more about how children learn than about how adults learn. The conditions under which animals learn are more controllable than those under which children learn; and the conditions under which children learn are much more controllable than those under which adults learn. He continues that all of the scientific theories of learning have been derived from the study of learning by animals and children. However, as technology improves (catscan, etc.) so will the ability to look inside the brain of a living human (Knowles, 1984).

Knowles in 1984 defined a theory as "a comprehensive, coherent, and internally consistent system of ideas about a set of phenomena" (p. 28). That said, he then talks about some psychologists who do not believe in theories at all. Knowles then quotes R.M. Gagne who writes, "I do not think learning is a phenomenon which can be explained by simple theories, despite the admitted intellectual appeal that such theories have" (as cited in Knowles, 1984, p. 24). Gagne then continues to explain, however, that a number of useful generalizations can be made about eight distinguishable classes of performance change which he describes as condition of learning.

Learning and the Older Adult

The aging population is a great concern of the American society. However, few discussions have focused on preparing American society to deal with the changing demographics. Older persons are living longer and healthier and thus are capable of being more productive and less dependent. Nevertheless, old age is still perceived as a post productive or no role period. The age-old negative stereotype about older persons held by both the elderly themselves and the non-elderly are one of the factors that inhibit many older persons from productive participation in society. Given the increasing number of years people can expect to spend in retirement and the fiscal problems that are projected to become worse with the growing aging population; it is very important for older persons to assume economically productive and socially meaningful roles. Such roles, as opposed to no roles, would help integrate them into all aspects of society and enhance their life satisfaction (Courtenay, 1989, 1994).

Older adults have been tested, measured, assessed, and evaluated. They have answered questions asked by students, teachers, health professionals, providers of social services, and researchers. They have reacted to case histories, nude pictures and films, flashing words on a screen, circles and squares, ink blot pictures, sentence completion tests, and other types of tests ad infinitum; they have filled out demographic forms, intelligence tests, life satisfaction measures, attitude scales, and self-concept instruments: they have been asked to reveal their knowledge and belief about sex, income level, religious belief and participation, attitudes about family and friends, knowledge and practices of nutrition, and political sympathies and practices, just to name a few. Psychologists, sociologists, educators, and others are engaged in gathering, analyzing,

predicting, and reporting the needs, interest, problems, and behaviors of the elderly.

Courtenay (1994) addressed some of the questions:

1. How do we grow old? How do our needs, interests, desires, and bodily functions change as we age?
2. What are the stereotypes regarding the elderly?
3. How and by what degree do we change physically, mentally, cognitively, and spiritually?
4. Can we still learn as well at 60, 65, 70, 75, 80, and beyond as we did at 35 or 40?
5. What variables affect learning and how do they influence us as we age?
6. How do we plan for death and dying?
7. What type of program, institution, or treatment helps us to adjust to and understand the aging process?
8. How do the older adults themselves, feel?
9. What motivates, pleases, or displeases older adults and why? (p. 151)

Some method or technique must be used to collect all this information accurately and reliably. Interviews, questionnaires, checklists, and scales, are some of the tools used to gather information and to facilitate reporting data so we can learn about others and ourselves because we are aging too.

“A specific problem has existed in the lack of data for older adults in perceptual modality learning styles. At the present time, there is no available data on correlation of perceptual modality learning styles and observed learning styles” (Brown, 1984, p. 2).

Brown asks and attempts to answer are some of the questions:

1. Can the variations in perceptual modality of older adults be measured?
2. Are there dominant patterns of learning among older adults?
3. Do older adult learners' self-assessments of their perceptual modalities of learning style show positive correlations with empirical measurements of the same styles?
4. Are there significant differences in perceptual modality learning styles among older adults sub groups of age? (p. 53)

Brown's study was a quantitative study; nevertheless, important and significant findings, which are relevant to this study, were revealed. He writes that since the 1960's some research emphasized that sensory capabilities have so declined in older adults, that learning is difficult to measure. Ten years later researchers in the field of adult education keep finding meaningful evidence to substantiate their belief that perceptual learning in older adults continues (Brown, 1984). Brown quotes Havinghurst reporting that learning is necessary throughout life because of continuous changes and resultant needs with the aging process.

Brown believes that some people prepare plans for their old age and are better able than others to find remedies when aging becomes apparent. Also, successful adjustment to old age requires that the individual redesign his or her life, expanding interests or find new ones. In 1978, Knowles (as cited in Brown, 1984) stated

The adult comes into an educational activity largely because he is experiencing some inadequacy in coping with current life problems. He wants to apply tomorrow what he learns today, so his time perspective is one of immediacy of

application. Therefore, he enters into education with a problem-centered orientation to learning. (p. 3)

Brown (1984) believes that the common denominator observed among people is that all behavior is learned and influenced by experiences. He continues to say that learning is a cumulative process. The more knowledge and skills an individual acquires, the more likely it becomes that his new learning will be shaped by his past learning. Brown (1984) finds that the question of how older adults learn is a subject of current research and has yet to be fully explored.

Brown (1984) discussed Coolican's, 1974 finding that reading, and discussion and practice are the three methods most commonly used in learning projects. Listening and observation are used but not frequently. The most frequently used forms of learning are active, involving the learner directly. The least commonly used techniques are passive - - watching someone else do something. Brown also (1984) claims that longitudinal research shows clearly that the ability to learn is not limited to any particular age. However, as people grow older, they do change - not in ability to learn, but in physical state, in attention, in motivation, and in ways of viewing experience (Brown, 1984).

“Perhaps the most devastating impairment, which occurs as a natural part of aging is hearing loss. The loss of hearing with age is first noticed in most individuals around age 50, in the higher social frequencies, most individuals experience a general inability to distinguish speech patterns from background noise. Consonant sounds such as (c, sh, f, s, and z) are typically difficult for older adults to hear” (Brown, 1984, p. 3). “Another impairment confronting older adults is loss of visual acuity. As one grows older, the lens

of the eye loses its ability to focus. Also, a decline in the eye's ability to adapt to darkness tends to inhibit reading" (Brown, 1984, p. 3).

Glover's (1998) experience in teaching older learners have revealed that such students tend to do well when allowed to have some control over the learning environment. In most cases, she has found that older learners who return to school are highly motivated and strongly predisposed toward learning. They tend to focus their efforts on improving their existing skills within the context of their personal styles and behavioral patterns.

In the rapidly expanding field of lifelong learning, researchers have begun to spend much time in determining the learning potential of adults. In 1972, Brown's perspective on learning (as cited in Postman, 1972) is

Learning is a cumulative process. The more knowledge and skills an individual acquires, the more likely it becomes that his new learning will be shaped by his past experiences and activities. An adult rarely, if ever, learns anything completely new; however, unfamiliar the task that confronts him, the information and habits he has built up in the past will be his point of departure. Thus, transfer of training from old to new situations is part and parcel of most, if not all, learning. In this sense, the study of transfer is coextensive with investigation of learning. However, it is only when the conditions of prior training are brought under experimental control that the contributions of transfer can be precisely evaluated. (p. 1019)

Learning Styles

Hood (1995) explored learning styles and instruction in a paper for the University of Georgia in 1995. Hood's theory was that learning is an interactive process, the product of student and teacher activity within a specific learning environment. She also believed that these activities were central elements of the learning process and show a wide variation in pattern, style, and quality (Keefe, 1987). Learning problems frequently are not related to the difficulty of the subject matter, but rather to the type and level of cognitive process required to learn the material (Keefe, 1988). Gregore and Ward (1977), claim that if educators are to successfully address the needs of the individual, they must relate teaching style to learning style.

Learning has taken place when we observe a change of behavior resulting from what has been experienced. Similarly, we can recognize the learning style of an individual only by observing their overt behavior. Learning style is a consistent way of functioning that reflects the underlying causes of learning behavior (Keefe, 1987). Keefe (1991) describes learning styles as both a student characteristic and an instructional strategy. As a student characteristic, learning style is an indicator of how a student learns and likes to learn. As an instructional strategy, it informs the cognition, context, and content of learning.

Each learner has distinct and consistent preferred ways of perception, organization, and retention. These learning styles are characteristic, cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment (Keefe, 1991).

Talmadge and Shearer (1969) have determined that learning styles do exist. Their study shows that the characteristics of the content of a learning experience are a critical factor affecting relationships that exist between learner characteristics and instructional methods. Reiff (1992) claims that learning styles influence how people learn, how teachers teach, and how they interact. Each person is born with certain preferences toward particular learning styles, but culture, experience, and development influence these preferences. Keefe (1987) asserts that perceptual style is a matter of learner choice, but that influence develops from infancy almost unconsciously. A teacher alert to these preferences can arrange for flexibility in the learning environment. Learning style is the composite of characteristic, cognitive, affective, and physiological factors (Keefe, 1991). A useful approach for understanding and describing learning styles is the consideration of these factors.

Cognitive styles are the information habits of an individual. These represent a person's typical modes of perceiving, thinking, remembering, and problem solving (Keefe, 1991). External information is received through a network of perceptual modalities. This information is the raw data that the brain processes for learning to occur. If there is a deficit in a perceptual modality, the brain will receive incorrect or incomplete data, resulting in limited or inappropriate learning (Keefe, 1987).

Learning modalities are the sensory channels or pathways through which individuals give, receive, and store information. Most students learn with all of their modalities, but have certain strengths and weaknesses in a specific modality (Ruff, 1992 as cited in Hood, 1995). These avenues of preferred perception include kinesthetic, auditory, and visual (Eiszler, 1983 as cited in Hood, 1995).

In 1980, Stronck (as cited in Hood, 1995) describes kinesthetic-tactual learners as individuals who try to perform tasks through touch, feel, and manipulation. Kinesthetic-tactual learners express their feelings physically. They gesture when speaking, are typically poor listeners, and lose interest in long speeches. These individuals learn best by doing. They need direct involvement in what they learn.

Auditory learners talk about what to do when they learn. They enjoy listening, but cannot wait to have a chance to talk about themselves. Auditory learners respond well to lecture and discussion (Barbe & Swassing, 1974). Visual learners learn by seeing. They think in pictures and possess vivid imaginations. They have greater recall of concepts when presented visually (Barbe & Swassing, 1974).

In 1992, Ruff stated that affective components of learning styles include personality and emotional characteristics related to the areas of persistence, responsibility, motivation, and peer interaction (as cited in Hood, 1995). The physiological components of learning styles are biologically based modes of response that are founded on sex-related differences, personal nutrition, and health and reactions to the physical environment (Keefe, 1991). Several research studies by Hiemstra, in 1992, Brockett, in 1982 (as cited in Hood, 1995), demonstrated that individuals are capable of identifying their own learning styles. When learners are exposed to a teaching style that aligns with their learning style, they generally score higher on tests than those not taught in their learning style (Dunn & Dunn, 1998).

Learning style assessment among adults has been examined through new approaches. French (1975) developed a conceptual framework for the seven learning styles in perceptual modality; print, aural, interactive, visual, kinesthetic, and olfactory.

Brown's study used these learning styles as a base for the determination of dominant learning styles among older adults. Efforts were made to include different age groups of adult learners, but the older adult group had not been examined as a separate group of the population in research (French, 1975).

Kolb and Experiential Learning

Kolb (2000) continues, that while we learn all the time, we do not all learn in the same way. As a result of our unique set of experiences, we each develop a preferred learning style. This learning style is simply the way we prefer to absorb and incorporate new information. Our learning style affects the way we solve problems, make decisions, and develop and change our attitudes and behavior. It also determines what kind of learning experience each type of learner will find affective, comfortable, and growth-promoting.

The Experimental Learning Model, as described by Kolb (2000) is a simple description of the learning cycle-how experience is translated into concepts, which in turn, are used as guides in the choice of new experiences. This cycle consists of the following four stages:

1. Immediate or concrete experiences.
2. This concrete experience is the basis for observation and reflection.
3. These observations and reflections are assimilated and distilled into a theory or concept; however informal, from which new implications for action can be drawn.
4. These implications can be tested and serve as guides in creating new experiences.

If they are to be effective, learners must be able to demonstrate the following learning abilities (Kolb, 2000):

1. Involve themselves fully, openly, and without bias in new experiences.
(Concrete Experience)
2. Reflect on and observe these experiences from many perspectives.
(Reflective Observation).
3. Create concepts that integrate their observations into logically sound theories.
Abstract Conceptualization).
4. Use these theories to make decisions and solve problems. (Active Experimentation). (p. 2)

Learners must continually choose which set of learning abilities they will use in a specific learning situation (Kolb, 2000). Kolb continues, that there are two main dimensions to the learning process that correspond to the two major different ways we learn: the first dimension is how we *perceive* new information or experience, and the second is how we *process* what we perceive.

The first dimension of learning relates to perception. In new situations, some people prefer to sense and feel their way, while others prefer to think their way through. Those who sense and feel find to rely on Concrete Experience-the tangible, felt qualities of the world – as their favored means of perceiving, grasping or taking hold of new information. They perceive through their senses, immersing themselves in concrete reality, and rely heavily on their intuition, rather than stepping back and thinking through elements of the situation analytically. Others tend to grasp new information through symbolic representation, or Abstract Conceptualization – thinking about, analyzing or

systematically planning, rather than using intuition or sensation as a guide. Both learning abilities, the concrete and the abstract are equally valuable; both have their strengths and weaknesses.

The second dimension of learning is how we process or transform the information and experiences we absorb, how we incorporate it (Kolb, 2000). In processing a new experience, some of us (if given a choice) would choose to jump right in and try our hand, while others would choose to carefully watch others who are involved in the experience and reflect on what happens. The doers favor Active Experimentations, the reflectors favor Reflective Observation. Like the concrete-abstract continuum, individual orientations fall at different places along the active-reflective continuum. Both modes, active and reflective, are valuable; both have their strengths and weaknesses.

Each dimension presents us with a choice. We make a choice because of our heredity equipment, our past life experiences, and the demands of our present environment, we develop a preferred way of choosing (Kolb, 2000). We resolve the conflict between concrete or abstract and between active or reflective in some patterned way. There are five identifiable factors that shape our learning styles (Kolb, 2000):

1. The first, personality type, affects such fundamental issues as a person's orientation toward introversion versus extroversion, and toward action versus reflection.
2. The second is educational specialization. Early educational experience is a strong force in learning style development. In school we are taught how to learn.

3. The third set of factors that shape learning style is professional career choice. Our career choice exposes us to a specialized learning environment.
4. The fourth set of factors influencing learning style is the person's current job. We become more skilled at the choices we make most frequently.
5. The fifth set of factors that identify learning style is the person's current task/problem. Each problem we face requires a corresponding set of skills for effective performance. The more we develop a certain set of competencies the more pronounced our learning style becomes. (p. 3)

In 1971, Kolb developed the Learning Style Inventory. He combined the concrete-abstract and active-reflective dimensions, finding that people fall into four basic types corresponding to the four quadrants that predict dominant learning styles. Because of personality type, educational specialization, professional career choice, current job role and current task/problem, people tend to make choices and fall within the four types of the Learning Style Model (Kolb, 2000).

Kolb was interested in designing an inventory that people would respond to just as they would a learning situation in real life. Faced with a new situation or a new learning experience, people must choose an approach to the problem or situation. People may recognize all aspects of the cycle of learning, but they can only choose or prefer one at a time. Kolb created a self-descriptive test, believing that self-image descriptions are more indicative of a person's behavioral choices than a performance test.

The Diverging Style's dominant learning abilities are Concrete Experience and Reflective Observation. People with this style tend to diverge from conventional solutions coming up with alternative possibilities. They perform better in situations that

call for the generation of ideas. People with the Diverging Style tend to be imaginative and aware of their emotions (Kolb, 2000).

The Assimilating Style's dominant learning abilities are Reflective Observation and Abstract Conceptualization. People with this style excel in inductive reasoning and assimilating disparate observations into an integrated explanation. People with this style are less interested in people and more concerned with abstract concepts (Kolb, 2000).

The Converging Style's dominant learning abilities are Abstract Conceptualization and Active Experimentation. People with this learning style seem to do best in situations such as conventional intelligence tests, where there is a single, correct answer or solution to a question or a problem. For these people knowledge is organized so that, through hypothetical deductive reasoning, they can focus it on specific problems and converge on the correct solution. They prefer to deal with things rather than people (Kolb, 2000).

The Accommodating Style's dominant learning abilities are Active Experimentations and Concrete Experimentation. People with this style are most interested in doing things, in carrying out plans and experiments, and involving themselves in new experiences. They tend to be risk takers and often excel in situations where one must adapt or accommodate oneself to specific, immediate circumstances. People with this style tend to solve problems in an intuitive, trial-and-error manner. People with the Accommodating Style are at ease with people, but are sometimes seen as impatient or pushy. Kolb (2000) further described his Experiential Learning Theory as follows:

The Experiential Learning Theory provides a model of learning consistent with the structure of human cognition and the stages of human growth and development. It conceptualizes the learning process in a way that allows users to identify differences between individual learning styles and corresponding learning environments. The Experiential Learning Model is a dialectic one, founded on the Jungian Concept of styles or types, which states that fulfillment in adult development is accomplished by higher-level integration and the expression of non dominant modes of dealing with the world. (p. 65)

People are thought to learn through experience, a process represented as a four-stage cycle: Immediate or concrete experience, forms the basis for observations and reflections, which are assimilated and distilled into theories or concepts from which new implications for action can be drawn. These implications are then tested and serve as guides in creating new experiences.

Figure 2 shows how a learner can begin at any place in the cycle of learning of learning. In developing his learning style inventory, Kolb combined concrete-abstract and active-reflective dimensions, resulting in finding that people fall into four basic types corresponding to the four quadrants that predict dominant learning styles. Learning style is not a fixed trait, but may change with the situation at hand. Adopting more than one preferred learning style may be very helpful in coping with life's situations (Kolb, 2000).

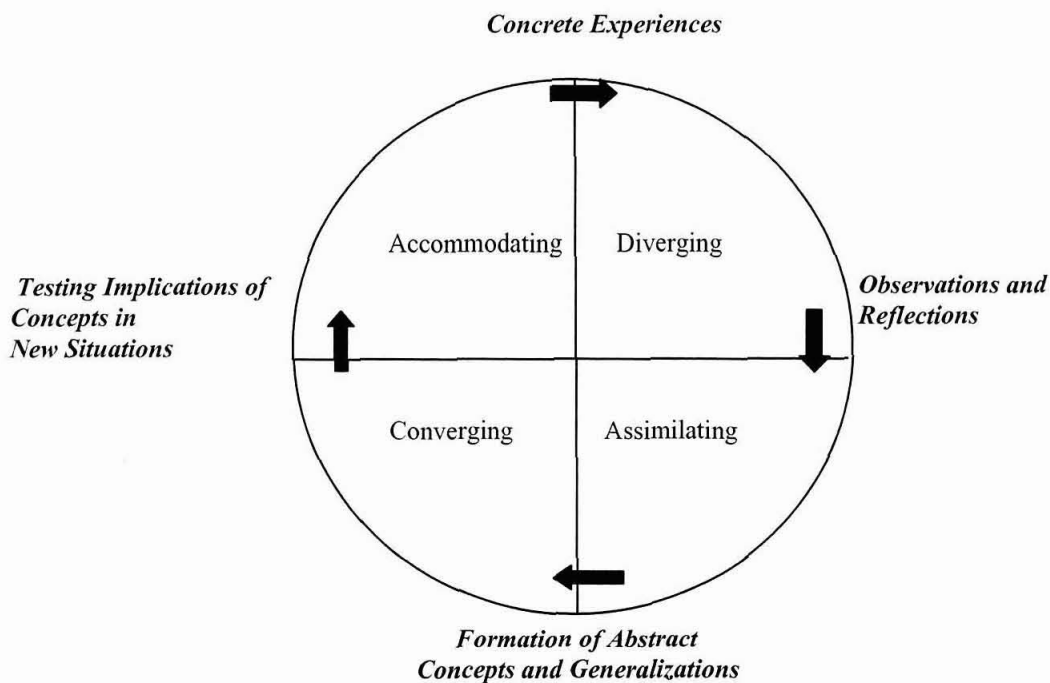


Figure 2

Cycle of Learning and Learning Styles

Adapted from Kolb's Experiential Learning Model, 2000, pp. 3 and 51

Learning style is not a fixed trait, but a current state of mind (Kolb, 2000). Kolb's research found in some cases significant, meaningful relationships between learning style at 30, 40, 50, and 60. Kolb has found that your life demands may require just the learning style you have developed, and the fit may be comfortable enough that you would not deliberately seek developmental learning situations. It is a matter of personal choice. The Kolb Learning Style Inventory Version 3 (LSI-3) is based on the Experiential Learning Theory (Kolb, 1999). Some of Kolb's results indicate a long-term stability in LSI scores as a measure of reliability. Kolb reports studies to establish validity of the LSI, including correlations with other methods to measure learning style.

Currently, research provides no definitive answer as to learning in the older years. Some research into learning styles of young adults has been conducted, resulting in a variety of conclusions. What has emerged from many of these studies is that teaching methods need to accommodate the various different learning styles. When the research has compared learning of older adults with young adults, the results have indicated that major declines in ability exist. These studies cannot be held up as a standard when you look at the abilities of older adults. The life experiences, surroundings, and health of older adults vary considerably when compared to young adults. These factors affect the learning abilities of older adults more extensively than they do for young adults. Health-related problems, such as declines in overall health status also can impact on learning ability or activity, including such problems as fatigue, reduced mobility, and declines in hearing and visual acuity (Hiemstra, 1993).

The preceding review of the literature provides insight into the various learning styles of older adults, which were acquired earlier in life and continued into later life. Changes in environment, health, and life experiences may have modified the learning styles of the participants. Some volunteers participating in this study have rarely, if ever, thought about their learning style and were faced with thinking about it for the first time.

Both positive and negative aspects have been cited in the literature. This study is important to understand the strides being made in research today. As the population ages, as people stay in the labor force longer and need to keep pace with new knowledge and skills, understanding how older adults learn will be critical. It will be critical to all stakeholders involved, including but not limited to older adults themselves, educators and

institutions of higher learning, community and governmental agencies, and businesses and the labor market.

Learning takes place when a change in behavior is observed, resulting from what has been experienced. One can observe the learning style of an individual by observing overt behavior (Keefe, 1987). Each learner has distinct and consistent preferred ways of perception, organization, and retention (Keefe, 1991). Talmadge and Shearer (1969) determined that learning styles do exist. In 1975, Toffer observed that phenomena are changing at a faster rate than researchers are able to provide useful data about them (as cited in Labouvie-Vief, 1990).

CHAPTER III

Research Methodology

A mixed methodology, dominant/less dominant design is used to study learning styles of older adults, and more specifically the differences in learning styles between two age groups of older adults. The dominant design is a phenomenological, qualitative approach to study learning styles, using a semi-structured interview of self-perceived learning style, developed by the researcher. The less dominant, quantitative approach uses a valid and reliable measure of Learning Styles, the Learning Style Inventory, Version 3 (LSI-3), developed by Kolb (2000). Data collection using the LSI-3 occurred approximately three months before the semi-structured, in depth interview. Analysis of data includes within case analyses for each participant using the LSI and Interview. This is also methodological triangulation because two different methods are used to describe learning style. The cross-case analyses compare the young versus older adult groups. Because this is a new area of study, methodological triangulation is used to provide a more in-depth understanding of the phenomena of learning styles in older adults, and strengthens convergence on truth. Chapter III presents a description of the study design, sample and setting, instrumentation, procedures and methods of data analysis.

Research Design

The distinction between the quantitative and qualitative approaches in this mixed methodology design lies in use of people's verbal descriptions of learning styles

(qualitative) and the use of numbers and observations about learning (quantitative). Both approaches contribute to developing the knowledge base about learning styles in older adults. The dominant method is qualitative with its focus on experiential learning and using 12 questions, taped interview.

The researcher chose qualitative analysis for this study because a major feature of qualitative analysis is that the data collected focus on naturally occurring, ordinary events. Qualitative analysis consists of concurrent flows of activity, (a) data reduction, (b) data display, and (c) conclusion drawing verification (Lincoln & Guba, 1985). Such a method gives the audience a strong picture of what real life is like (Miles & Huberman, 1994). The data are collected in close proximity to the specific situation rather than through the mail or over the phone. The richness of the data has a strong possibility of revealing the complexity of learning styles of older adults. The thick description was “nested in a real context and have a ring of truth” (Miles & Huberman, 1994). This has a strong impact on the reader. Because such data are collected over a period of time, that makes them powerful for studying any process. The data just does not simply tell us how many, but goes beyond that to how and why things happen as they do. The inherent flexibility of qualitative studies shows that researchers really understand what has been going on (Miles & Huberman, 1994).

Qualitative data, with its emphasis on people’s “lived experiences,” are well suited for locating the meanings people place on events, processes, and structures of their lives. Their perceptions, assumptions, prejudgments, and presuppositions connect meanings to the social world around them, because they have experienced the

phenomenon being explored, and can articulate their conscious experiences (Creswell, 1998).

Based upon the complex nature of the human response to learning styles, this researcher uses a qualitative approach. Much research in the area of learning styles and related strategies has been qualitative. A majority of studies have been conducted through questionnaires and scales followed by comparative analysis. Some studies have included interviews after completion of an analytic inventory. Qualitative methods were used because the area of research has not been directly studied.

The researcher also uses a quantitative method to understand learning style in older adults. This is “based on the assumption that any bias inherent in particular data sources, investigators, and methods would be neutralized when used in conjunction with other data sources, investigators, and methods” (Gillis & Jackson, 2002, p. 30). In this case, two different methods of data collection are used to measure the phenomena of learning styles.

Not only may information about this study, contribute to a body of knowledge, but the data collection process may help participants. The information that evolves from the interview helps the person understand that using other learning styles would be helpful in understanding other situations.

The learning style of each participant is determined by using the LSI, followed by each participant’s own view of how they learn (obtained from the “interview”). This creates data revealing how well the participants perceive their own learning style. The interview questions further reveal the misconceptions of learning styles. Comparing the data of the two groups reveals what differences in learning style, if any, appears as one

ages. To arrive at the learning styles of each participant using the Kolb's Learning Style Inventory, together with each participant's own view of how they learn, creates data about how well we perceive our own learning styles. The interview questions reveal further the misconceptions and mysteries of learning styles. Comparing the data of the two age groups reveals if differences in learning styles as one ages become more evident.

This research design is established to address the following questions:

1. What are the differences in the learning styles between the Young-Old (people aged 65 to 74) and the Old-Old (people aged 75 to 99)?
2. How does self-perception of learning style compare with the results of the Kolb Learning Style Inventory?

Purposive Sampling

This mixed design uses a non-random, purposeful sample. There are two reasons for using this sampling approach. The first reason is that small samples are typically used in qualitative studies because they are more manageable. "Much of the sampling in qualitative research is purposive" (Gay & Airasian, 2000, p. 138). The second purpose is to promote homogeneity of the sample. A dissertation committee member provided the referral and access to an affluent community in Delray Beach, Florida. To assist in selecting participants who are representative of the eligibility, a gerontologist who is the Assistant Director in this community helped select ten volunteers. The researcher desired to have a minimum of five older adults in each of the two age groups of 65-74 and 75-99. The participants were selected based on the criteria for selection that they have

experienced the phenomenon being studied and understand the meaning and nature of the study (Gall, Borg, & Gall, 1996).

The volunteers were required to meet the following eligibility criteria:

1. They must have been a resident at the facility for a minimum of one year.
2. They must not have suffered a stroke or other type of brain injury or dysfunction.
3. They must be healthy, functional, and mobile.
4. They must be actively involved in a learning activity.
5. They must be between the ages of 65-74 and 75-99.
6. They must have at least a high school diploma plus 2 years of college.
7. They must be willing to participate freely in the study.
8. They must be interested in knowing about their learning style.

The sample was selected from an upper socioeconomic adult residence located in Delray Beach, Florida. The sample included five women and five men. There were five volunteers who in the Young-Old adult group whose ages fell between 65 and 74 years of age and five whose ages were in the Old-Old adult group for ages 75-99 years of age.

Sample Description

During the initial contact with participants, demographic characteristics of the sample were obtained in response to three questions (current age and marital status) and race and gender are reported, based on observation. Five Young-Old and five Old-Old participants constitute the sample who were all white with at least a high school diploma and two years of college. Five were females and five were males. For the interval of ages 65-99, most averages are represented except the age group of 85-94. The majority

of the sample were married. Table 2 presents the demographic characteristics of the sample.

Table 2

Demographic Characteristics of the Study Sample

	Young-Old	Old-Old	Total Sample
Gender			
Female	3	2	5
Male	2	3	5
Race			
White	5	5	10
Age			
65-69	4		4
70-74	1		1
75-79		1	1
80-84		2	2
85-89		0	0
90-94		0	0
95-99		2	2
Marital Status			
Divorced	1	0	1
Married	4	2	6
Widowed	0	3	3

Setting

The study was conducted at an affluent facility in Delray Beach, Florida. The community is comprised of six storied buildings on the Intercostal with over three

hundred units. The identities of the community and participants have been changed to fictitious names to insure anonymity. The residents have all purchased their apartments, which vary in size and location. There is a monthly maintenance fee, which includes two meals per day served in a very well-decorated dining room. Mealtimes also serve as social times for the residents. Also on site are card rooms, a fitness center, lobbies, beauty salon, tailor shop, a sixty-bed clinic, swimming pool, social hall, dance hall, and theatre. The services provided also include valet parking, concierge, security, in this guarded and gated community with no entry without permission from a resident. The community has an active elected President or Representative, and officials for various committees.

The landscaping is lush and well cared for. The maintenance of the grounds is excellent. The furnishing and carpeting of the lounges is decorative. Many of the participants in the study have praised the facility and credited their comfortable times with living here. They have claimed living there has extended their lives.

Instrumentation

The study used two instruments to explore the learning styles of older adults. They are: The Kolb Learning Style Inventory, Version 3 (LSI-3) and the Self-Perceived Learning Style Interview, developed by the researcher.

The Kolb Learning Style Inventory Version – 3 (LSI)

The LSI-3 was chosen as one of the two major instruments in this study. The LSI-3 is based on the Experiential Learning Model. Kolb asserts that learning is the

method we use to adapt to and cope with our world; it keeps us busy through life-from childhood to adolescence, to middle and old age.

Kolb identified two separate learning activities: perception and processing. For example, some people best perceive information using concrete experiences (like feeling, touching, seeing, and hearing), while others best perceive information abstractly (using mental or visual conceptualization). Once information is perceived, it must be processed. Some people process information best by active experimentation (doing something with the information), while others perceive best by reflective observation (thinking about it).

Learning can be described (Kolb, 1999) as a cycle made up of four basic processes: learning by experiencing, learning by doing, learning by thinking, and learning by reflecting. This inventory is designed around this four processes. The LSI moves the person through these four processes to give a better understanding how one learns. One may begin a learning process in any of the four phases of the learning cycle. Ideally, using a well-rounded learning process, one might cycle through all four phases. However, some individuals may find that they focus primarily on just one of the phases. After the preferred learning style of each participant is obtained, the significance of each pattern will be discussed.

The LSI developed in 1971, has been revised several times. The most recent revision, LSI, Version 3 (LSI-3) was developed in 1999 (Kolb, 2000). The LSI is a self-report questionnaire, consisting of 12 sentence completion items. LSI-3 describes the ways a person learns and how a person deals with ideas and day-to-day situations. Before administering LSI-3, Kolb brings the inventory into focus by advising the person

to think about situations at home, at work, at school, or some other context in which the person is presently learning. Then the person takes the inventory.

Respondents rank order each of four response categories (sentence endings), for each item. A score of 4 is associated with the sentence ending that indicates how the respondent learns best, and so on, down to a score of 1 which is the least liked the way the respondent learns.

Each response category corresponds to dominant learning abilities that are associated with learning styles. Dominant learning abilities of the *diverging* style are Concrete Experience (CE) and Reflective Observation (RO). Dominant learning abilities for the *Assimilating* style are Reflective Observation (RO) and Abstract Conceptualization (AC). Dominant learning abilities for the *converging* style are Abstract Conceptualization (AC) and Active Experimentation (AE). The dominant learning abilities for the *accommodating* style are Active Experimentation (AE) and Concrete Experience (CE) (Kolb, 2000).

To avoid response bias, the responses to the 12 questions are randomized among the four possible learning processes for the 12 items. The responses are recorded on an “easy-to use color-coded sheet”. The respondent or researcher adds the score and plot results on *The Cycle of Learning Graph*. This is a graph within a circle. The resulting diagram constructed from the respondents answers to the 12 questions, is one’s current approach to learning in situations, which may change over time. The closer the dots are to the 100th percentile ring on the circle, the more the subject tends to use that way of learning. Scores that are farther away from the center of the grid indicate a heavy reliance on that particular learning ability. The percentages are associated with

normative data for the 1,446 adults who took the inventory to standardize it (Kolb, 2000, p. 66). Scores closer to the center of the grid (lower percentiles) indicate a more balanced learning style from among the four styles of diverging, assimilating, converging, and accommodating.

If the results of the Inventory indicate that a person prefers to learn by Concrete Experience (CE), the person perceives through the senses, relying heavily on intuition, rather than stepping back and thinking through elements of the situation analytically. The CE learner relates to people and is sensitive to people's feelings.

If the results of the Inventory indicate that the person prefers to learn by Reflective Observation (RO), the person chooses to carefully watch others who are involved in an experience and reflect on what happens before making judgments. The RO learner views issues from different perspectives and looks for the meaning of things.

If the results of the Inventory indicate that the person prefers to learn by Abstract Conceptualization (AC), the person tends to grasp new information through symbolic representation, thinking about, analyzing, or systematically planning, rather than using intuition or sensation as a guide. The AC learner likes to logically analyze ideas and act on an intellectual understanding of a situation.

If the results of the Inventory indicate that the person prefers to learn by Active Experimentation (AE), the person would choose to jump right in and try a hand at resolving a situation. The AE learner has the ability to get things done and tends to take risks. This learner influences people and events by action.

One may begin the learning process in any of the four phases of the learning cycle. Ideally, people may find that they may skip a cycle and focus on just one. Each

person's learning style is unique. Some people tend to have a Diverging Style of learning. For example, a person may have strong preferences for both Concrete Experiences and Reflective Observation learning modes. One's preference may be to consider a situation from differing perspectives. The person tends to diverge from conventional solutions, coming up with alternative possibilities. The more the scores fall into the upper right-hand quadrant of the circle, the more invested one is in using the Diverging Style in learning situations. That person's approach to situations is to observe rather than take action. Situations are enjoyed which call for generating a wide range of ideas. There is a preference for working in groups and listening with an open mind. The person is imaginative and sensitive to other people's feelings (Kolb, 2000).

If the person tends to use approaches that include Reflective Observation (RO) and Abstract Conceptualization (AC), the person probably prefers the Assimilating Style. The person may be interested in absorbing the learning experience into a larger framework of experience. The person tends to assimilate information into theories or models. The more the scores fall into the lower right-hand quadrant, the more likely the person is to use the Assimilating Style in learning situations. The person puts information into concise, logical form; the person focuses less on people and more on abstract ideas and concepts. It is more important to that learner that a theory be sound and logical than have practical value. The person prefers lectures and readings and thinks things through.

If the individual tends to approach the learning process by focusing on Abstract Conceptualization and Active experimentation, the person probably prefers the Converging Style. The individual may enjoy gathering information to solve problems.

The person tends to converge on the correct solution. The more the person relies on this style, the more the scores will fall into the lower left-hand quadrant. The person likes to find practical uses for ideas and theories. The person has the ability to solve problems and make decisions based on finding solutions to problems. The individual would rather deal with technical tasks and problems than with social and interpersonal issues. The person prefers to experiment with new ideas and simulations (Kolb, 2000).

If the person's primary learning approach involves Active Experimentation and Concrete Experience, you may find yourself using the Accommodating Style. If the person prefers accommodating, that person may want to put ideas that have been practiced into action, finding still more uses for whatever has been learned. The person tends to accommodate or adapt to changing circumstances or information. The more the scores fall into the upper left-hand quadrant, the more the person relies on this style. That person has the ability to learn from hands-on experience. The person carries out plans and is involved in new and challenging experiences. The person's tendency may be to act on gut feelings, rather than logical analysis. The individual relies more on people for information than on personal technical analysis. That individual prefers to work with others to get things done, set goals, and do field work.

Not everyone falls into one of the four dominant styles. A person may have a profile that balances along two or more dimensions of the learning cycle. A balancing style may indicate a person who is comfortable with a variety of learning modes. A balanced learning style means that you tend to emphasize all four modes equally. The key to effective learning and adaptive coping is this ability to be flexibly competent in each mode when it is called for, not to use all modes in every situation.

The combined scores on the LSI 3 explain which of the four dominant learning styles best describes the person. The LSI-3 is based on several tested theories in thinking and creativity. The ideas behind assimilation and accommodation originate in Jean Piaget's definition of intelligence as the balance between the process of adapting concepts to fit the external world and the process of fitting observations of the world into existing concepts. Convergence and divergence are the two essential creative processes identified by J. P. Guilford's Structure-of-Intellect Model (Kolb, 2000).

The procedures for the Kolb Learning Style Inventory (LSI) are the following:

1. Complete the inventory.
2. Go to the attached page to calculate your scores, according to directions.
3. Add up your scores for each shape.
4. Enter your scores for each shape at the top right of the attached page.

The introduction to the Kolb's Learning Inventory is as follows:

Think about what you do when you have to learn something new. You probably approach the task in a similar fashion each time. That is, over time you have developed a pattern of behavior that you use for new learning. This pattern is called a learning style. While we do not approach every learning task exactly the same way, each of us develops a set of behavior that we are most comfortable with. The purpose of examining our learning style is to get to know these behavior patterns so that we can see when they are helpful and when they are not.

Kolb (2000) reports the LSI-3 has been used in many and is available in other languages. It is appropriate to use with individuals with a seventh grades reading level.

The reliability of the LSI Version 3 shows very good internal consistency, as measured by coefficient alpha, and test-retest reliability, as measured by zero-order correlations. The test was normed on 1,446 adults (aged 18-60) and contains slightly more women than men, with an average of two years of college (Kolb, 2000, p. 66). Validity is established by the LSI correlating with other learning assessments as the Myers-Briggs (Kolb, 2000). In 1991, Leslie Hickax (as cited in Kolb, 2000), concluded that 83.3 percent of the studies she analyzed provided support for the validity of Experimental Learning Theory and the Learning Style Inventory (p. 70). In this study, the LSI-3 is used for both groups of older adults to determine the preferred learning style and learning approaches for each participant.

Self-Perceived Learning Style Interview (Interview)

In a doctoral program course project, the researcher developed the Self-Perceived Learning Style Interview (Appendix A). The purpose in developing the Interview was to provide a method to obtain phenomenological perspectives of learning styles in older adults. The interview consists of 12 questions whose purposes are to reveal the participants own perception of how they learn (questions #1, #3, #4, #6, #7, #12), feelings about aging (questions #8 and #10), cognitive appraisal of aging (#5, #9 and #11) and past learning styles (#2). The learning questions are based on Kolb's model and the aging questions were designed to enrich the information about learning experiences as one ages.

The questions are introduced by asking participants to think about a particular situation where they had to learn new information. If there was no immediate response a

follow-up question asked how they would handle a particular situation. After participants answered questions regarding how they process new information, the researcher asked a follow-up question. This question probed how the new information was processed or applied. This is consistent with Kolb's concepts of perception and processing. Content validity of the questions is established by the selection of items from the literature and a review by a panel of judges including the Chair of Committee and two doctorally prepared Psychiatric Social Workers.

Interviews "are thought to be powerful instruments for exploring complicated emotions and experiences" (Miles & Huberman, 1994, p. 292). Historically, individuals have made sense of their experiences through narrative reporting. Interviewing does not test a hypothesis. Instead, the utility of an interview is to enhance the understanding of how people interpret their worlds and how the researcher, in turn interprets their interpretations and bring meaning to that experience (Shank, 2002).

This researcher conducted audio-recorded interviews of each participant in a one-to-one setting. The audio-recording was not meant to be intrusive, but was utilized to document and validate the research for future replication efforts. The interviews were comprised of semi-structured, in-depth, and open-ended questions.

Procedures

The study was approved by Lynn University Institutional Review Board. (See Appendix B for the approval letter and consent form). Originally, the Memory Span Test to be a component of the study, however it was not used. In addition, the age group included any age over 65.

The Hay Group, from whom the Kolb LSI-3 was purchased granted permission to use the Inventory for this dissertation. Permission was further granted to copy only the Cycle of Learning in this dissertation. Therefore, the LSI-3 is not included in an appendix of this study. See Appendix C for the approval letter from the Hay Group.

The Assistance Director provided a list of potential study participants. At the request of the Assistant Director, the researcher made informal telephone contact with each of the ten persons to inform them of the study and solicit interest in participation. The extent of the information provided to each contact was limited to identifying the researcher's professional and academic background, the content of the study and a projected time frame when the interviews should be conducted.

The participants were told that the LSI describes the way each person learns and how each person deals with ideas and day-to-day situations. Appointments to administer the Kolb Learning Style Inventory (LSI-3) were set. Each volunteer was given a precise time convenient to him or her when this researcher would come to his or her home to administer the LSI-3. Approximately three months elapsed between administering the LSI-3 and conducting the interview.

For the LSI-3 and the interview, participants sat at a table with the interviewer in the familiar surroundings of their home. From introductions through completion of the LSI-3 and its explanation, meetings averaged about one hour. For the interviews, meetings ranged from one to one and one-half hours. The visit began by sitting at a table, facing each other. For the interview only, a tape recorder was placed on the table between participant and interviewer. There were twelve questions asked and answered. If the participant needed clarification of the question, clarifications were given and

answers to the questions were encouraged. At times participants went off on tangents because such questions were open-ended, and had not been put to them before. The researcher sometimes needed to clarify the question to keep them focused. Lincoln and Guber (1985) indicate participant feedback is important in achieving validity. Areas of miscommunication should be clarified through the use of member checks. Audio-taping and data-rich field notes were taken, detailing the participant's behavior during the interview. The interview results were transcribed and direct quotes, as well as observed behavior, were used in the text of the study. All names and references to participants were changed to protect the confidentiality of the participants. The data will be stored in a locked area for a period of five years. This data will be available to other researchers upon request for further relevant research. All names of the participants are changed to assure confidentiality.

Methods of Data Analysis

The researcher searches for any relationship between perceived learning style (as reported by each participant on the Interview) and preferred learning style (as revealed by the Kolb Learning Style Inventory, LSI-3). A within-case analysis is used to establish a relationship among the individual participants within each group. A cross-case analysis examines similarities and differences between the groups.

All the observations result in extensive field notes that are converted into "write ups" (Miles & Huberman, 1994, p. 52). These write ups are read, coded and analyzed. The interviews are taped and a careful word-by-word transcription is made to prepare them for analyses.

Data reduction is accomplished through the process of selecting, focusing, simplifying, abstracting, and transforming the “raw” data that appears in the field notes and the transcribed interviews. In this study, the field notes are converted into “write-ups” and typed directly. The write-ups add back some of the missing content derived from the sketch field notes. The direct tape recordings were transcribed by the research to avoid slippage. The transcription of the direct taped records is dependent on the knowledge, ability, and skills of the transcriber. The words from the field notes and taped recordings were refined into a text that is clear.

The researcher spent time reflecting on the main concepts, themes, issues and questions, which enabled the research to develop an overall summary of the main points of context. Responses to each of the 12 questions are succinctly organized in the summary.

These data reduction procedures are followed by organization of information and the data displays. The displays of data reduction allow the researcher to arrive at appropriate insights and recommendations. The data from the LSI-3 are presented in the form of a diagram (Circle of Learning). The diagram displays the learning style of each participant and learning abilities or approaches used.

In-depth interviews are coded and displayed in a table for each individual, along with comparisons between the LSI-3 and related qualitative comments from the Interview. Tables of quotations from the participants in the study are assembled to assess and compare self-perceptions of learning obtained from the Interview and results from the LSI-3. The tables are designed so that perceptions – positive and negative and neutral – might be observed within case and cross case between the two older adult age groups.

Finally, the process of conclusion drawing and verification takes place to reveal what the conclusions show and to verify the conclusions as the analysis proceeds. The analyses leads the researcher to fulfill the purpose of the study and answer the research questions. Analyses report the results of the Young-Old and the Old-Old within-case analyses of the Learning Style Inventory and the Interview data for the individual study participants and cross-case analyses comparing the two age groups with respect to their Learning Styles Types.

Data are triangulated to improve the probability that the findings and interpretations are credible. Triangulation as defined by Creswell (1998) is the use of multiple and different sources, methods, investigators, and theories to provide corroborating evidence. Typically, this process involves corroborating evidence from different sources to shed light on a theme or perspective (p. 202). For the purpose of this study, triangulation is achieved through corroboration of the Interview and LSI-3.

Guba's and Lincoln's (1981) proposed evaluative strategies in qualitative studies are of credibility, dependability, and confirmability. This study addressed the issue of internal validity through the strategy of credibility (interview technique, member checks, and triangulation). The dense descriptions of the sample and setting contribute to transferability of study findings in a limited manner, as an example of external validity.

Lincoln and Guba (1985) believe that naturalistic inquiry should use methods, "that are appropriate to humanly implement inquiry; interviews, observations, document analysis, unobtrusive clues, and the life" (p. 187). As they explained, "Theory emerges from the inquiry for the naturalist. It is not given a priori" (p. 224). Miles and Huberman (1994) assert that a natural setting is the most appropriate kind of inquiry because the

influences of the context or the setting should never be removed from the pursuit of answers to research questions. A feature of qualitative data, as reveals by Miles and Huberman (1994) is, “their richness and holism, with strong potential for revealing complexity; such data provide ‘thick descriptions’; that are vivid, nested in real contexts and have a ring of truth that has strong impact on the reader” (p. 10). They continue to explain that, “qualitative data, with their emphasis on people’s lived experiences” are fundamentally well suited for locating the meanings people plan on events, processes, and structures of their lives; their perceptions, assumptions, prejudgments, presuppositions and for connecting these meanings to the social world around them” (Miles & Huberman, 1994, p. 10). Findings in this study about learning styles of older adults are presented in Chapter IV.

CHAPTER IV

Findings

In this chapter the results of the study are presented. The results are organized under four major headings, as follows: (1) description of the Young-Old and the Old-Old samples; (2) within-case analyses of the Learning Style Inventory and the Interview data for the individual study participants; (3) Methodological Triangulation; and, Other Findings. These findings address the purpose of the study which is to answer the following questions:

1. What are the differences in the learning styles between the Young-Old and the Old-Old adults?
2. How does self- perception of learning style compare with the results of the Kolb Learning Style Inventory?

Description of the Samples

All members of the sample were white, healthy older adults with at least a high school diploma and two years of college. The Young-Old sample contained four individuals between the ages of 65 and 69 (two males and one female) and one individual between the ages of 70 and 74 (a female). The four participants who fell between the ages of 65 and 69 were all married. The one participant whose age was between 70 and 74 was divorced.

The Old-Old sample contained one individual between the ages of 75 and 79 (a male), two individuals between the ages of 80 and 84 (one male and one female), and two

individuals between the ages of 95 and 99 (one male and one female). The individual in the 75-79 year-old age group was widowed; both individuals in the 80-84 year-old age group were married; and both in the 95-99 year-old age group were widowed.

Within Case Analyses

In this section the individual participants and the circumstances surrounding the interview are described. The Learning Style Inventory and interview data of each participant in each group are considered individually in the following description, beginning with the participants in the Young-Old group (Y/O), and concluding with the Old-Old (O/O) group. Initials are used to facilitate the protection of the participants' confidentiality. Following the presentation of each participant, a Figure of the *Learning Cycle* for the participant is presented.

Participant TC (Y/O)

TC is a 67 year-old married male. He has four boys. He lived and worked for 30 years in Hong Kong and became a senior partner in a large accounting firm. He has been retired for several years and returned to the United States to take up residence in the affluent retirement community where the study was conducted. He and his wife have chosen to move to this community, because his wife's mother willed the apartment to them. TC strikes one as being extremely competent, and he has been elected by the residents as the president of the community organization. He is actively engaged in planning the agenda for his term and the steps necessary to accomplish his goals. He is a good judge of people, rapidly discerning their strengths and enlisting their efforts. TC

was most gracious to this investigator when I arrived at his apartment, and he was very focused on completing the interview and the LSI-3.

In his interview, TC indicates that "If something doesn't interest me...I'd get turned off. If it does interest me, I'd carry on." He indicates that he learned on a need to know basis. For example, he states that he is participating in a chorus now, and that he learned to read music because he had to. Later in the interview he reiterates this idea, stating, "I read only when the material is relevant." He mentions that he had been elected president of the community, and he says that in performing this role, "I have a lot of things to learn."

TC mentions several modalities through which he prefers to learn. He states that if he has to learn about something like using the computer, "I'd prefer to read about it." However, he also says that, "I suppose I learn also by having to do things. Hands on." In the context of his work as community president, TC said that, "What I'm doing presently is thinking about what needs to be done." He specifically states that he is going to "reflect on a strategy that I can apply for the next five years of so." According to the LSI-3, this indicates a reflective orientation. He also states that he likes to "get all the facts" before taking action, and that "I like to observe if I can."

TC says that his learning style had changed "due to circumstances." He says that when he first started out in business he had to learn how to "relate and deal with people." He says that he worked hard on developing communication skills and that he learned the importance of listening to constructive criticism. These statements again indicate according to the LSI-3, that TC learns in response to the demands placed upon him by the role in which he finds himself. TC reports that the aging process has slowed him down

quite a bit physically and given him various aches and pains. However, he indicates that, “Mentally I feel the same.”

The results of TC’s Learning Style Inventory are presented in Figure 3. As indicated in the Figure, TC has his highest score on the Reflective Observation dimension of the LSI-3. This score certainly conforms to his interview statements indicating that he preferred to reflect on a strategy and that he likes “to observe if I can.” TC also has a relatively high score on the Concrete Experience dimension of the test. This pattern of scores places TC clearly in the Diverging Learning Style Type. Individuals with this learning style are best at viewing concrete situations from different points of view. They like to observe, and they tend to enjoy situations that enable them to generate a wide range of possible approaches to a problem. These characteristics of the Diverging Learning Style also conform closely with the statements of TC regarding his preference for observing before acting and his current reflection on the things that need to be done in conjunction with his role as community president.

Clearly, the data in the interview with TC match the data derived from the LSI. When presented with the results of the LSI-3, TC agrees that the instrument yields a perfect picture of his own perception of his learning style.

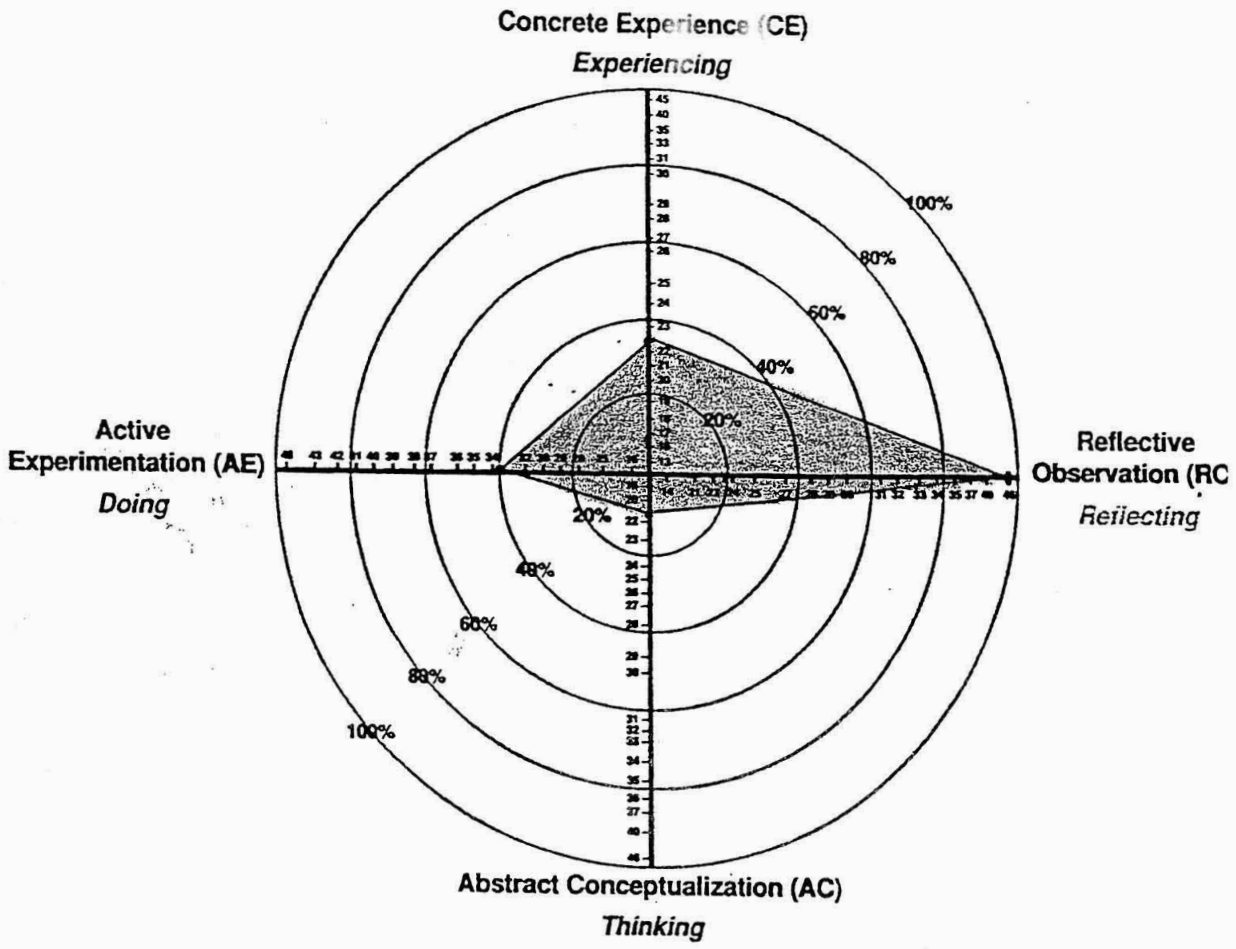


Figure 3

The Kolb Learning Style Inventory of Participant TC

Participant CC (Y/O)

CC is TC's wife. She had come into the dining room of her apartment when I completed the work with TC. CC was eager to participate and was looking forward to taking the LSI-3. She had hurried home from one of her many activities in order to be on time for her appointment with me. CC comments on her four grown sons whom she had raised in Hong Kong. She indicates that they were living in various places all around the world. She indicates that she has never suffered from the "empty nest syndrome," since she has always been heavily involved in volunteer work. Specifically, she has been involved with tutoring students in the English schools in Hong Kong. She indicates that she had set up SAT programs for these students and had helped them with their English.

CC states that she has never given much thought to how she learned during the time when she lived in Hong Kong. She was too busy. However, now that she has some leisure time, she is interested in taking some new courses, and she feels that finding out how she learns best would be very helpful to her. Therefore, at that point in time she was quite eager to take the LSI-3.

In her interview, CC indicates that she prefers to learn by "watching." She hastens to add, "I've been able to learn under pressure, but it's not the way I like to learn." She says that sometimes you're forced to learn under pressure and that motivates you. "The adrenalin starts to flow and you know you can do it," she adds. CC equates this type of learning with memorizing.

CC states that she and her husband had learned a great deal from observing their sons while they were growing up. She says that learning was harder then because of the demands of raising the children." She says that now, "I'm at leisure to choose what I'd

like to learn and how I like to learn it, and it's rather nice." CC indicates that she considered herself a very flexible individual, as indicated by the manner in which she had adapted to living in different places over the course of her lifetime. She also describes herself as a good listener, although she indicates that she had not become all that involved with the people at the retirement community to this point.

CC acknowledges that changes did occur as a result of the aging process, and she says, "I take aging as it comes. You have your ups and downs and you don't have quite the stamina." She says that she and her husband do a lot of exercise" and she says that she thinks it is very important to "exercise the mind and body." She adds, "We take aging very much in our stride. I think I'm pretty accepting of the changes that are going on the body (sic) and the mind." Thus CC does appear to be aware of both physical and mental changes that are associated with aging.

Figure 4 presents the results of CC's Learning Style Inventory. She had very high scores on both Reflective Observation and Abstract Conceptualization, and very low scores on both Concrete Experience and Active Experimentation. This pattern of scores identifies CC as firmly with the Assimilating Learning Style Type. Individuals characterized by the Assimilating Learning Style Type are best at understanding a wide range of information and putting it into concise, logical form. They tend to be less focused on people than on abstract ideas and concepts. This description would appear to be consistent with CC's observation that she had not become very involved with the other residents in the retirement community as yet, although it does not appear to be consistent with her earlier experience volunteering in the English schools in Hong Kong. Perhaps this indicates that CC was accurate in describing herself as flexible.

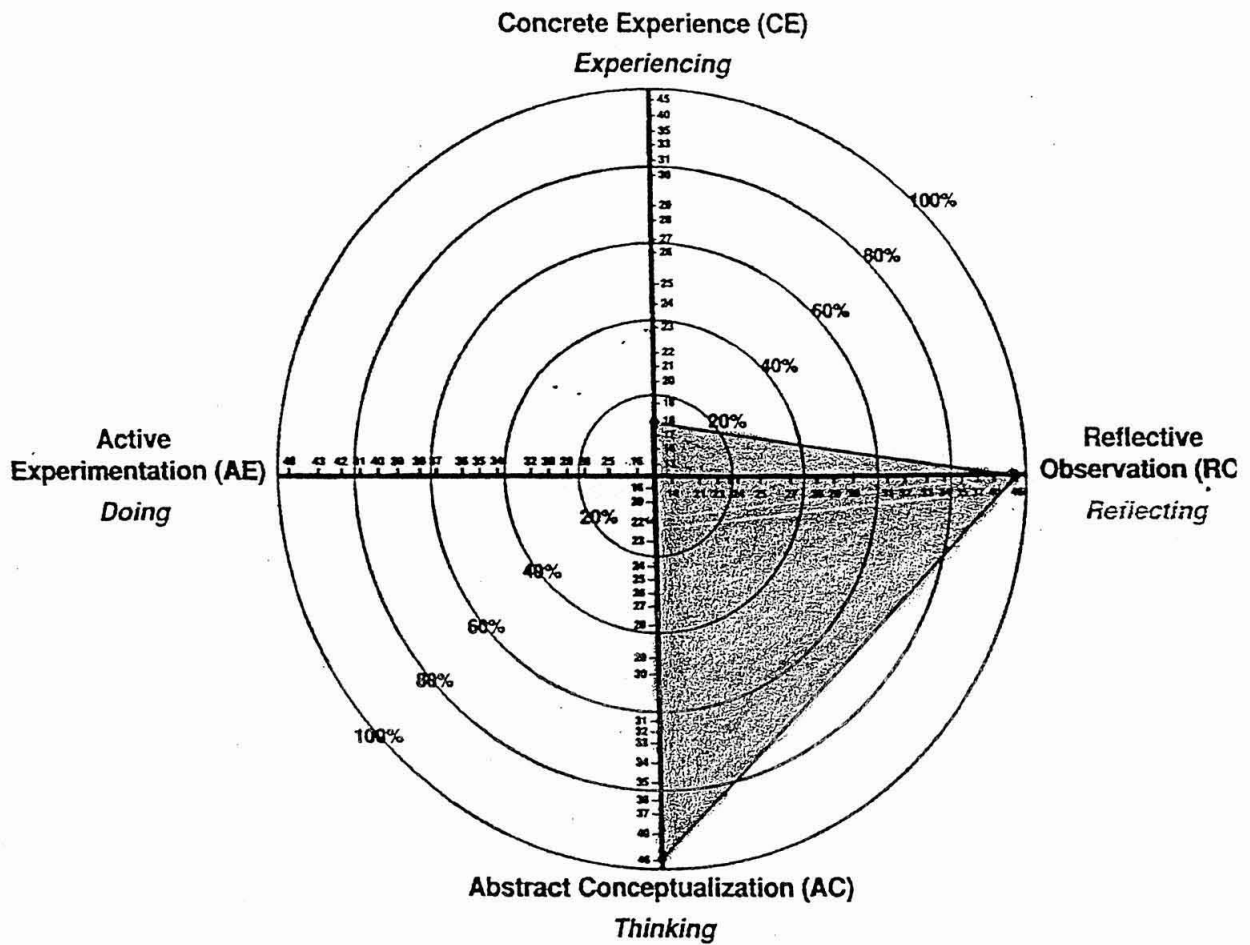


Figure 4

The Kolb Learning Style Inventory of Participant CC

Participant MK (Y/O)

MK had been a banker up North before she retired and moved to Florida. She had been divorced for a long time. She has a daughter from that marriage with whom she is very close. She also reports being very close with her grown granddaughter. MK states that when she was younger she had studied voice and had performed in the opera. She also had told me that throughout her life she had worked with and socialized with people who were almost twenty years younger than she. Indeed, she looks younger than she really is, and she expresses some displeasure with living in a community with older individuals.

I met with MK at the Morikami Museum, where she volunteers as a docent. She indicated that it would be very convenient for her to meet there, since she spent a substantial proportion of her time at the Museum. She states that she greatly enjoyed working as a docent, because she constantly learns new things and meets new people. She also indicates that she is very pleased to have been selected for inclusion in the study.

MK indicates that she learns best through “Repetition...doing it over and over...either saying it or reading it. Sometimes I write it back in my own words.” She also indicates that, “Memorizing is the only way that’s left to me if I can’t learn from repetition.” MK believes that she is a better learner now than she had been when she was younger. She attributes this to her life experience, which “trains you to be more adept at learning.” She argues that life experience makes one “more focused on what you’re learning.”

MK suggests that aging had not really affected her until the last year or so. She says that retirement rather than chronological age is the factor that impacts one’s

learning. She said, "Now I feel my age because I'm not productive." MK remarked that "The people around here are still producing, playing tennis, golf, exercising, participating in clubs and adult learning centers. They are not looking at their age as the end of the rope." MK does acknowledge that aging "gives you arthritis and changes your physical body. It alters the body and sometimes the mind too." However, she says that she takes Tylenol and has learned to cope with it.

Figure 5 presents the results of MK's LSI-3. She has moderate scores on all four of the Learning Style Dimensions, indicating a "Balancing" Learning Style Type. This Learning Style is characteristic of individuals who are comfortable with a variety of different learning modes. In her interview, MK had described herself as a "problem-solver." This phrase connotes flexible approaches to learning and appears consistent with the utilization of diverse learning modes. MK indicates that the results of the LSI-3 confirm her own impression of her learning style and how she applies this style during her working years.

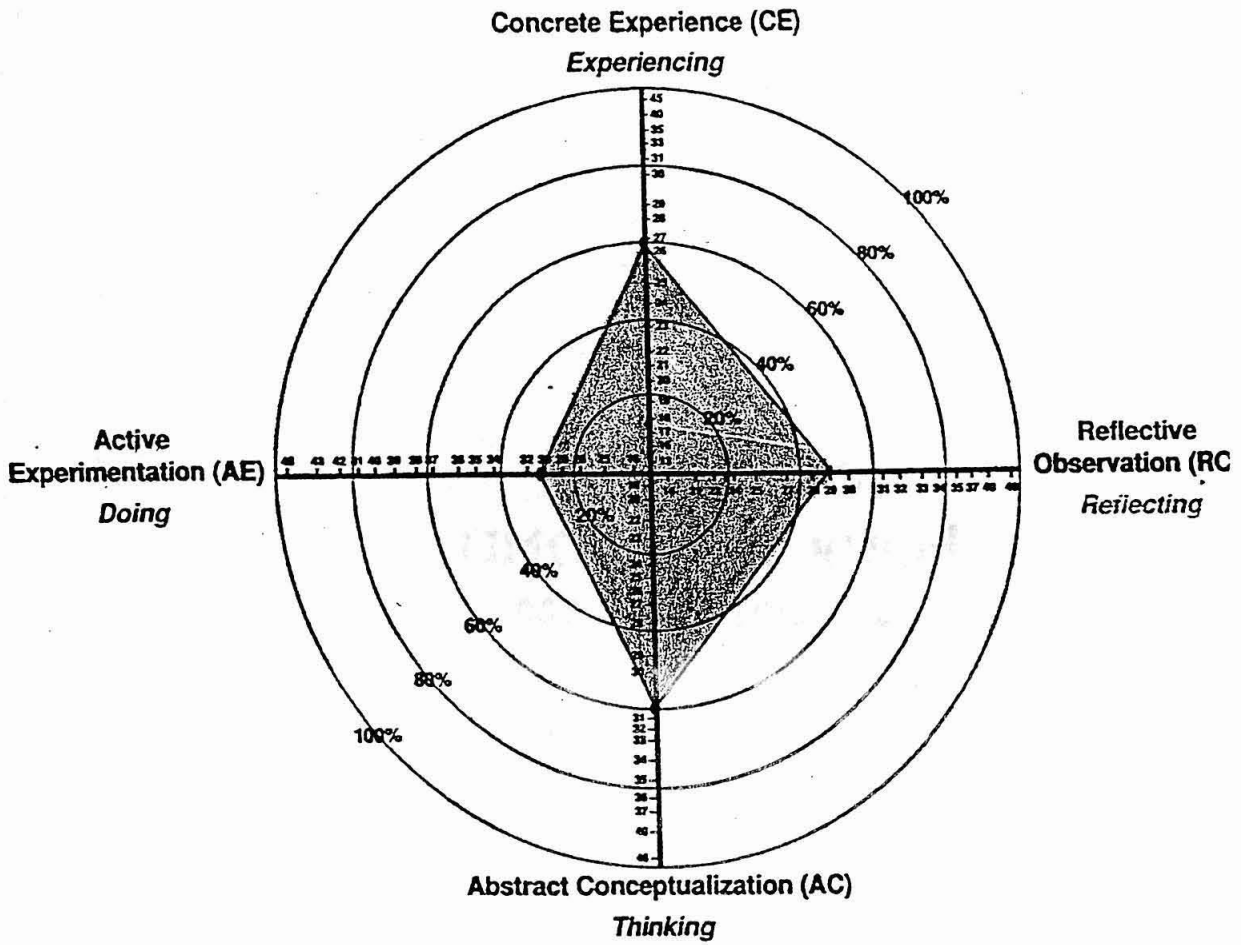


Figure 5

The Kolb Learning Style Inventory of Participant MK

Participant VW (Y/O)

VW lives with her husband. She indicates that she has relatively few friends in the retirement community, but she does have a few friends at the Morikami Museum, where she volunteers. VW has four grown children, but they are scattered about the world, and she does not see them often. In addition, her father is still alive at the age of 99. He is in poor health. Because she did not deliver a eulogy at her mother's funeral, VW is preparing in advance to speak at her father's funeral.

VW works in the Morikami Museum library. She cannot be a docent or a greeter or work in the Museum gift shop, because standing and walking is difficult for her. VW was happy to have been selected to participate in the study. When she was taking the LSI-3 she was focused and intent on reading each question carefully so as to make her answers as accurate as possible. However, during her interview she became easily distracted, and she began to tell stories about various issues in her life which were only tangentially related to the actual questions. These stories concerned her health, her family life, and the documentary programs that she watched on TV.

When asked about her preferred learning modes, VW first declares emphatically that, "It is hands on." However, she immediately states, "Television or visual is my next choice." Shortly, thereafter, she starts talking about a documentary on Mt. Rushmore that she had seen on TV. She had told me a bit about the documentary and what she had learned. She notes that in Florida it was common for various groups to have speakers and authors where you could go along with others in order to learn something about a topic. She complains that "sometimes the visual aids are not good at these meetings or the material is boring," and, she remarks that when you watch TV you're alone. She says, "It

may not be social, but you learn much more from the TV than you learn from these meetings. . . . At home it's like you have a box seat at the opera and you don't have to pay for it." Thus it would appear that VW is actually very favorably disposed toward learning visually through the television.

VW indicates that she was "pretty good at taking risks," a statement which she supported by referring to her decision to have surgery to ameliorate the pain that she experienced in her legs. She says that the surgery was "very scary" because "it was on my spine." She says that she had obtained as much information as she could about the surgery in order to prepare herself for the risk. VW also states that, "I like to take action. . . . If I have to take care of myself, I try to be prepared." She also describes herself as someone who likes to "solve problems and find practical solutions."

When asked about age-related changes, VW acknowledges, "In the last 2 or 3 years I'm forgetting more." She also says that, "Physically I'm having trouble." VW says that she always had a problem with walking, but she had always been very good at overcoming. However, she states that "Now I'm less able. I sort of get more easily turned off." She notes that as one ages "It's not just one problem that hits you, it hits you from many sides."

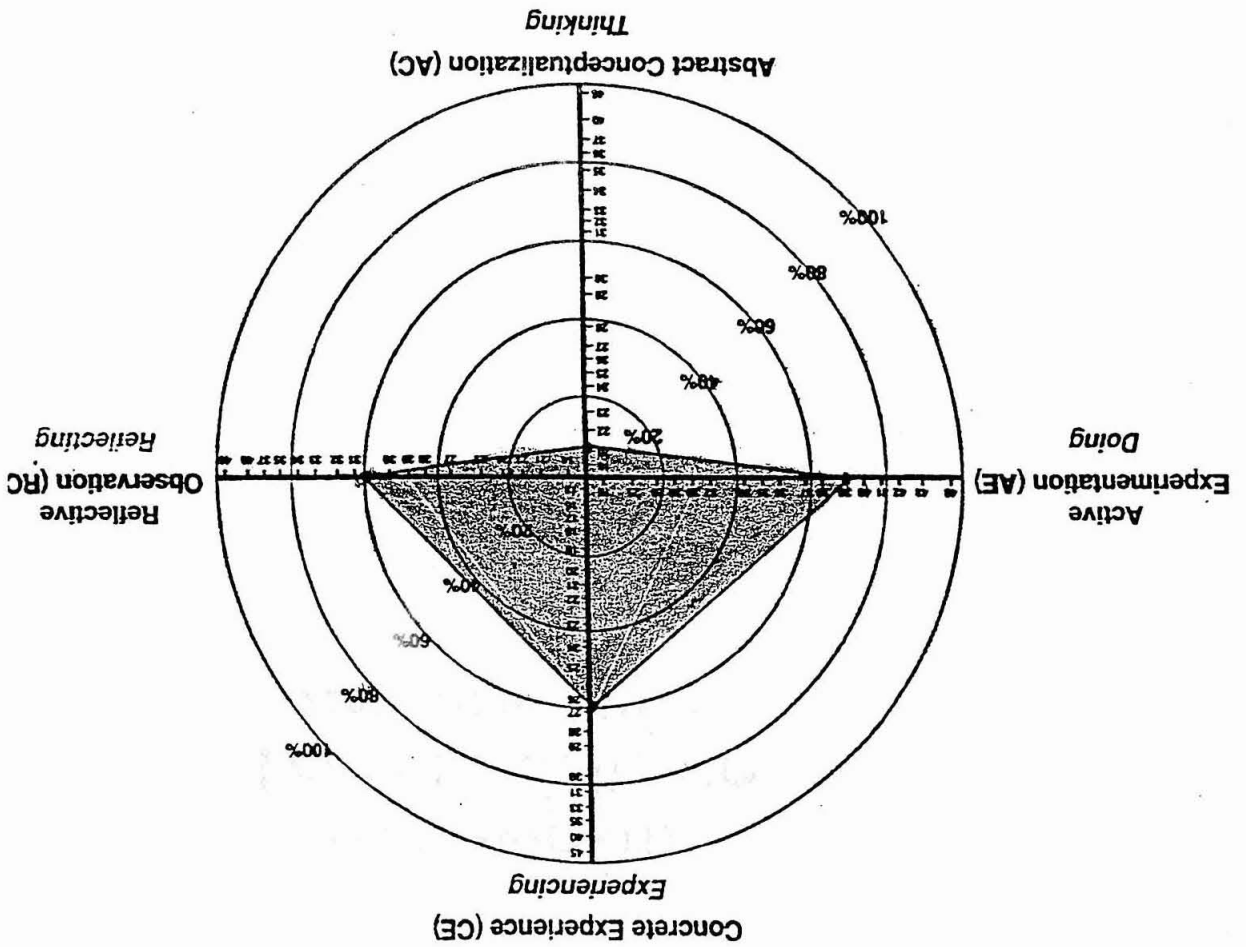
Figure 6 presents the results of the LSI-3 for VW. Her highest score was on the Active Experimentation Dimension, but she also had quite high scores on the Reflective Observation Dimension and the Concrete Experience Dimension. Her score on the Abstract Conceptualization Dimension was very low. Her protocol therefore represents both the Accommodating Learning Style Type and the Diverging Learning Style Type, with slightly more emphasis on the Accommodating Type.

The Accommodating Learning Style Type describes people who have the ability to learn primarily from hands-on experience. It is interesting that the very first words in VW's interview indicated that she preferred "Hands on" learning. Individuals with the Accommodating Learning Style Type tend to enjoy carrying out plans and involving themselves in new and challenging experiences. This description fits VW's self-description as a person who "likes to take action." In addition, Accommodating individuals may rely more on gut feelings than on logical analysis. This aspect of the Accommodating Learning Style Type appears to fit in with VW's risk-taking capacity.

Certain aspects of VW's interview are also indicative of the Diverging Learning Style Type. For example, in discussing the decision to have surgery, VW states that she had obtained as much information as she could to prepare herself for the risk. This behavior fits the Diverging Style characteristic of having a preference for gathering information. Thus, even in this situation where an individual's LSI-3 protocol indicates an almost even balance between two different Learning Style Types, the test appears to provide an accurate description of the learner.

The Kolb Learning Style Inventory of Participant W

Figure 6



Participant MW (Y/O)

MW is VW's husband. He is a quiet man. He has not made many friends in the community where he lives. However, he is a docent at the Moricami Museum, and he has made some friends there. He indicates that he constantly tries to learn new skills and knowledge in order to be a competent docent. He has recently bought a new computer with "all the bells and whistles," and he takes many courses learning how to use this computer.

MW tends to speak in a monotone voice, and he does not smile very much. Nevertheless, he says that he is very contented. He reported that he is looking forward to living for many more years. He says that retirement has given him the opportunity to pursue his interests for their own sake, rather than for the sake of money or job advancement.

With respect to preferred learning mode, MW indicates that he usually learns through reading, using "visual information and books." He says his next preference would be through documentaries on TV. This stands to reason, given his wife's interest in TV documentaries. MW also says that sometimes, when his eyes are "bothering him," he uses auditory methods.

MW states that it takes him longer to learn things now than it did ten years ago. He says that he does not retain a great deal of what he learns. He says, "I have to read it as much as four times before it sinks in. A month later it is gone from my memory." MW says that he is often frustrated because he would be thinking of something, but be unable to come up with its name. In addition to age-related changes in learning efficiency, MW also mentions changes in attitude that accompanied aging. He states that,

“it changes your perspective, and you can see the end of the row,” and he indicated that now “I try to live more for the present and only the near future.”

When asked about risk taking, MW indicates that he had tried to “minimize risk” by analyzing the situation carefully: “I analyze the up and down sides. If the up side is in my favor, more positive than negative, then I proceed. If there’s more negative than positive, I proceed with more caution.”

MW’s LSI-3 reflects some of the comments he made in the interview. Figure 7 shows the results of his LSI-3. His high scores are on Abstract Conceptualization and Reflective Observation. He has low scores on Experiencing and Active Experimentation. He falls clearly into the Assimilating Learning Style Type. This reflects his own perception that he tends to analyze the up and down sides. Another characteristic of the Assimilating Learning Style Type is greater focus on abstract ideas and concepts than on people. This aspect of the Assimilating Style also appears consistent with the statements MW made in his interview, as he has not made many friends, but spent much time learning about different aspects of the computer.

MW is pleased with the results of the LSI-3. He says, “It’s pleasing to see the positive relationship between my perception of how I learn and the LSI-3. So whatever I’m doing to learn, I’ll keep doing it.” It appears that for MW, the LSI-3 validates his self-perceived mode of learning.

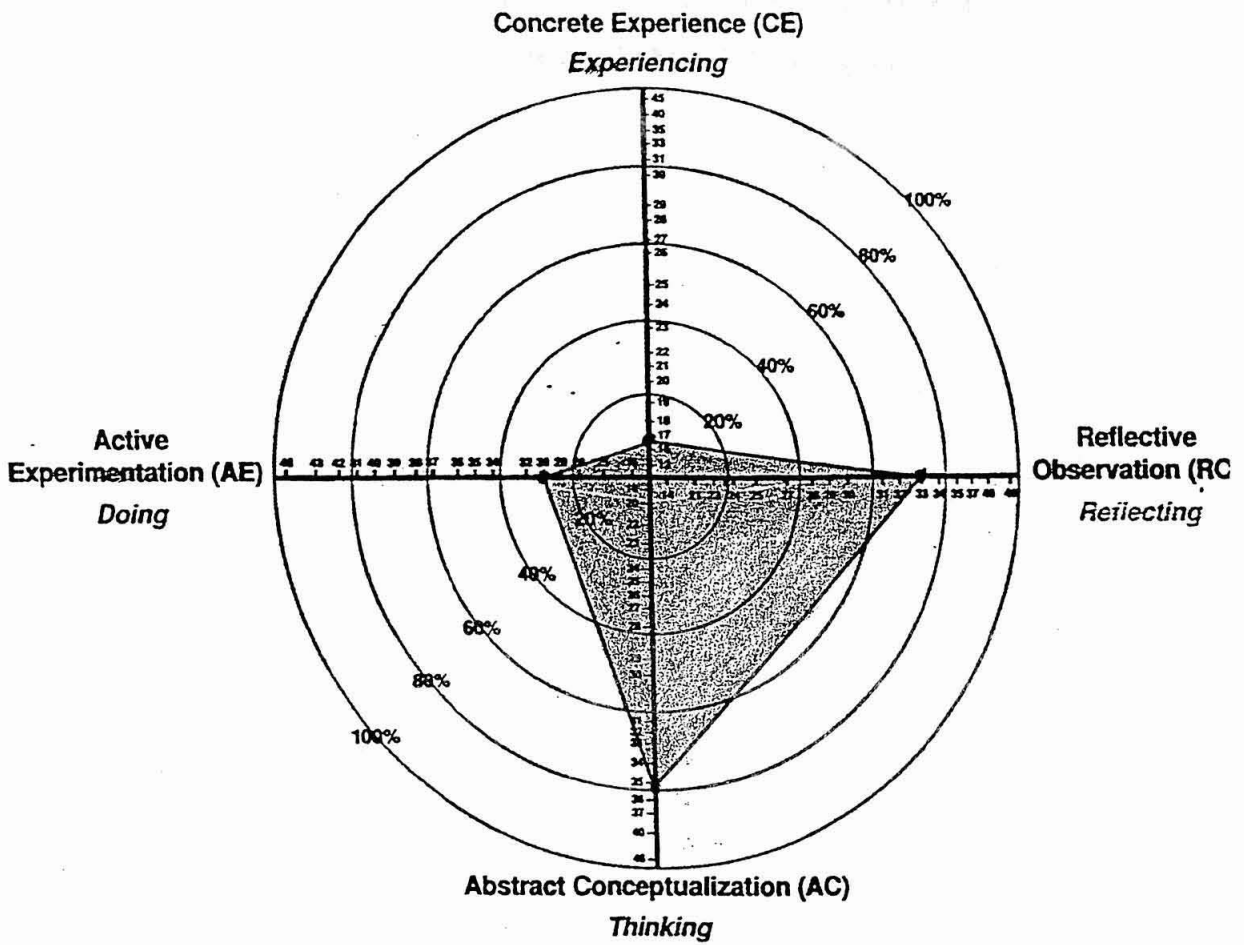


Figure 7

The Kolb Learning Style Inventory of Participant MW

Participant SB (O/O)

SB is an 82 year-old woman who enjoys life and looks forward to many more happy years. She notes that she does not have to cook anymore, because she can have “wonderful meals” served in the dining room of the facility. She says that this gives her more time to enjoy things like gardening, which is her favorite hobby. She says that when she was younger she had built and planted a large arboretum, and that her story had been written up in a local paper. SB indicates that she also likes reading and watching TV. In addition, she and her husband have just taken bridge lessons, and they are looking forward to playing with some of the other residents.

SB indicates that she had enjoyed her earlier years as a mother raising her family. She says that she has a very close family, and that her children and grandchildren come to visit her frequently. She says that when she and her husband moved to the community they brought only a few things from their former home. She had given most of her treasures to family members. She also had left some things for the folks who bought her home.

SB indicates that her preferred mode of learning is listening. She says that she likes to “listen to the TV” and to tapes. She says that listening is her preferred mode because “it’s easier to listen.” SB indicates, “The way I learn today is the same way I learned 20 years ago . . . but the material is different.” That is because when she was younger she had children to take care of, and she had to focus on subjects that were pertinent to them.

SB says that she had taken quite a few risks in her life, one of which was buying their present house without telling her husband. They had looked at a number of different

places, and her husband liked some of the others. SB says that it had taken a while for them to choose, and it seems that she had to take the initiative to get them past this decision. SB also had taken a risk when she donated a kidney to her sister. She indicates that this decision had taught her much about herself. She says, "You don't know what you yourself are capable of doing when you're pressed, or what other people will react to." She also says that there are people who say they will do it, but when the time comes, they bow out.

SB says that "Sometimes I am more of an action-taker than an observer." She indicates that when she actually participates she feels surer of herself. She indicates that she does not mind getting older, because "that's the way it works." She mentions that she has children and grandchildren and that she is expecting another one. She says, "I'm looking forward to aging." She also says, "aging makes you smarter. It gives you an opportunity to think about things better."

SB's results on the LSI-3 are presented in Figure 8. Her highest score was on the Concrete Experience Dimension, followed closely by the Reflective Observation dimension. Thus, she would be classified as falling into the Diverging Learning Style Type. However, she also had reasonably high scores on Active Experimentation and Abstract Conceptualization. Therefore, her learning style might better be referred to as predominantly Diverging rather than completely diverging or blended.

The balanced aspect of SB's LSI-3 may help to explain the apparent contradiction between her self-professed tendency to be an "action-taker" and the characteristic of the Diverging Learning Style Type to observe rather than to take action. Her self-description during the interview does appear to be consistent with other characteristics of the

Divergent Learning Style Type, including having broad cultural interests and being talented in artistic endeavors. Aspects of SB's life history revealed in her interview are also consistent with the balanced aspect of her LSI-3 protocol. She states that she had coped well with the various changes that occurred during her life, and she indicates that her characteristic mode of responding to situations that arise is not always action-oriented, but "depends on what the situation is."

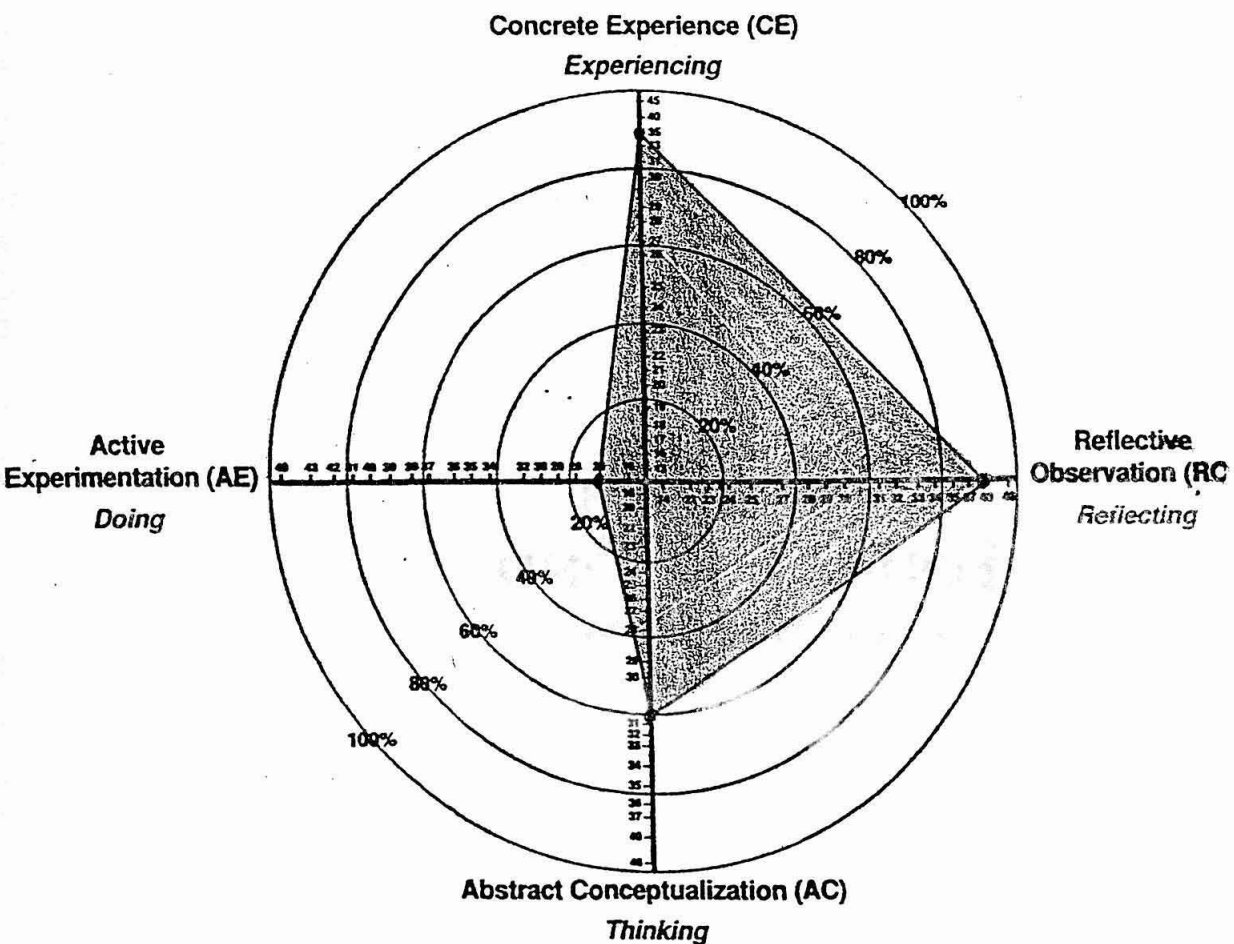


Figure 8

The Kolb Learning Style Inventory of Participant SB

Participant FW (O/O)

FW is a spry, attractive, and active widow who is 96 years-old. When we had met, she greeted me warmly and indicated that she was ready and willing to participate in the study. She says that she is very curious to see if the LSI-3 would match her own perceptions of how she likes to learn. FW had been an actress, and she was very conscious of how she learned, because she had to learn scripts very quickly during her acting career.

FW states, “the most comfortable way of learning for me is when I see the printed page. I remember where things are on a page, and I associate the word with the first letter of the word. That’s the way I learned scripts.” She also says, “Of course, there’s no learning like experience. I mean, to do things that you need to remember, you need to repeat it two, ten, or a hundred times.” Later in her interview, she mentions computers specifically in this context. She says, “I could read forever about computers, but unless you do it yourself, you just do it, and I’m not yet proficient and I have a lot to learn.”

In describing her approach to problems, FW says, “I don’t just jump in and make a fool of myself. I do not want to do something that’s just ridiculous. She also says that she does not “want to solve problems just because there’s a problem,” but “if there’s a problem that’s my business, I’ll get to it.” This appears to indicate a pragmatic attitude toward life and learning.

With respect to age-related changes in learning style, FW says that as she has grown older she may have “enhanced certain techniques,” but she also indicates that, “I was probably much sharper ten years ago.” She says that in some ways aging “has given me some benefits.” She says, “I look in the mirror and gasp at how I look, but in spite of

that I'm so glad that I have a zest for living." She says that she knows lots of people who do not want to get up in the morning. She is grateful that she is not one of these people.

The LSI-3 protocol for FW is presented in Figure 9. She has very high scores on both the Reflective Observation dimension and the Concrete Experience dimension. She has a mid-range score on Abstract Conceptualization, and a low score on Active Experimentation. Therefore, FW would be classified as manifesting the Diverging Learning Style Type, although she also utilizes an Assimilating Learning Style. Her high score on Reflective Observation mirrors her comment in the interview indicating that she doesn't just "jump in," and her low score on Active Experimentation reflects her statement that she doesn't look for problems to solve unless they directly affect her. FW's classification in the Diverging Learning Style Type is consistent with her former career as an actress, since individuals with this learning style type often gravitate toward the arts.

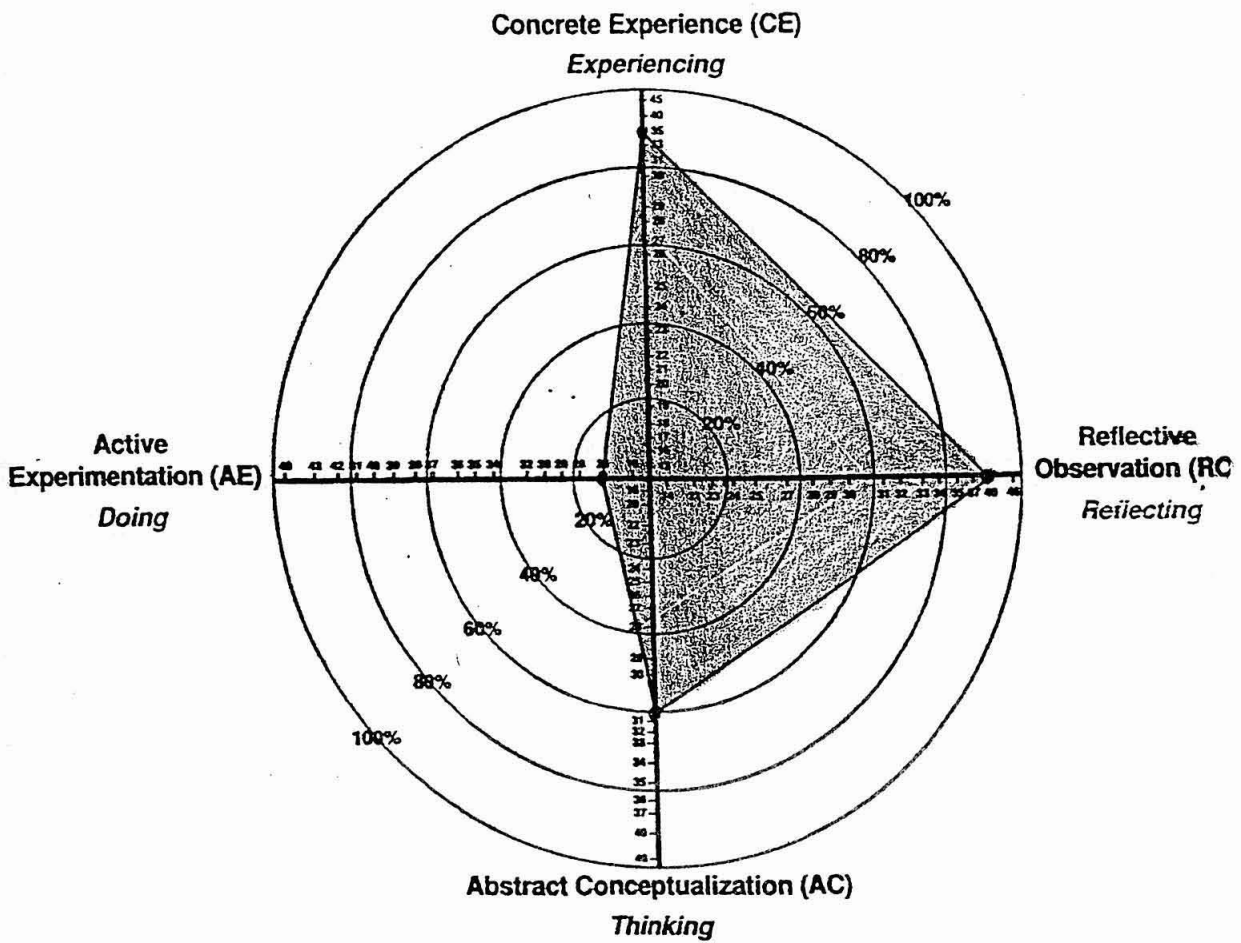


Figure 9

The Kolb Learning Style Inventory of Participant FW

Participant DT (O/O)

DT is a quiet, reserved man of 99. He is slim and erect. Before retiring, he was the CEO of a very large corporation for more than 30 years. He states that he has enjoyed remarkably good health over the course of his lifetime. He has never been hospitalized. He had been fond of ballroom dancing throughout his life, but three years ago he hurt his knee and had to give it up dancing. At about the same time his second wife died. She had loved ballroom dancing as well. DT still gets up at 6:30 each morning and meets with some of the other residents of the community to swim and walk in the pool.

DT is well groomed, and his home is immaculate. On his desk he has a huge book of art and famous artists. He has a magnifier, which he uses to observe all the details of the paintings and other works of art. DT is lively and interested in the people in the community. He is also close with his family. He has learned how to use the computer, and he frequently sends e-mails back and forth to his children and grown grandchildren. He states that when he was younger, he had made all the decisions for the family. Now, however, he is allowing them to make some decisions for him.

DT indicates that his preferred learning modality is visual. He says, "I don't consciously learn much new stuff now at my age. I try to remember what I have already learned. He indicates that he has learned to use the computer "more visually when someone shows me how to do it rather than reading about it." He also says that another learning modality that he uses is listening.

DT says that when he was younger he would "face most any problem and try to solve it." He says that "Now, I wouldn't try to solve problems." His orientation toward

problem-solving appears to be related to the demands of his situation. He indicates that in running a corporation for 30 years, “you had to make decisions, and practical decisions were desirable.” When asked how he goes about solving a problem, he states, “I suspect that I’d study the problem, reflect, and then choose a course of action.” He indicates that he had been a risk taker when he was younger, but now “I’m at an age when I don’t look for problems.”

DT definitely notices the effects of aging. He states, “It didn’t affect me until I was 95 and gradually I lost my ability to do simple things that were a part of my life, like driving a car and walking.” On the other hand, he suggests that aging makes one more introspective. He says that aging makes people “a lot more interested in what is going on with themselves and others.”

Figure 10 presents DT’s LSI-3 protocol. His highest score is on the Concrete Experience dimension, and he has mid-range score on Abstract Conceptualization and Reflective Observation. His score on Active Experimentation is extremely low. Thus his protocol indicates that he is predominantly in the Diverging Learning Style Type, but also to some extent fits the Assimilating Learning Style Type. This suggests that DT prefers to consider situations from differing perspectives and generate a range of ideas. This is consistent with his statement regarding how he goes about solving a problem now, by studying the problem, reflecting, and then choosing a course of action. One has the impression that DT’s learning style may have changed over the years from a more active and risk taking style to a more reflective one. This observation would appear to be consistent with his statement that he used to make the decisions in the family, but recently he has been allowing his family to make them for him.

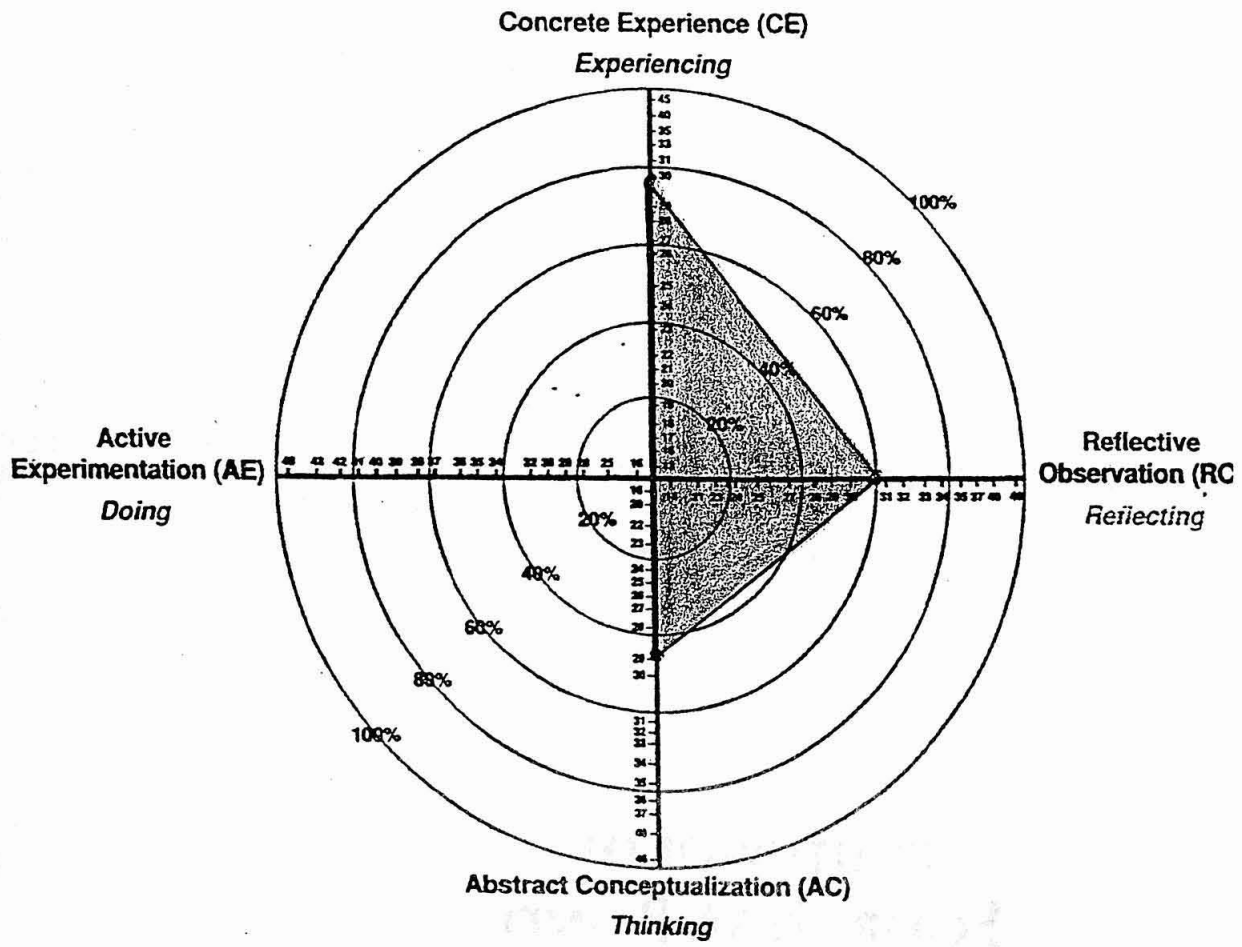


Figure 10

The Kolb Learning Style Inventory of Participant DT

Participant HL (O/O)

HL has been retired for 20 years from a career as a teacher, principal, and superintendent of schools in a community in Long Island, New York. He has an Ed.D. Degree. Since his retirement he hardly ever uses the title "Doctor." Throughout the 20 years of his retirement, Harold has run the Florida division of the AARP Safe Driver Schools. He also sits on the Jewish Education Committee of the Jewish Federation of West Palm Beach. HL indicates that recently he has begun to cut down on his volunteer work in order to concentrate on other interests. HL indicates that when he was younger he had participated in a variety of very active sports, including skiing and back packing in wilderness areas. Recently, however, he has cut back on these activities, due to diminished agility and weight gain.

HL is happy to volunteer for this study and to share his experiences. When the interview began, he had asked if he could see all the questions before answering the first question. I indicated that this would not be possible, since I had not followed that procedure with the other participants. When I had asked him why he wanted to see all the questions first, he responds that this is how he learned best, by first getting an idea of the entire Gestalt of the situation before doing the individual parts. He says that he would answer each question in turn, but he asks if he could reserve the right to go back to a prior response to either add to it or change it. HL says that this method of addressing the task "gives me reinforcement of my original thinking."

HL indicates that his learning style is pretty much a function of the demands being made on him at any point in time. He says, "Today I am more critical of what I read and how beneficial it is to me to learn it. Twenty years ago, before I retired, my

learning style was associated with what I had to produce on the job. Now my learning is for myself.” He says that he tends to “observe first and then take action.” He says, “Taking action first is not my way because that is emotional.” This suggests that he views himself as a logical and rational decision-maker who seeks to optimize the potential outcomes of a situation that demands action.

HL indicates that he is still called upon to solve problems in his capacity as a member of the Board of Directors of his community. He says that in this task he tends to compromise “only as a last resort.” In this way he feels that he keeps things moving in a positive direction and gets something accomplished.

With respect to the effects of aging, HL is most aware of the loss of physical ability and agility, which precludes his continuing to go skiing. On the other hand, he indicates that this “is the best time of my life, because I have freedom to do what I want when I want. . . . Aging and retirement has given me complete freedom.” HL observes that some people enjoy retirement, while others get “itchy or crabby.” He says that those who do not enjoy retirement probably always had negative attitudes, and these attitudes just become more obvious when retirement takes them “out of the loop.”

Figure 11 presents the LSI-3 protocol of HL. His highest score is on the Abstract Conceptualization dimension, and he also has a high score on the Reflective Observation dimension. He has very low scores on the Concrete Experience dimension and on the Active Experimentation dimension. Thus, HL is clearly in the Assimilative Learning Style Type. This appears very consistent with his career as an educator, and with his comment that he tends to observe first and then take action. When presented with the results of the LSI-3, HL says, “It’s a good match as far as I can determine.” However, he

comments, "The questions you've asked me have to do with personality instead of learning."

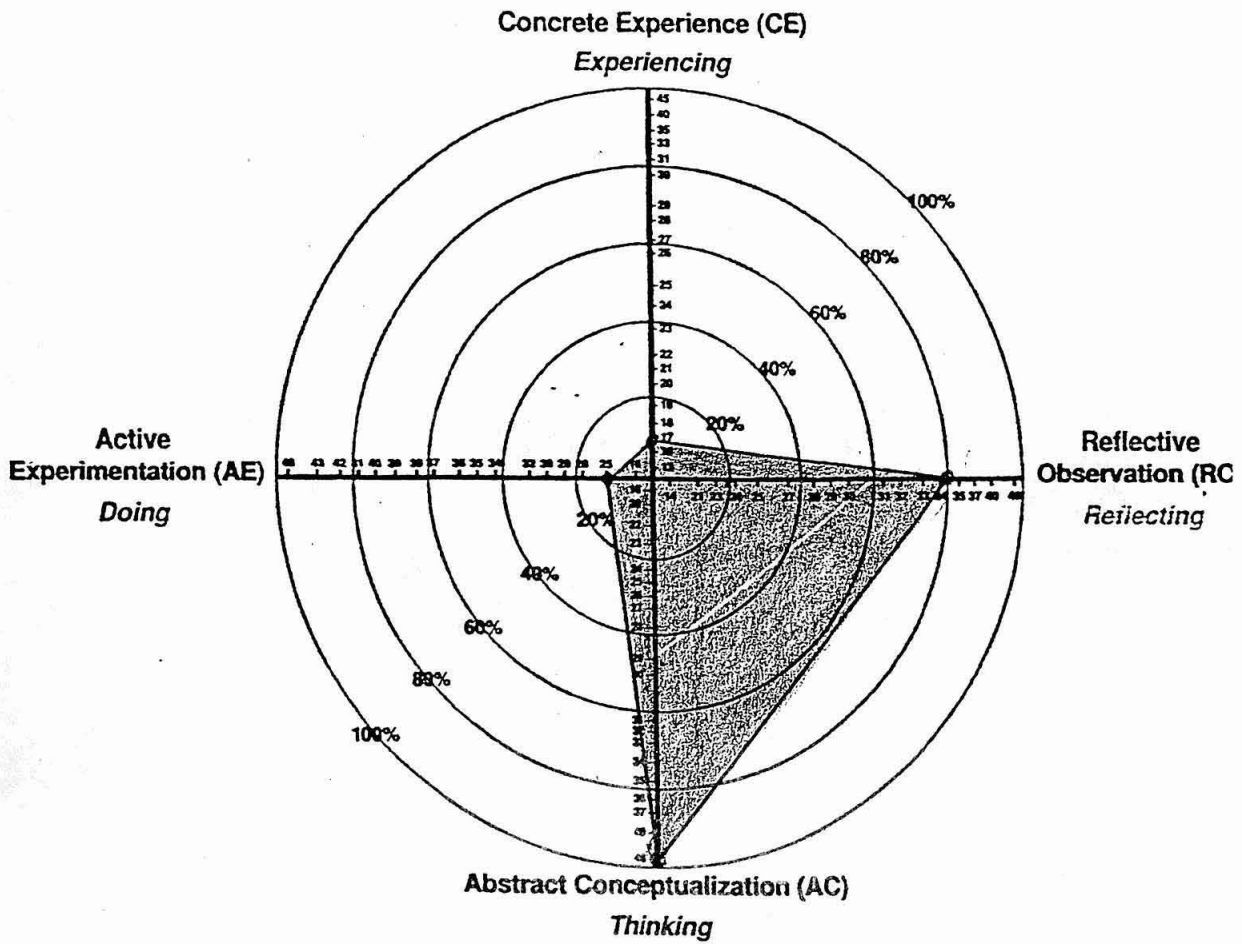


Figure 11

The Kolb Learning Style Inventory of Participant HL

Participant JB (O/O)

JB has recently been elected President of the House and Service Committee of the community, which is the most important committee in the residence. He professes some surprise at this, since he has only been living in the community for 16 months at the time. However, upon questioning he notes that he is a “joiner” who has had a great deal of experience with various types of organizations. He indicates that he frequently “was elected president of the organizations he joined.”

When asked about his preferred learning modes, JB first says, “reading.” However, he also indicates, “as you get older you are unable to do as much reading. I find myself reading eight to ten pages and I can’t read anymore.” He also indicates that he has learned a great deal by being involved in organizations and through the friendships and acquaintances he met in these organizations. He says, “I do a lot of listening. That’s a good way to learn.” JB also mentions educational programs on TV as a good source of knowledge.

JB says that learning was easier ten years ago than now. “There were more things to learn . . . when you are younger there are more opportunities.” He stresses the value of “getting involved.” He had told me about the many organizations he had been involved with over the course of his lifetime. He says, “So maybe I’m a leader.” He says, “If you become president of an organization, you’re influencing other people.” He says, “I know how to persuade people to do things and not to be lazy.” However, he also says that he is not quite the leader now that he had been in the past.

When asked about reflection versus action, JB was unambiguous: “I prefer to take action.” He says, “I like to solve problems and find practical solutions for them.”

JB states, "Aging has slowed me up." He says that he used to play golf three times a week, but in the last 16 months he has played only three times. However, he says, "That's alright. I've had many, many years of golf, so I'm not complaining. He also stresses that he could not read as he used to. He used to read two or three books a month, but "Now I watch educational TV." He points out that aging impacts different people in a very different manner. He notes that he had seen some of the residents of the community "going downhill fast." On the other hand, he says that "Some of my friends here are 96 and they're still active." He comments that living in this community "adds years to your life because of the care and the attention and no pressures." He says that "I'm just encouraged that living here I'm going to live longer."

Figure 12 presents the LSI-3 protocol for JB. His highest score is on the Active Experimentation dimension, followed closely by Concrete Experience. He also has a moderately high score on the Reflective Observation dimension. His score is close to zero on Abstract Conceptualization. This pattern indicates a combination of the Accommodating Learning Style Type and the Diverging Learning Style Type, with slightly more emphasis on the Accommodating Style. The Accommodating Style is typical of those who learn from "hands-on experience" and enjoy carrying out plans and involving themselves in new and challenging experiences. This Style certainly fits JB's experience in leadership positions with various organizations, as well as his tendency to take action. JB feels that his LSI-3 protocol corresponds closely with his self-perception of his learning style.

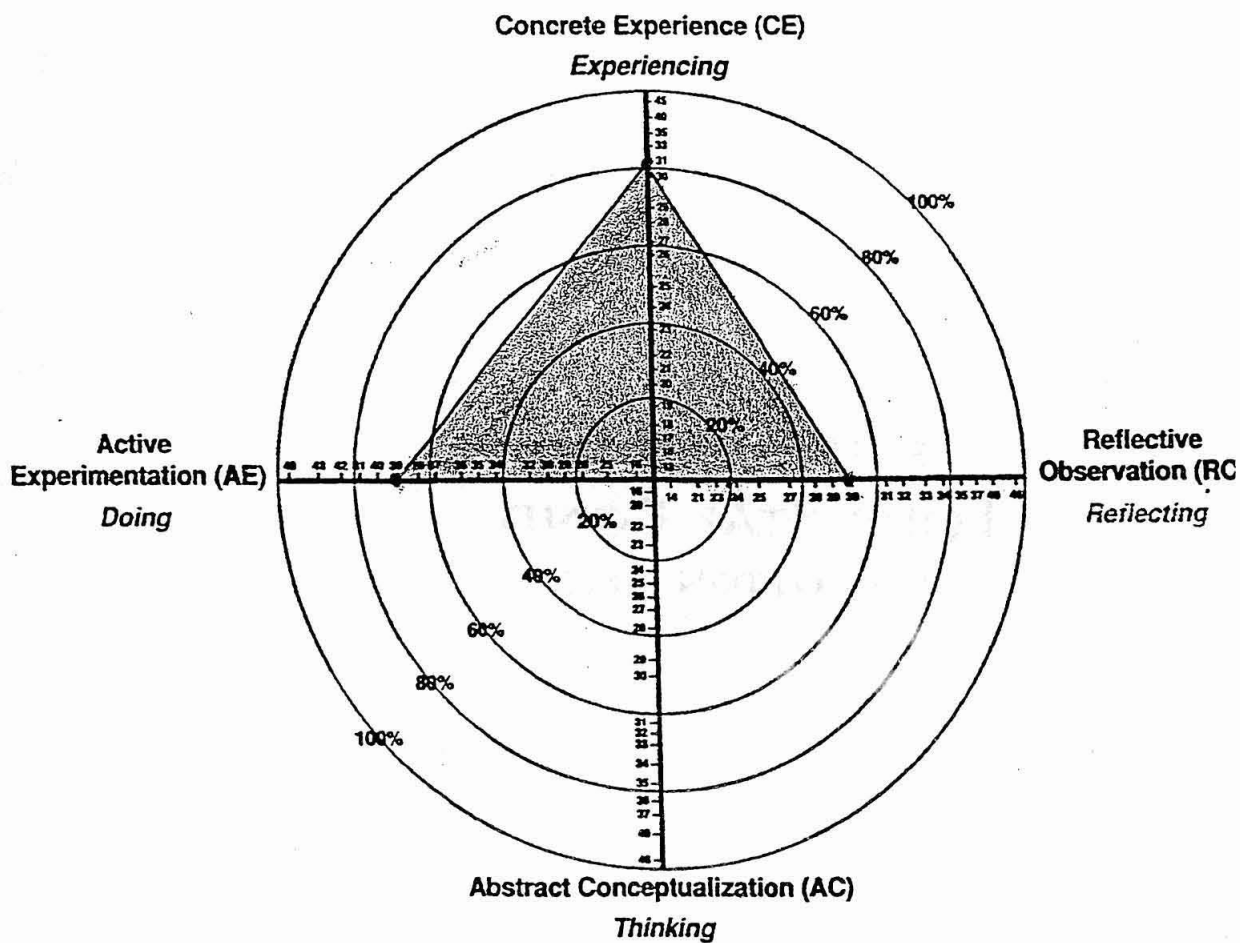


Figure 12

The Kolb Learning Style Inventory of Participant JB

Cross-Case Analysis

Table 3 presents a summary of the LSI-3 classifications of the participants in the Young-Old and Old-Old groups. Clearly the number of participants in each of the two groups is too small to allow any generalization beyond these samples with respect to possible differences in Learning Style Types between the two age groups. However, the two samples may be compared informally to provide an indication of how similar they are with respect to Learning Style Type.

The data in Table 3 indicate that in both groups the Diverging and Assimilating Learning Style Types predominate. In the Young-Old group, two individuals clearly have the Assimilating Learning Style, and one clearly has the Diverging Style. Of the two remaining participants, one (MK) is most appropriately classified as “Balancing,” since she has moderately high scores on all four learning dimensions. However, this participant has a higher score on the Reflective Observation Dimension than on the Active Experimentation Dimension, so she is characterized more by the Diverging and Assimilating Styles than by the Converging or Accommodating Dimensions. The remaining participant in the Young-Old Group (VW) has a learning style combining the Accommodating and Diverging Learning Style Types, with only slightly greater emphasis on the Accommodating Style.

Table 3

Learning Style Types in Young-Old and the Old-Old Samples

Participant	Gender	Learning Style Type
Young-Old Sample		
TC	M	Diverging
CC	F	Assimilating
MK	F	Balancing (Diverging & Assimilating)
VW	F	Accommodating/Diverging
MW	M	Assimilating
Old-Old Sample		
SB	F	Diverging
FW	F	Diverging/ Assimilating
DT	M	Diverging Assimilating
HL	M	Assimilating
JB	F	Accommodating/Diverging

The Learning Style Types in the Old-Old group are also dominated by the Diverging and Assimilating Learning Styles, although in this group the Diverging Learning Style is represented somewhat more frequently. In the Old-Old group one participant is clearly characterized by the Diverging Learning Style Type. Two participants are characterized by a combination of Diverging and Assimilating Styles with a slight emphasis on the Diverging Learning Style type. A fourth participant (JB) is

characterized by a combination of the Accommodating and Diverging Styles, with a slight emphasis on the Accommodating Learning Style Type. The remaining participant in the Old-Old group is clearly in the Assimilating Learning Style Type.

The predominance of the Diverging and the Assimilating Styles within these two samples is a function of the relatively high scores that respondents tend to have on the Reflective Observation learning style dimension; and, the relatively small representation of the Accommodating and Converging Styles is a function of relatively low scores on the Active Experimentation learning style dimension. This leads one to consider the possibility that older persons in general (both Young-Old and Old/Old) may be more reflective than younger persons, although the Young-Old and the Old-Old may not differ very much from each other in this regard. This possibility will be considered in greater detail in the Discussion Chapter that follows.

Methodological Triangulation

Methodological triangulation is used to promote credibility of the findings in this study about older adult perceptions of learning style. Triangulation is a process of corroboration. The purpose is to determine whether the findings accurately reflect the perceptions of these older adults (Stainback & Stainback, 1988; Creswell, 1998). As one of the corroboration processes that Denzinger (1978) described, methodological triangulation, involves the convergence of the data from more than one data collection source. In this instance, the LSI-3 and the Interview are the two different data collection methods.

Table 4 depicts the corroboration from the Kolb Learning Style Inventory and Interview Data for the Young-Old age group as an indicator of methodological

triangulation. Table 5 shows the corroboration of data for the Old-Old age group using the same two methods of data collection. The descriptions of within-case analysis previously presented provide the supporting discussion of the corroboration between these two methods to measure learning styles in older adults. This finding lends support to the credibility and ultimately to the trustworthiness of the data.

Table 4

Methodological Triangulation: Comparison of Kolb Learning Style Inventory and Interview Data with Young-Old

Participant	Group	Sex	Quadrant Learning Abilities/Mode	Learning Style Type	Interview
T.C.	Young-Old	M	Concrete Experience and Reflective Observation	Diverging	TC relies on concrete experience, and asking others for help. He tends to diverge from conventional solutions. He is interested in people and aware of their emotions. He is already thinking about being the President of his community and reflecting on creating a plan. He would not jump in and take a risk without arranging things in logical order. He agreed that the LSI-3 and his perspective on learning agreed.
C.C.	Young-Old	F	Reflective Observation and Abstract Conceptualization	Assimilating	CC indicates learning going on throughout life and hopes it continues. She is flexible, and knows how to listen. She exercises her mind and body, and accepts the changes of aging. She observes people and then makes a plan, and takes action. She examines facts if they do not sound right. She liked the fact that the LSI-3 and her perspective agreed.
M.K.	Young-Old	F	Reflective Observation and Concrete Experience	Balancing	MK has life experiences and is focused on what she is learning. She reflects on what she is learning and takes one step at a time. She does believe in taking risks; however, but her strong skill is in solving problems, which she has done in her working life. She does not like the changes that aging has done. She finds that the LSI-3 and the perspective on learning were in agreement.

Table 4 (continued)

Methodological Triangulation: Comparison of Kolb Learning Style Inventory and Interview Data with Young-Old

Participant	Group	Sex	Quadrant Learning Abilities/Mode	Learning Style Type	Interview
V.W.	Young-Old	F	Reflective Observation and Concrete Experience	Diverging and Assimilating	VW is aware of emotions of people, and will prepare ahead of time a eulogy for her mother, so friends and family will look upon her favorably. She was not prepared when her mother died. She likes to solve problems and did so during her working years. She enjoys educational TV. She reflects on problems and looks for information from all sources to solve them. She enjoyed taking the LSI-3 and the interview. She is happy the results from both are in agreement.
M.W.	Young-Old	M	Reflective Observation and Abstract Conceptualization	Assimilating	MW loves to go to the library to read, or watch educational TV at home. He claims that it takes him longer to learn now than it did ten and twenty years ago, when he applied what he learned to his job. He minimizes risks by looking at the up and down sides of a situation. He reflects on things and does not have much to do with people other than his wife. The impact of aging has changed his perspective on things and he observes before he takes any action. He was surprised to find that LSI-3 and interview results were in agreement.

Table 5

Methodological Triangulation: Comparison of Kolb Learning Style Inventory and Interview Data with Old-Old

Participant	Group	Sex	Quadrant Learning Abilities/Mode	Learning Style Type	Interview
H.L.	Old-Old	M	Reflective Observation and Abstract Conceptualization	Assimilating	HL asked to hear all of the questions first, so that he would develop a gestalt about the whole picture. He also wanted to be able to go back over his answers and alter them if necessary. He relies on his past experiences and relies on them for present situations. He takes risks only when he knows the risks. He observes first before taking action and he is a problem solver. The LSI-3, which was used to establish his learning style, revealed favorable comparisons to his perceived learning style.
J.B.	Old-Old	M	Concrete Experience and Reflective Observation	Accommodating and Diverging	JB had thirty years as a CEO. He is interested in people, and organizations. He gets involved in organizations, and quickly rises to a position of leadership because he is a good problem solver, coming up with new ideas. He is careful about taking risks. He knows how to persuade people to do things. He was surprised to find the similarity in the profile of his learning style in the LSI-3 and his own understanding of the style in which he learns.

Table 5 (Continued)

Methodological Triangulation: Comparison of Kolb Learning Style Inventory and Interview Data with Old-Old

Participant	Group	Sex	Quadrant Learning Abilities/Mode	Learning Style Type	Interview
S.B.	Old-Old	F	Concrete Experience and Reflective Observation	Diverging	S.B. claims that listening is easier for her than reading to learn new information or skills. She also says that she learns the same way today as she did ten or twenty years ago. She has taken quite a few risks in her life, and people are there to help her. She donated a kidney to her sister, who died a few months later. It changed her perspective on life. She observes before she takes action. She believes that aging makes you smarter - you can reflect on you life experiences to deal with the present. When we examined the results of the LSI-3 and the answers and the answers to the interview questions, there were great similarities. The volunteer was surprised and pleased to see the similarities.
F.W.	Old-Old	F	Reflective Observation and Abstract Conceptualization	Diverging and Assimilating	From her days of acting, FW learns best from the printed page, memorization and repetition. She believes that there is no learning like experience. She also believes that she was much shaper ten or twenty years ago. She has bought a computer and is taking courses. She has always relied on herself to get things done. She loves it when the facts are accurate and reliable. She really knows her learning style quite well and was surprised how well it matched the results of the LSI-3.

Table 5 (Continued)

Methodological Triangulation: Comparison of Kolb Learning Style Inventory and Interview Data with Old-Old

Participant	Group	Sex	Quadrant Learning Abilities/Mode	Learning Style Type	Interview
D.T.	Old-Old	M	Concrete Experience and Reflective Observation	Diverging and Assimilating	DT believes that because of his advanced age, he does not learn much new material any more. He never really gave the way he learned very much attention now, or ten, or twenty years ago. He does still observe very keenly before taking action or formulating an opinion. Now he relies a great deal on his family to make many decisions for him. He feels that aging destroys the pleasures of living. The fact that his own perception of his learning styles was so close to the results of the LSI-3 made him smile.

Other Findings: Affects of Aging

Aging impacted each subject in an individual manner. In the Young-Old group, (65-74 years of age) MK found that it was depressing to think, "I am old, and have no future. I'm not going to get any younger." She admits however, that some people do not look at their age as the end of the road. CC in the Young-Old group felt that becoming involved in the athletic and musical pursuits of her children kept her from feeling the oncoming of her aging. "Aging makes you humble." If you're healthy just make the best of it, was her feeling of aging. Her husband, TC doesn't think about aging as a hindrance, except for the aches and pains of arthritis. He overcomes them with swimming and exercise. TC does not experience any slowing down of his mental abilities. As a newly elected president of this residence, he is looking forward to managing and improving the development.

MW of the Young-Old group feels that the impact of aging is to be able to see the end of the road. He therefore lives more for the present, and only the near future. The one perspective about aging mentally is that he needs to repeat several times any new information; otherwise, he will lose or forget the information until clues remind him of the new information. Most of what he learns now is unrelated to a job, but watching educational television and reading keep him abreast of the times.

His wife VW also likes to watch educational programs on television. She claims to enjoy opera, and musicals on TV even better than a cheap seat at the theater. Her view of her own aging has been entwined with her physical problem with her back. Even though she has had trouble with walking even as a child, she now has limited energy to

overcome that disability as readily as when she was younger. Her mental abilities, she feels, are as good as they ever were, but maybe not as sharp.

SB in the Old-Old group is very happy to be living in this residence because she does not have to cook anymore. Wonderful meals are served daily. There is no marketing, cooking or cleaning up for her anymore. The one aspect of aging that she has experienced is the reduction of her risk taking how she usually observes people doing things before she will endeavor to repeat the same task. She does it to protect herself from feeling foolish and making mistakes.

LM is very busy these days. He is preparing to undertake the responsibilities of president of the most important committee of this residence. This is nothing new to him. His working years were spent as CEO of several large companies. Also, all of the agencies and organizations to which he belonged (and there were many) recognized his abilities to organize and achieve goals. He usually became president, for many years, of these organizations. The only signs of aging that he recognizes are physical. They have to do with his back problems. Other than that he feels that aging may have enhanced his mental abilities due to years of experience.

HL in the Old-Old group is in constant demand to serve on many volunteer agencies. He chooses those that serve the community both where he resides and the larger community of Palm Beach County. His experiences as a Community Superintendent of Schools provided a landscape for him to perfect his many strengths of organizing, people management and achieve goals. Today he does not recognize aging as a deterrent, other than some physical reduction in agility. He still undertakes several

demanding positions in the community and experiences little if any reduced mental functionality. HL is the youngest member of the Old-Old group.

FW is also a member of the Old-Old group. She knew exactly how she learned new information because she was well aware of it during her acting career. To this very day, she still can place the words of a page exactly how they were written and how she memorized them. There is no slowing down of her mental capabilities or her zest for life. The one regret that she has is that she is the “last leaf on the tree”, as she puts it. This places her in a position of associating with people her daughter’s age. This keeps her informed about what is going on in the world. Television and reading as to her knowledge she has recently bought a computer and is taking lessons on how to use it. She still does her own bookkeeping, financial investment, marketing, cooking, and drives her own car.

DT is the oldest member of the Old-Old group. He just turned 99 years of age. He has never been sick or spent time in a hospital. He tells you, very humbly, that he has enjoyed a very good life. That is why he resents having to give up ballroom dancing because of a knee injury. The doctors will not perform knee replacement surgery on anyone older than 95. His other complaint about aging has been the deprivation of driving his own car and going out to restaurants for dinner several days a week. Other than that, he still enjoys swimming every morning, socializing and emailing or talking to his children and grown grandchildren. When he was younger, he was a CEO of a very large company where he made many difficult decisions. Today he leaves decision making to his children and grandchildren. He still pursues one of his hobbies of art collecting.

As a group, the Young-Old participants enjoy good health with a few minor complaints of arthritis, somewhat reduced vision, and some small hearing impairment. There are physical signs of aging like reduced stamina or agility, but no occurrences of reduced mental abilities. They may experience a little forgetfulness, or need slower or more careful learning of new knowledge or skills, but no major complaints. This researcher attributes this to the continued or life-long learning that these subjects have pursued. Some have benefited from formal learning and others have benefited from informal learning. The two or more years of college are also beneficial by way of providing a good background around which to pursue further experiences of learning.

This phenomenon may also be due to the people with whom they associate being of the same level of education, and the sharing of information and lifestyle benefits. It would seem that continuing with an active lifestyle keeps one carrying on with many highly developed skills especially coping skills.

As a group, the Old-Old participants had much of the same past life experiences. They have all remained very active throughout their lives and look forward to more of the same. Except for MK, there is still a future that they look forward to doing more of the same and even embracing new skills and responsibilities. Also, the environment in which they reside has much to do with their outlook on life. Chapter V presents a discussion of the study's findings about learning styles in older adults.

CHAPTER V

Discussion

This chapter presents a discussion of the findings in this study about learning styles in older adults. The chapter is divided into four sections: Interpretations, Limitations, Recommendations, and Conclusions.

Through the examination of perceptual measurement procedures, this study adds to research in learning style elements and identified perceptual style relations within an older adult population. As new data, this study can be added to the existing knowledge about individual differences to create a more complete foundation, expand the knowledge of researchers and teachers, and improve learning for older adults (Postman, 1972).

The concept of individual learning style measurement developed from this researcher's desire to compare perceived and observed perceptual learning styles with an older adult population. The central goal of this study was to assess any differences in adult learning style as the participant's age. The key to fulfilling the goal was the documentation and analysis of the Kolb Learning Style Inventory and Interview.

The purpose of this study was to examine learning styles in two groups of older adults and changes that might develop as one ages. The research questions were designed to determine if older adults' perception of their individual learning style is correlated to the measured learning style of the Kolb Learning Style Inventory, if there are changes as one ages, if those changes are apparent as one moves from ages 65 - 74 to ages 75 - 100, and if learning style can be accurately observed during the performance of a new task.

Interpretations

All participants in the Young-Old (Y/O) and the Old-Old (O/O) groups have Reflective Observation (RO) learning styles. This is in agreement with several studies (Gagne, 1972; Smith, 1982; Rogers, 1998) indicating that older adults require more time to learn new knowledge and skills because they need time to reflect. Older adults have more stored information to review. They prefer to build new information on previous information.

In the Young-Old group, three out of five (60%) participants used Abstract Conceptualization (AC) combined with Reflective Observation (RO). Two out of five (40%) participants combined Concrete Experience (CE) with RO to learn new knowledge and skills. Even though several participants claimed to take risks in their older years, when asked about risk taking in the interview, they all said that they were more careful about risk taking now than when they were in their younger years. Also, they take risks now only after studying the positive and negative factors of that risk. The combination of AC and RO learning styles constitutes an Assimilating learning style type, which falls into the lower right quadrant, stressing learning by thinking. The combination of the CE with RO learning styles means that the participants have a Diverging learning style type; they learn by relating to people and are sensitive to feelings in addition to learning by carefully observing before making judgments and looking for the broader meaning of things.

In the Old-Old (O/O) group, all the participants claimed to view issues from different perspectives and carefully observing before making judgments or learning by reflecting (Reflective Observation). However, two of the five (40%) participants

combined Reflective Observation with Abstract Conceptualization learning styles, placing them in the Assimilating learning style type. This learning style type suggests that the two participants tend to assimilate information into theories or models. The more your learning style falls into the right quadrant, the more likely you are to use the Assimilating learning style type in learning situations (Kolb, 2000).

Three of the participants combined the Reflective Observation (RO) with Concrete Experience (CE) learning styles. These participants prefer to see situations from differing perspectives. They tend to diverge from conventional solutions, coming up with alternative possibilities. The more you fall into the upper right hand quadrant of the Experiential Learning circle, the more invested you are in using the Diverging learning style in learning situations (Kolb, 2000).

None of the participants fell into the Active Experimentation (AE) sector of the four learning modalities. Active Experimentation refers to learning by doing, showing an ability to get things done and taking risks. People in that category influence other people and events through action.

Three participants indicated during the interview that they like to get things done and take some risks, but now that they are older, they observe before they take a risk. When looking closely at these three participants' measured learning style on the Kolb Learning Style Inventory, some of their answers did fall into the Active Experimentation quadrant, but not in a sufficient amount to influence the resulting learning style type. Comparing the volunteers' perception of their learning style in various situations brings attention to these variations. Also, Kolb informs you that learning styles sometimes adjust to the situations. He also indicates that an individual could start in one of the

quadrants and then move to another quadrant or visit all four quadrants during a lifetime of learning. This is the ultimate of all learning. It is interesting that there was no participant in either the Young-Old or the Old-Old groups that fell into the Converging or the Accommodating learning style types.

Findings show that older adults have predominantly diverging and assimilating learning styles, and that change in these styles do not appear to occur as people age from Young-Old to Old-Old. This supports Kolb (2000) who reveals a very long term stability in LSI scores. It also support Rogers (1998) who suggests that people find that a pattern of learning style persists through life which they believe is most effective for them (Rogers, 1998). However, people may need to develop more than one learning style in order to cope with different situations as aging occurs (Kolb, 2000). Findings show that five older adults had more than one learning style. Triangulation between the two complimentary methods to describe learning style produced converging results, contributing to the credibility and trustworthiness of the study.

Because there was no difference between the Young-Old and Old-Old and all participants had reflective observation to some degree as a learning style, Bolton's (1990) notion that experience, not age, is a critical interpreter of how learning is to occur is supported. Findings contradict Sherron (1990) who indicated learning styles of older adults differ as they age.

This study responds to Courtenay (1989) who generated several research questions pertaining to the elderly. (1) Can we still learn as well at 65 and older? The Interview data suggests that older adults believe they can, but at a slower pace, with more repetition, and with individualized attention. (2) What variables affect learning and how

do they influence us as we age? The interview data suggests that physical changes in memory, stamina, agility endurance, eye sight, and hearing are noticeable factors that participants observe as they age that affect learning. This also supports Brown (1984) who indicated that as people grow older, they do change – not in ability to learn, but in physical state, in attention, in motivation, and in ways of viewing experience. (3) How do adults feel? The interview data reveal that healthy older adults, that are financially sound, and engage in healthy life style activities, are happy to be alive. (4) What motivates, pleases, or displeases old adults and why? Participants are very happily engaged in activity, have freedom from work and responsibility, and they are open to new learning experiences. These interview comments also support Havinghurst (as cited in Brown, 1984) who indicates learning is necessary throughout life because of continuous changes and resulting needs with the aging process. Interview comments further support Brown (1984) who indicates that perceptual learning in older adults continues through life. As they age participants indicate they have different needs for learning than when they were working. They want to learn hobbies, pursue interests or enjoy things that they did not do before they retired. This supports Rogers (1963) statement about experiential learning.

In seeking to find any differences in learning styles of these two older adults groups (Young-Old 65-74 and Old-Old 75-99), it was very helpful to look at some of the theories of the aging process in the United States. Basically there are four components to the aging process: biological psychological, sociocultural and integrative models. However, not all theories fit neatly into one of these categories, but it was a useful

starting point for understanding the many-faceted ways of thinking about development in adulthood.

The biological frame acknowledges that humans are physical beings; as such, we will change physiologically by natural aging, the environment, our own health, habits, or by an accident or disease process. The ideas about biological aging tend to be negative and associated largely with decline. The stereotypes that are held about the physical aging process are strong and prevalent within our own psyches and are embedded in societal expectations and norms. Although the life expectancy of adults in the U.S. has doubled over the past century, that does not mean that we will be able to halt the aging process, as in vision and hearing, that will happen to all of us. The natural physical changes will not affect us much until our sixties and seventies. Modern medicine and scientific research are either arresting some of these changes or in some cases restoring function.

The psychological perspective focuses on how we develop as individuals and examines the internal developmental process, including how the environment may shape the internal sense of self-like ego development, cognitive and intellectual development, normal development, faith and spiritual development. Age responsibilities, events in a person's life experience, etc. give shape and direction to the various aspects of a person's life.

Within the sociocultural frame of development, the social and cultural aspects of our lives are the primary forces that drive growth and change in adulthood. Societies define the social roles each as that of a parent, spouse, partner, worker, or friend that one plays. Every society has a system of social expectations regarding age-appropriate

behavior also, a great deal of attention has been paid to the notions of race, ethnicity, gender, social class, and sex orientation as they relate to development in the life course. It is often difficult to separate which factor of factors have the greater impact on development.

When establishing the eligibility criteria for selection of the population in this study, this researcher selected a population of each age group that was healthy (free of disease). The participants that were chosen were to be free of any head injury, and/or mental incapacities. They also needed to be in charge of their comings and goings. Also, they needed to be residents of this affluent residence for at least one year. Another criteria for selection was to have at least two years of college. In this manner there would be some commonality among the participants. Even though the ten subjects came from different parts of the country, they were now living in Florida in the same environment. There were five men and five women; all were white, all were affluent (upper middle class) and were of different religious faiths. Except for MK and FW, who were entertainers at one time in their lives, the other eight subjects all had various work experience.

Limitations of the Study

The following limitations are inherent in this study:

1. This is a phenomenological study using the Kolb Learning Styles Inventory and an audio-recorded Interview. Since one individual conducted the interview, the potential of subjectivity and bias may be present. Triangulation was used to decrease this potential bias. Triangulation is one basic strategy an investigator can use to ensure

internal validity. This strategy involves using multiple data sources to confirm the emergent findings. Methodological triangulation combines dissimilar methods, such as interviews, observations, and inventories, to study the same unit (Denzin, 1978, p. 301). In this case, the two different methods were used to examine learning styles.

2. The initial selection of the location and population studied was based on the recommendation of an experienced expert in the area. Even though various sources of data were used to support the final selection, a certain bias might be represented. However, the opinions of the experts will be considered at face validity. “The main weakness of purposive sampling is the potential for inaccuracy and the researchers criteria and resulting sample selection” (Gay & Airasian, 2000, p. 138).
3. The timing of the study may have an effect on the results. The study investigated issues that spanned a lifetime, which obviously relied upon the memory of the respondents. While other documentation was secured to verify responses, looking back over a lifetime of learning from childhood to adulthood might evidence a bias of accurate or complete data.
4. The study took place in Palm Beach County, Florida, during the winter of 2002. The study is further limited to a senior residence of affluent residents with at least two years of college. As a result, caution should be taken in generalizing the findings to other populations who may not possess the same level of education nor be in such good health. Looking at other demographics might change the complexion and findings of this research.

Recommendations

The results of this project have implications for both practice and for future research. The recommendations for practice are as follows:

1. As the population of industrialized countries is aging, new phenomena are emerging. The world population is aging at a very rapid rate. In ten years, there will be more people over the age of 65 than in ages one to eighteen. People will be working well after the age of 65. New technology will make it necessary for the working force to learn new skills and new knowledge. It is important to understand how each a person learns best in order to extend the working years. By acquiring the necessary new knowledge and skills, the worker can become more productive. It will also be necessary to explore new societal understanding about the aging process (United Nations, 1997).
2. It is important that not only older adult learners develop other learning styles, but faculty members in Universities need to understand older adult learning and facilitate that process. Facilitators, who plan curriculum or educational activities, as a guide to determine the learning styles of older adults, could utilize the conclusions. The results of this study should be examined for use in developing learning programs for older adults. Implications for learning locations, such as colleges, churches, and retirement centers could be developed into learning style assessment processes.

The recommendations for future research are as follows:

1. Additional research conducted at different settings and locations should be undertaken to compare findings of learning in other socioeconomic levels than this study.
2. Larger samples could be collected to compare findings to the results of this study.
3. Additional studies conducted after the lapse of time could determine if a shift in learning style occurs.
4. Further in-depth studies could explore the comparisons of young, middle-aged, and older adults' learning styles.
5. Because learning new knowledge, information, and skills can occur after 65, it is important that studies be conducted that contribute understanding of learning in older adults be conducted.
6. Studies of working memory are important because it allows one to observe what aspects of daily life are affected by memory's reduced function and how changes in memory may affect learning style.

Conclusions

Conclusions were drawn, based upon the findings of the study:

Adults are living longer and healthier lives, frequently returning to the classroom for personal and professional reasons. Current medical and education research suggests that returning to engaging educational environments can actually promote better health.

This study may contribute a small part to adult educators to take care not to perpetuate the negative myths arising from a negative sociocultural view of aging. An

increased understanding of the complex ways in which a learner's environment, psychosocial factors, and mental attitudes affect physical well-being and biological development will further improve human health and mental well-being will be forthcoming. There needs to be further explanation and understanding of mental process that may offer different models of adult development and learning.

The Kolb Learning Style Inventory educates adults to understanding how to learn, most comfortably. It also advises one to try to learn by some of the other learning styles. There is no right or wrong way to learn, but all styles are available to anyone and everyone to expand their ways of coping with life's situations.

It becomes obvious to even those who feel that educating older people is a drain on the budget, that living longer is a gift to be used to continue being more productive. The older adult can be empowered to contribute to this society through life-long learning. Because older people have the benefit of life experience, they can provide society with reflections on life's meaning, story telling, oral history etc. Higher education can promote more effective problem-solving skills such as dealing with leisure and how to manage limited resources.

This study involved participants who are better educated, more financially affluent and therefore better able to be more effective citizens of this society; thus the results of this study cannot be generalized about the effects of aging on learning styles as one moves from the sixties through the seventies, eighties and beyond. Perhaps the effects of aging are so slow that most people are not keenly aware of them. Still people with multiple health problems as they age, will view aging and learning styles quite differently. More studies of this nature on all levels of older individuals need to be

conducted. Older adults with special needs also must be considered. We are all aging and will continue to age, with the population of older people outdistancing the younger people. Much work needs to be done to enhance the baby boomers and all those who follow to help the older years be productive and exciting.

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Appendix A

Self-Perception of Learning Style Interview

Appendix A

Self-Perception of Learning Style Interview

1. What do you think is your most comfortable way of learning? Through what method could you learn if you could not learn in your preferred learning style?
2. In what way can you compare how you learn presently to how you learned 10 years ago? 20 years ago?
3. When you are faced with a new situation, how do you cope?
4. How do you deal with risk taking when you are faced with a new situation?
5. What effect does your action or behavior have on other people?
6. Explain whether you prefer to observe or take action.
7. Explain if you like solving problems and finding practical solutions to problems.
8. How do you feel aging has affected you?
9. How do you think aging has affected the people around you?
10. If you could tell me your feelings about one thing that aging does, what would that be?
11. Specifically, how does that apply to you?
12. Based on your answers to the learning style inventory, you learn best through _____. How do you feel about that?

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Appendix B

Institutional Review Board Approval and Consent

LYNN UNIVERSITY
BOCA RATON, FLORIDA

November 1, 2001

Edith Ginsberg


Re: IRB Review – 2001-003

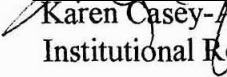
Dear Edith,

The Institutional Review Board has reviewed your proposal entitled "Learning Styles Differences of the Young-Old (65-74 years old) and Old-Old (75-85+ years old). The Committee has approved your proposal.

Two suggestions were made by the committee for strengthening your proposal. The first is to include all the information in one consent form. The second is to be sure that written instructions are presented to the subjects for all the activities included in the research.

Best of luck in conducting your study!

Sincerely,



Karen Casey-Acevedo, Chair
Institutional Review Board

cc: Carole Warshaw, Dissertation Chair

Informed Consent

You have been asked to participate in a research study conducted by Edith Ginsberg, a doctoral student in the College of Education – Graduate Studies Program at Lynn University of Boca Raton, Florida. This research involves taking a Learning Styles Inventory by Dr. David Kolb, a Memory Span Test by Dr. Jeb Schenck, and a taped recorded one-to-one interview asking open-ended questions about your learning style, memory span, and recall skills. You will be contacted for a follow up interview to review the analysis of the initial interview for accuracy.

The goal of the study is to discover if there are any differences in learning style, memory, and recall for people age 65 to 74 and 75 to 85+. You have been selected because you meet the criteria for selection of volunteers. It is hoped that this research will benefit other older adults in particular, educational opportunities in general, and businesses in understanding how older adults learn, remember, and recall.

The participants will be seated for tests administration and the interview. No discomfort is anticipated, and there is no risk involved. Your participation in the study is completely voluntary, and you may withdraw from this study at any time without any negative consequences. Should you withdraw, your data will be eliminated and will be destroyed. All information will be kept in strict confidentiality. The transcription of the interview will be coded with a number and an alias to protect your identity and confidentiality. The data resulting from this study will be kept in a security box for a period of five years, after which it will be destroyed. Reports of this research will not include any identifiable data. The overall results of the research will be published in a doctoral dissertation as well as other possible venues (e.g. professional journals). Lynn University's Institutional Review Board has authorized access to all materials related to this research. There is no financial remuneration for participating in this study.

Upon your request for a private consultation with the researcher, time will be set aside to talk about your results of the study. You may also feel free to call Dr. Carole Warsaw, Dissertation Committee Chairperson at Lynn University, at [REDACTED], if you have any concerns about any aspect of this study.

Two copies of this Informed Consent have been provided. Please sign both indicating that you have read, understood, and agreed to participate in this research. Please return one copy to the researcher and keep the other copy for your files.

Name of Participant (Please print.)	Date
Signature of Participant	Date
Edith Ginsberg, Researcher	Date

Appendix C
Approval Letter from Hay Group

Hay Group, Inc.
116 Huntington Avenue
Boston, MA 02116-5712
Tel. [REDACTED]

HayGroup

Edith Ginsberg
Lynn University
Boca Raton FL 33484

April 2, 2002

RE: Kolb Learning Style Inventory

Dear Edith,

You may have permission to use the Kolb Learning Style Inventory in your dissertation titled "*What are the differences in Learning Styles between the young/old (65-74) and the old/old (75-99).*"

You may also have permission to include the Cycle of Learning from page 3 of the Learning Style Inventory booklet. Please include the following copyright notation:

© Experience-Based Learning Systems, Inc. 1999. Developed by David A. Kolb. Reproduced with permission from the Hay Group.

Please let me know if you have any questions.

Regards,

[REDACTED]
Michelle Curran
Marketing Specialist
Hay Resources Direct
Hay Group