

LEARNING STYLE PREFERENCES AMONG OLDER ADULTS

by

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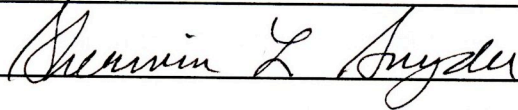
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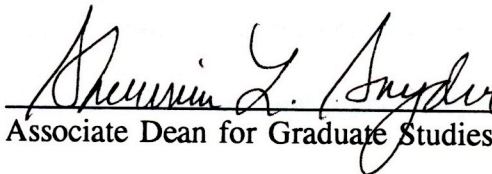
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ABSTRACT

This project investigated three main learning styles (visual, auditory, and tactile) that older adults believe contribute to the success of learning. The research question was: Which learning styles do older adults prefer when learning information? The population assessed was two hundred twenty-five adults age fifty-five and older in Maricopa County, Arizona. The sample varied in gender, age, and educational attainment. The instrument used was a learning styles questionnaire obtained from a Train the Trainer Conference sponsored by the American Society for Training and Development in October of 1995. It was adapted from the IPS Resource Book.

Overall, 68.0% of the participants preferred to learn visually, 10.2% preferred auditory learning, and 7.6% preferred tactile learning. There were noticeable differences in the order of learning style preferences in this study compared to other studies. There were noticeable differences between males and females and their preference for learning. There were no significant differences between age groups and learning style preferences. There were significant differences between educational attainment and learning style preferences. The research concluded that the higher the educational attainment, the higher the preference for visual learning.

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Dedicated to my husband,
Kirk and my family,
for always encouraging and supporting
my aspirations in life.

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CHAPTER 1

THE PROBLEM

Introduction to the Study

People are living longer than ever before and older Americans are more active, healthier, and more influential than any other older generation in history (Dychtwald and Flower 1989). With an increase in the older adult population, those age fifty-five and older, comes an increased demand for educational opportunities.

As a result,

the projected growth of the older adult population will have an impact on the educational system in this country, as well as on all other institutions.

Without any other changes, educational institutions can expect to find greater proportions of older adult students taking courses at the turn of the century simply because of the dramatic increase in the numbers. (Lowy and O'Connor 1986, 33)

To help meet the needs of older adult learners, it is useful to examine their learning styles. This study will reveal learning style preferences among older adults (visual, auditory, and tactile) that contribute to the success of learning.

Development of the Problem

There are more adults looking for educational opportunities and more groups of adults with special learning needs than ever before. In preindustrial societies, the rate of change was such that what a person needed to know to function as an adult could be learned in childhood (Caffarella and Merriam 1991). Times have changed and so have adults' learning needs. Adults believe that they must continue learning

past grade school and sometimes high school to function at work, at home, and in their communities (Caffarella and Merriam 1991). A need for new knowledge, for updating old information, and for retraining is a continual process. Americans in general believe that learning is a lifelong process.

Learning styles have been studied many times in adults but few studies have focused on learning style preferences in older adults. Some researchers have identified seven ways in which individuals learn. Most researchers recognize three main ways in which individuals learn; visual, auditory, and tactile/kinesthetic (IPS Resource Book, 1993). Adult learners usually have a learning style that they prefer to use when processing information.

Wislock (1993) noted that if adults use their preferred learning style, the learner will be more successful in their learning in the classroom or in self-directed inquiry. He also noted that the most common style of learning preferred by adults is visual.

Need for the Study

American society is moving from a youth-oriented society to an adult-oriented society shown by the increasing numbers of older adults in the population. Baby boomers will age and begin to reach sixty-five in the year 2015 causing an increase in that age group combined with increased life expectancy (Manheimer 1995). Manheimer (1995) noted that demographers forecast that more people living past sixty-five will cause an older adult population increase never before experienced in the United States. Educational institutions, teachers, trainers, curriculum

designers, and businesses need to prepare for the learning needs of older adults.

Society has already begun to meet their learning needs by providing tuition waivers for higher and continuing education programs (Manheimer 1995).

Learning styles such as visual, auditory and tactile need to be addressed by educators and trainers when teaching older adults. Learning styles

provide a means for potentially reaching every learner and for making the quality of instructional learning process more effective... If adult learners are encouraged to utilize their dominant perceptual learning modality, the learners will become more successful in their learning endeavors whether it be in the classroom or in self-directed inquiry. (Wislock 1993,7)

By knowing the learning style preferences of older adults, educators and trainers can adjust their curriculum and teaching styles to older adult needs. Educational institutions and businesses can tailor their classes and training sessions to address the learning styles of older adults. These changes can ultimately benefit the older adult's learning experience.

Purpose of the Study

The purpose of this study was to investigate three main learning styles (auditory, visual, and tactile) that older adults believe contribute to the success of learning.

Research Question

The research question to be answered by this study is which learning styles do older adults prefer when learning information.

Definition of Terms

Auditory learning style: gaining information through listening to other individuals and oneself, through lectures, audiotapes, or reading aloud to oneself (Wislock 1993).

Learning style: the way individual people begin to concentrate, process, internalize and remember new and difficult material (Filipczak 1995).

Oldest old adult: those over eighty-five years old (Caffarella and Merriam 1991).

Older adult: those fifty-five years of age and older (Chene 1994).

Tactile learning style: learning while engaging in physical movements such as note taking or by doing. (also referred to as kinesthetic learning) (Wislock 1993).

Visual: learning through observing words, videos, graphs, pictures, or demonstrations (Wislock 1993).

CHAPTER 2

LITERATURE REVIEW

The literature review will summarize the research in the following areas; increase in the aging population, history of older adult education in the United States, educational opportunities for the older adult, national policies on older adult education, adult learning theory, and learning styles.

Increase in the Aging Population

The nation's growth and development have been shaped by many social, political and technological shifts. The most constant factor has been the age-related ingredient of American culture. A child born in the United States in 1776 would only live to be about thirty-five years of age (Dychtwald and Flower 1989). In 1987, Americans over the age of sixty-five outnumbered those under twenty-five (Caffarella and Merriam 1991). The oldest old, those over eighty-five years old, are the fastest growing group of older adults. This group will increase 131% in developing countries between the year 2000 and 2025 (Caffarella and Merriam 1991).

The rate of growth of the aging population is astonishing. The sixty-five and older population has almost doubled since 1960 and is expected to double again by the year 2030 (Manheimer 1995). Table 1 shows the growth of the older adult population from 1900 to 1990. Figure 1 shows that the projected growth in the

Table 1 Growth of the Older Population, 1900-1990 (thousands)

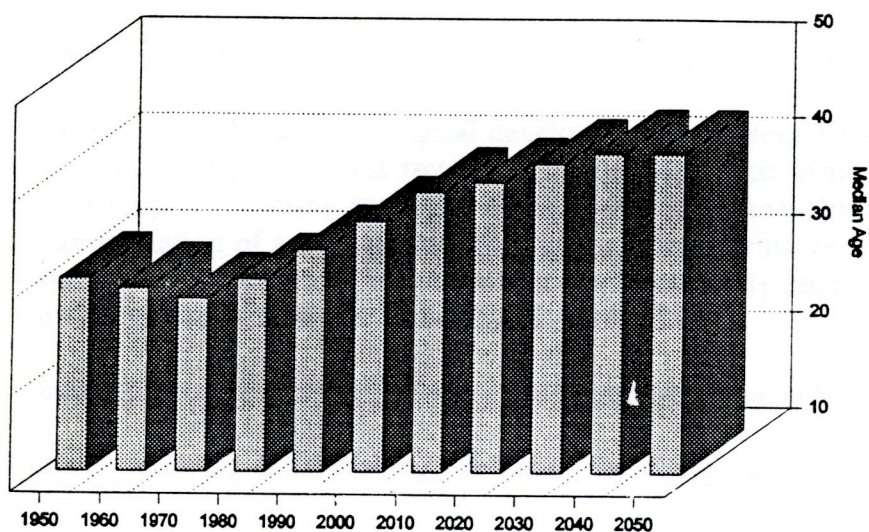
Year	Total number (all ages)	65 years and over Number	Percent
1900	75,995	3,080	4.1
1910	91,972	3,949	4.3
1920	105,711	4,933	4.7
1930	122,775	6,634	5.4
1940	131,669	9,019	6.8
1950	150,697	12,269	8.1
1960	179,323	16,560	9.2
1970	203,302	19,980	9.8
1980	226,546	25,550	11.3
1990	248,710	31,079	12.5

Source: U.S. Bureau of the Census, 1900 to 1940, 1960, and 1980 from 1980 Census of Population, PC80-B1, 1990 from 1990 Census of Population and Housing, Series CPH-L-74.

Note: Figures for 1900 to 1950 exclude Alaska and Hawaii. Figures for 1900 to 1990 are for the resident population. Data for 1900 to 1990 are April 2 census figures.

Source: Manheimer 1995, 115

Figure 1
Median age of the Population: 1950 - 2050



Source: Manheimer 1995, 116

older population is expected to raise the median age of the United States population to thirty-six by the year 2000 and to age forty-two by the year 2040 (Manheimer 1995).

Baby boomers, those born between 1946 and 1964, make up one-third of all Americans (Dychtwald and Flower 1989). Aging baby boomers will significantly contribute to the increase in the older adult population. Researchers predict that the issues of aging will dramatically increase around the year 2011, when the first baby boomers reach age 65 (Dychtwald and Flower 1989).

The boomers will change the nature of aging years before any of them reach the later stages of life. Long before they actually arrive, they will have begun to reenvision and reshape popular habits, styles and attitudes toward aging to better accommodate their unique fancies and needs.... we will see a wide spread interest in the issues of aging within the next decade. (Dychtwald and Flower 1989, 19)

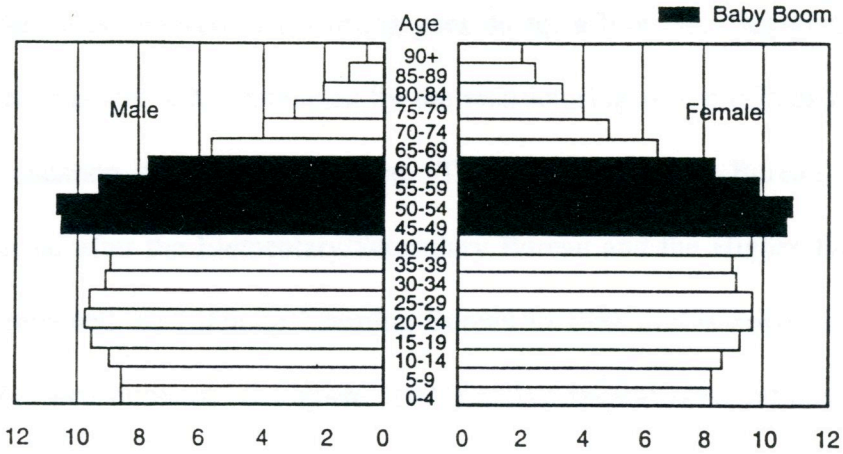
Figure 2 and Figure 3 illustrate the expected bulge in the older adult population as baby boomers grow older (Manheimer 1995).

With the continued increase in the older adult population, it is crucial to examine and anticipate the learning needs of older adults.

Recent medical and technological developments have resulted in a longer life span for all humans. This fact is responsible for drastic changes in the demographics of many countries, changes that will eventually lead to a reorganization of social systems and require a transformation of behavioral and thinking patterns. This socialization will inevitably require new learning for all members of society. (Sekiguchi 1994, 423)

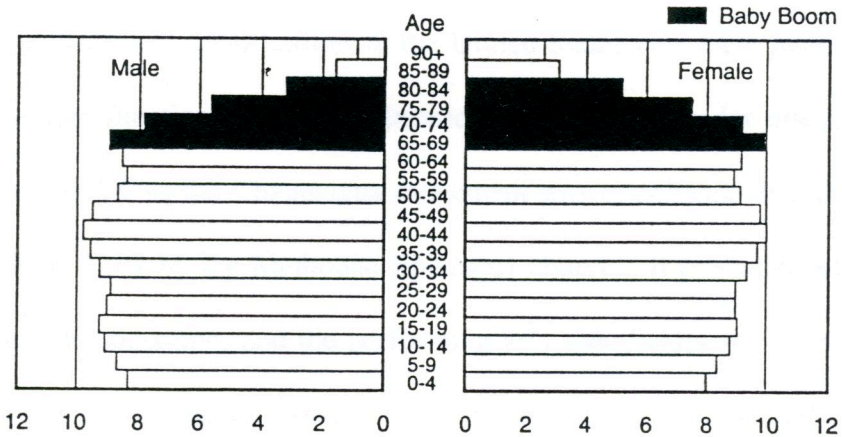
Japan is becoming one of the most aged societies in the world. The rate at which this is occurring is astonishing. In Japan, the change will take place in one

Figure 2
Population by Sex and Age: 2010 (in millions)



Source: Manheimer 1995, 118

Figure 3
Population by Sex and Age: 2030 (in millions)



Source: Manheimer 1995, 119

generation, whereas the same change has often taken three generations in other countries (Sekiguchi 1994).

In Japan, it is believed that learning goes on for a lifetime. Sekiguchi (1994) noted that these changes are symbolized by the restructuring of the offices of the Ministry of Education, Science and Culture. The Social Education Bureau, which used to be ranked after the Elementary/Secondary Bureau and the Higher Education Bureau, was renamed the Lifelong Learning Bureau in 1988 and is now placed before the other two bureaus. Sekiguchi (1994) makes several observations about lifelong learning.

People in the 1990s and in the 21st century will continue to learn as they step into the aging period of life. Self-directed learning has become a major field. The support of lifelong learning initiated by the learner has become the major area of educational activity. New learning opportunities have been developed and old learning opportunities will be revised to facilitate the rapid restructuring of the Japanese society. (Sekiguchi 1994, 436)

History of Older Adult Education in the United States

Manheimer (1995) described a brief history of adult education in the United States. Adult educational opportunities in the United States date back to the 1700s when coffee houses functioned as adult education settings, mainly for discussing political issues. In 1874, the Chautaugua movement was established at Lake Chautaugua, New York by the Methodist Episcopal church. It provided religious studies, liberal arts education, and the performing arts specifically for older adults.

In 1949, a Committee on Education for Aging was established under the National Education Association. In 1951, this committee became a part of the Adult Education Association of the United States. For the first time in history, a book on

educational programming for older adult learners was developed; it was titled

Education for Later Maturity: A Handbook.

During the 1960s and early 1970s emerged an interest in older adult education in the fields of adult education and gerontology. The Administration on Aging awarded grants to community and junior colleges. Funds were used to research ways to identify the needs of older adults and help increase the quality of life. The Older Americans Act of 1965 made available new funds to hire coordinators to develop and implement courses for seniors. Gerontological researchers devoted time to examining the relationship between aging, intelligence, and memory. During the 1970s, H. R. Moody, a gerontologist, called attention to the lack of understanding about why older adults should be educated. "As educators, we have no clear idea of why older adults should be educated, and this absence of philosophical reflection is ultimately dangerous for the whole enterprise" (Lowy and O'Connor 1986, 5). As gerontology became an established field, it influenced adult education, and educators began to consider older adults as potential students of lifelong education.

Lowy and O'Connor (1986) noted that the adult education movement in the United States set high goals and had idealistic visions for the future. The movement didn't match its sense of purpose and its goals. Many pioneers attempted to integrate adult education into American culture through philosophical statements and projects. However, the movement itself could not be sufficiently integrated culturally and structurally in American society.

Educational Opportunities for the Older Adult

Many institutions have responded to the aging of America. Local, state, and federal governments have established agencies to meet the needs of older adults. Public and private educational institutions provide courses, training, and programs for older learners. Manheimer (1995) noted that during the early 1980s, hundreds of new educational programs for older adults had been started by colleges, universities, churches, synagogues, hospitals, libraries, senior centers, and even department stores. By 1994, over 200 institutions of higher education had developed peer learning and teaching programs for older adults. The largest percent of people age fifty-five involved in education is found in noncredit, continuing education (Manheimer 1995).

There are several models of older adult education. Manheimer (1995) described three models that have shown growth, stability, and innovation over the past 1980s and 1990s. OASIS (Older Adult Services and Information System) is located in over twenty-eight department stores owned by Robinsons-May Company. Over 125,000 older adults participate annually in programs about art, humanities, health promotion and volunteer services. The second model includes the Shepherd's Centers. They are groups of religious congregations that provide services and programs. They have about one hundred sites that include the Adventures in Learning program. The third model is college and university based institutions, like the North Carolina Center for Creative Retirement College for Seniors. They invite

members to share in governing, administrating, and teaching. They add about twenty-five new institutes each year.

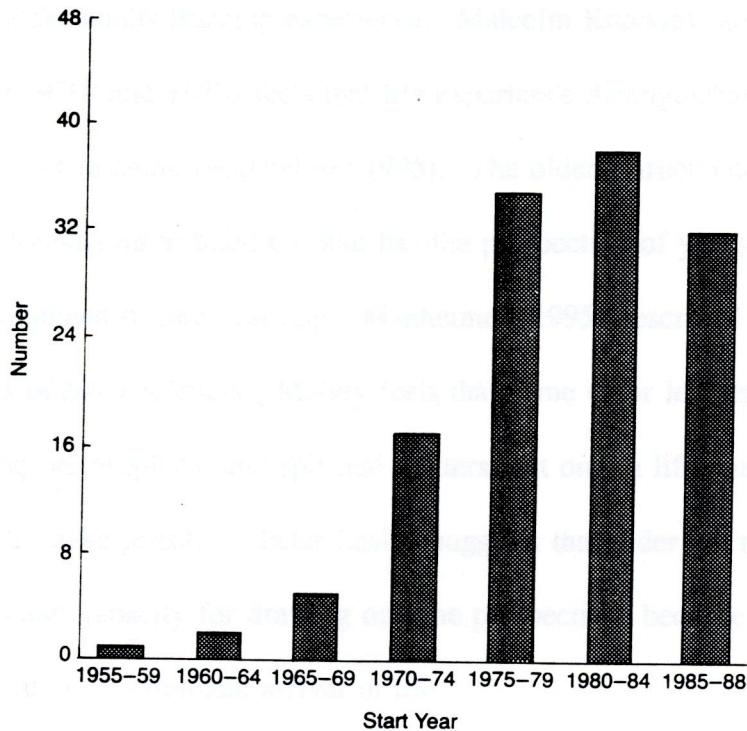
Blazey (1992) described a study of programs for older adults. In 1989, the National University Continuing Education Association sponsored a survey of all institutions of higher education in the United States to gather information on programs they were offering for older adults. Of 3,300 surveys mailed, 580 responses were returned with 380 institutions indicating that they had special programs for older adults. Figure 4 shows that the number of new programs for older adults has increased from 1954 to 1988.

National Policies and Older Adult Education

Several government policies have had an impact on older adult education. Manheimer (1995) noted three key federal policies. The first policy was the Older Americans Act of 1965. It established the Administration on Aging and provided needed funding for gerontological training and research at colleges and universities. The Act provided new educational opportunities for older adults and expanded work force training, educational gerontology, as well as research in addressing the needs of older adult learners.

The second major impact occurred in 1971 when the White House Conference on Aging expanded educational programming for older adults. Recommendations were made at the conference that called for increased funding and human resources to provide older adult educational programs in the public and private sector.

Figure 4
Number of New Programs for Older Adults 1954 - 1988



Source: Fischer 1992, 152

The third policy was enacted in 1973 when congress created the Older Americans Comprehensive Services Amendments of 1973 to strengthen the Older Americans Act. This act helped to establish the Federal Council on the Aging and the National Information and Resource Clearinghouse for the Aging. Grants were given to state governments for special library and education programs for older adults.

Adult Learning Theory

Many educators have addressed the importance of past experiences in enhancing the older adults learning experience. Malcolm Knowles, an adult educator of the 1970s and 1980s feels that life experience distinguishes child learning from adult learning (Manheimer 1995). The older learner knows what to explore, has a foundation to build on, and has the perspective of years to evaluate the worth of continued or new learning. Manheimer (1995) described other theorists' views of older learners. Moody feels that some older learners are capable of understanding philosophical and spiritual matters that only a lifetime of experience could make possible. Peter Laslett suggests that older learners are capable of a greater capacity for drawing on time perspectives because they have reached a state of completion and arrival in life.

Kolb's Theory of Learning is well known in the field of education. Kolb is best known for his research on defining a four-stage cycle of learning. Allinson and Hayes (1988) described the stages as follows. Kolb's model combines two dimensions of learning: the active-reflective dimension and the abstract-concrete dimension. The first ranges from direct participation to detached observation. The second ranges from dealing with tangible objects to dealing with theoretical concepts. Kolb uses these extremes to define a four-stage cycle of learning.

The four-stage cycle begins with the concrete experience, then this leads to reflective observation on that experience, then abstract conceptualization occurs and finally active experimentation takes place. Each stage of the cycle requires different

abilities and the learner must decide which ones to apply in any situation. Most people tend to be more skilled in some abilities than others and tend to favor a specific learning style.

Kolb categorizes four types of learning styles. Divergers reflect on specific experiences from a number of different perspectives; Assimilators develop theoretical frame work on the basis of that reflection; Convergers test the theory in practice; and Accommodators use the results of that testing as a basis for new learning (Allinson and Hayes 1988).

Learning Styles

In addition to theories of learning, there are learning styles or more specific ways in which adults learn. Dr. Howard Gardner, Director of Harvard's cognitive research effort, has identified seven intelligences or ways that adults learn (Lazear 1994). The first is called verbal/linguistic which is learning through spoken word; by reading someone's ideas or poetry; and by writing one's own ideas, thoughts or poetry. Verbal/linguistic is responsible for the production of language and other possibilities such as poetry, humor, story telling, grammar, metaphors similes, and the written word.

The logical/mathematical learning style is used in situations that require problem solving or addressing a new challenge. This learning style involves the capacity to recognize patterns, to work with numbers and geometric shapes, and to discern relationships and see connections between separate pieces of information.

Logical/mathematical is most often associated with scientific thinking or deductive reasoning.

Visual/spatial involves learning as a result of the sense of sight and the ability to form pictures in the mind. It deals with such things as the visual arts including painting, drawing and sculpture. Other things include navigation, architecture, map-making, and games such as chess which require the ability to visualize objects from different perspectives and angles.

The fourth learning style is body/kinesthetic. This involves learning by doing and has long been recognized as an important part of education. It is the ability to use the body to express emotion, to play a game, or to create a new product. Body/kinesthetic deals with such activities as role playing, dance, body language, sports, folk dancing, juggling, and swimming.

Musical/rhythmic learning involves the capacity to recognize and use rhythmic and tonal patterns. It includes sensitivity to sounds from the environment, the human voice, and musical instruments. Musical/rhythmic learning is achieved through listening to music, singing to express ideas, humming, and playing tapes of various sounds.

Interpersonal intelligence involves the ability to communicate, verbally and non-verbally, with other people and to work cooperatively in a group. It includes the ability to notice distinctions among other peoples moods, temperament, motivations, and intentions. Interpersonal intelligence helps a person to have

genuine empathy for another's feelings, fears, and beliefs. This is usually highly developed in counselors, teachers, therapists, and leaders.

The seventh learning style is intrapersonal intelligence which involves knowledge of the self such as knowledge of feelings, variations in emotional response, thinking processes, self reflection, and a sense of spiritual realities. It allows a person to step back and watch themselves as an outside observer does. Intrapersonal intelligence involves the capacity to experience unity, wholeness, to perceive higher states of consciousness and to actualize the possible (Lazear 1994).

Wislock (1993) also recognizes seven perceptual modalities or learning styles. These include print, in which the person learns by reading and writing. Aural, involves listening to others, tapes, and lectures. The third style is interactive, which is discussing ideas in groups or by debate activities. Visual involves observing videos, pictures, graphs, and words. The fifth style is haptic which is the sense of touch by hands-on experience. Kinesthetic/tactile involves learning while doing something such as taking notes. The seventh style is olfactory which involves the sense of smell. According to Filipczak (1995), the three most widely recognized learning styles are visual, auditory, and kinesthetic/tactile.

Understanding one's own style is as important as understanding the audience's. It influences how a teacher presents material and may even blind the instructor to the learning style preferences of the students. The teacher, trainer, or presenter needs to determine their own learning style and their audience's. This can be done by giving the students a self-scoring questionnaire or by using norms to

estimate the variations in the audience. The learning style distribution in an average group is 30 percent to 40 percent visual, 20 percent to 30 percent auditory, and 30 percent to 50 percent kinesthetic/tactile (Filipczak 1995).

Wislock (1993) noted that studies indicate that from kindergarten to sixth grade, vision was the strongest learning style, kinesthetic was second, and auditory was third. From elementary grades to adulthood, vision remained dominant, then auditory, and kinesthetic/tactile was third. Adults between twenty and forty-nine years of age preferred to learn visually, second was haptic or sense of touch, kinesthetic/tactile was third, and auditory was fourth. For adults age fifty and older, visual remained first, but kinesthetic/tactile moved to second, followed by auditory and haptic (Wislock 1993).

Trainers may not always have an average distribution of learning styles in their audience. Companies tend to hire similar people with similar learning styles. Filipczak (1995) noted a study done in the 1990s by Polytechnic University in Brooklyn, New York. They tested the learning styles of a group of employees who drove delivery trucks for a bakery. Instead of a normal distribution, they found that the group was composed of 80% tactile/kinesthetic learners; about 19% had auditory preferences; and only 1% showed a visual preference. The company felt that the drivers were having too many traffic accidents. The researchers looked at the safety training and found that the material was delivered primarily by lecture, and supported by manuals that the drivers were supposed to read. The original training

was not effective because the majority of the group was tactile/kinesthetic learners and not visual learners.

Whether training or teaching older adults, "...facilitation and program planning should be organized around a participants' strongest modality... it is the most important strategy because it is a frame of mind that guides the facilitator in curriculum development and instruction" (Wislock 1993, 6). Teachers should give learners information in their primary learning style and then reinforce it with a secondary preference (Filipczak 1995). Wislock (1993) noted that if adult learners are encouraged to utilize their dominant learning style, then the learners will be more successful in their learning whether it be in the classroom or in self-directed inquiry. He also noted that there is a need for more research on learning styles in the adult education field, where this kind of research is almost nonexistent.

Summary

As baby boomers reach their sixties and with the general population living longer, there will be a significant increase in the senior population. This group is seeking educational and training opportunities more than ever before. Educational institutions, companies, and policy makers have responded to this demand by providing more educational opportunities for older adults. Researchers have expressed a concern for developing curriculum and materials that meet the educational needs of older learners. Researchers have recommended various ways to test learning style preferences and how to teach to a particular learning style.

CHAPTER 3

METHODOLOGY

Introduction

The fastest growing population in the United States is older adults. As more older adults seek educational opportunities, it becomes increasingly important to examine learning style preferences among older adults in order to best meet their needs. The purpose of this study was to investigate three main learning styles (auditory, visual, and tactile) that older adults believe contribute to the success of learning.

Identification of Research Methodology

The descriptive data-gathering technique was used in this study. Merriam and Simpson (1995) noted that description may include collection of facts that describe existing phenomena, identification of problems or justification of current conditions and practice, project or product evaluation, or comparison of experience between groups with similar problems to assist in future planning and decision making.

According to Merriam and Simpson (1995), the descriptive data-gathering technique has several advantages because it produces data that is accurate and representative. This technique is also easy to use and provides exploratory

capabilities. The descriptive method has one main disadvantage. It is unable to predict or forecast what will occur in the future.

Population and Sample

The population chosen for this sample was adults age fifty-five and older. Questionnaires were distributed to 275 persons, and 225 questionnaires were completed and returned.

The sample selection began by locating senior centers, retirement communities, and organizations for senior adults. Questionnaires were also accepted from any older adult who was willing to participate.

To help assure variability among the sample, sites were chosen from various cities and consisted of different types of older adult organizations. The sample included older adults with varying demographic characteristics. The sample may not be totally representative of all older adults.

Instrumentation

The learning styles questionnaire (see Appendix A) was obtained from a Train the Trainer Conference sponsored by the American Society for Training and Development in October of 1995. It was adapted from the IPS Resource Book. Efforts by the researcher to contact the publisher were unsuccessful. The questionnaire had twenty-seven statements regarding three learning styles; visual, auditory, and tactile. For example: "I usually understand better when there is a picture or a diagram to look at" or "If I have difficulty understanding something, it is helpful if I talk about it with someone else," or "The best way for me to learn

how to do something new is to just do it." The researcher modified the questionnaire to include three additional statements.

The directions printed on the questionnaire ask the participant to "check the statements that best describe how you learn or remember something. Only check an item if it is usually true about you." It took participants an average of fifteen minutes to complete a survey.

Data Collection Procedure

The learning styles questionnaire was distributed to participants at five senior centers, four retirement communities, and three movie theaters. The movie theaters sponsored senior day at the movies. The directions were explained to the participants by the researcher and the directions were printed at the beginning of the survey. Information regarding the purpose of the questionnaire and confidentiality of responses was also explained in the survey. The researcher or a colleague was present at all times during the data collection process.

Method of Analysis

All questionnaires were gathered and scored by a computer. Participant responses were tallied and then categorized by order of learning style preference using Table 2. Each group of responses were summed. The highest score indicated the participant's primary learning style. The next highest score indicated their secondary learning style. The lowest score represented the participants least preferred learning style. Some of the participants equally preferred two learning styles as their primary learning style.

Table 2 Response Scoring Table

	Visual	Auditory	Tactile
	4	1	2
	6	3	5
	12	8	7
	16	10	9
	17	13	11
	20	15	14
	23	19	18
	24	21	22
	27	26	25
	30	29	28
TOTAL ITEMS CIRCLED =			

Source: IPS Resource Book 1993, 4

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Findings and Results

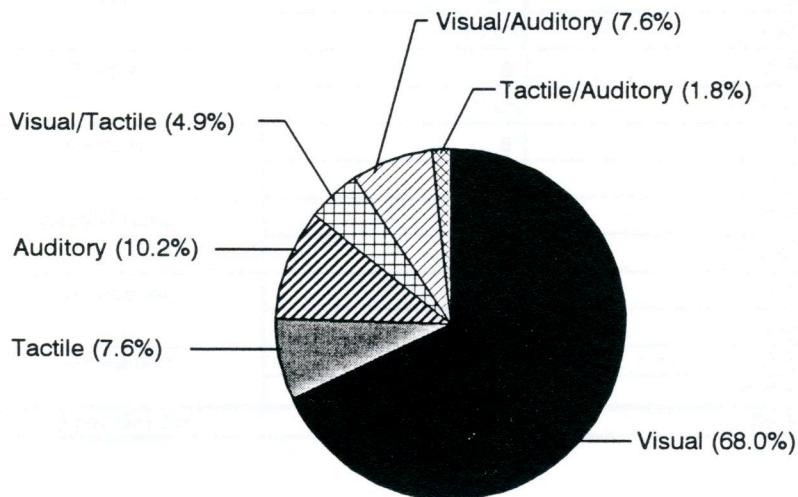
A study was conducted to investigate which learning styles older adults prefer when learning information. The researcher administered a survey to 275 adults and received 225 completed surveys. The questionnaire consisted of thirty statements that characterize three learning styles; visual, auditory, and tactile. A sample of the questionnaire can be found in Appendix A.

The data is divided into four groups; overall learning style preferences, gender, age, and grade level attainment. Table 3 and Figure 5 represent the total

Table 3 Total Distribution of Learning Style Preferences

Learning Style Preference	Age Group					Totals	Percent
	40-54	55-65	66-75	76-84	85+		
Visual	1	32	99	17	4	153	68.0%
Tactile	2	3	10	1	1	17	7.6%
Auditory		8	10	4	1	23	10.2%
Visual/Tactile		2	8	1		11	4.9%
Visual/Auditory		6	10	1		17	7.6%
Tactile/Auditory			3	1		4	1.8%
Total per Age Group	3	51	140	25	6	225	100.0%

Figure 5
Total Distribution of Learning Style Preferences



distribution of learning style preferences. Out of 225 participants, 68.0% preferred visual learning, 10.2% preferred auditory learning, and 7.6% preferred tactile learning. The number of participants that had a dual preference for their primary learning style is also shown in Table 3.

Table 4 and Figure 6 represent the distribution of scores by gender. The participants consisted of 119 females and 69 males. Of the female participants, 75.6% preferred visual learning, 6.7% preferred auditory learning, and 5.0% preferred tactile learning. Of the male participants, 66.7% preferred visual learning, 11.6% preferred tactile learning, and 10.1% preferred auditory learning.

Table 4 Distribution of Learning Style Preferences by Gender

Learning Style Preference	Gender		Totals	Percent
	Female	Male		
Visual	90	46	136	
	75.6%	66.7%		
Tactile	6	8	14	
	5.0%	11.6%		
Auditory	8	7	15	
	6.7%	10.1%		
Visual/Tactile	7	2	9	
	5.9%	2.9%		
Visual/Auditory	7	4	11	
	5.9%	5.8%		
Tactile/Auditory	1	2	3	
	0.8%	2.9%		
Total per Gender	119	69	188	100.0%

Figure 6
Distribution of Learning Style Preferences by Gender

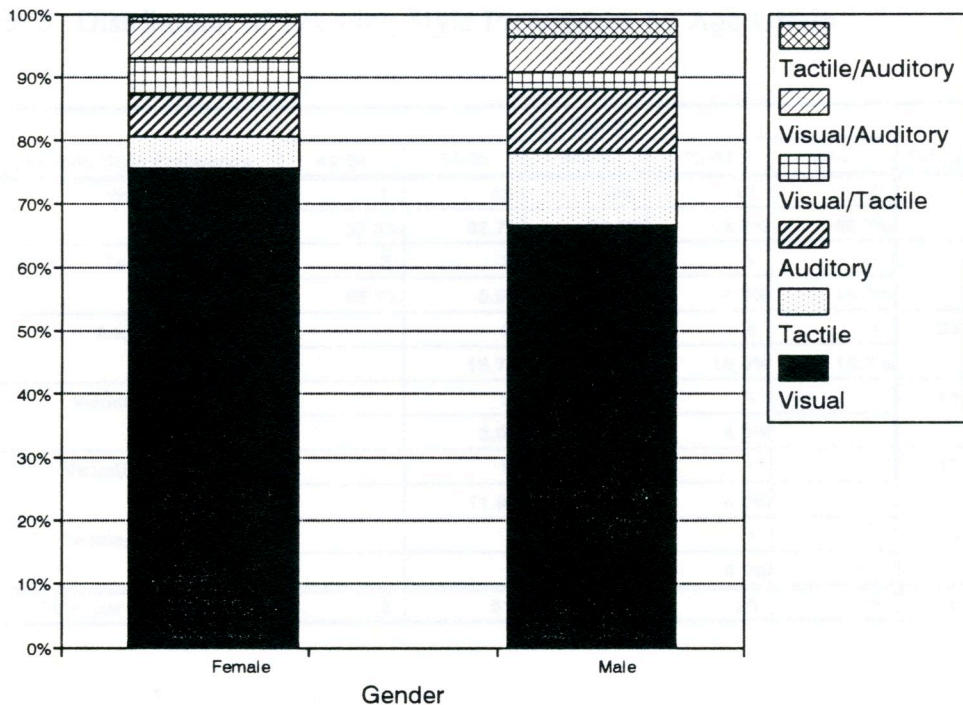


Table 5 and Figure 7 represent the distribution of scores by age group.

There were 51 participants in the 55-65 age group. Of those, 62.7% preferred visual learning, 15.7% preferred auditory learning, and 5.9% preferred tactile, and 11.8% preferred visual and auditory learning equally. There were 140 participants in the 66-75 age group. Of those, 70.7% preferred visual learning, 7.1% preferred tactile, 7.1% preferred auditory, and 7.1% preferred visual and auditory equally. In the 76-84 age group, there were 25 participants. Of those, 68.0% preferred visual learning, 16.0% preferred auditory, and 4.0% preferred tactile learning. In the 85+ and the 40-54 age groups, there were not enough participants to accurately evaluate the preferred learning style.

Table 5 Distribution of Learning Style Preferences by Age Group

Learning Style Preference	Age Group					Totals	Percent
	40-54	55-65	66-75	76-84	85+		
Visual	1	32	99	17	4	153	
	33.3%	62.7%	70.7%	68.0%	66.7%		
Tactile	2	3	10	1	1	17	
	66.7%	5.9%	7.1%	4.0%	16.7%		
Auditory		8	10	4	1	23	
		15.7%	7.1%	16.0%	16.7%		
Visual/Tactile		2	8	1		11	
		3.9%	5.7%	4.0%			
Visual/Auditory		6	10	1		17	
		11.8%	7.1%	4.0%			
Tactile/Auditory			3	1		4	
			2.1%	4.0%			
Total per Age Group	3	51	140	25	6	225	100.0%

Figure 7
Distribution of Learning Style Preferences by Age Group

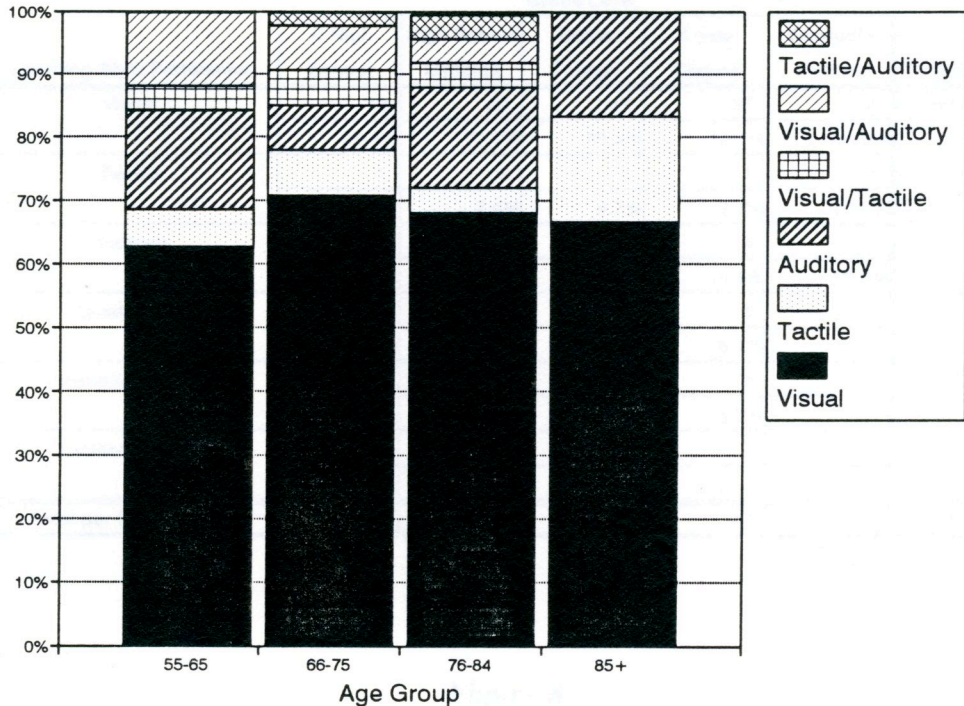


Table 6 and Figure 8 represent the distribution of scores by grade level attainment. There were 18 participants that had less than a high school education. Of those, 55.6% preferred visual learning, 16.7% preferred visual and auditory learning equally, 5.6% preferred auditory, and 5.6% preferred tactile learning.

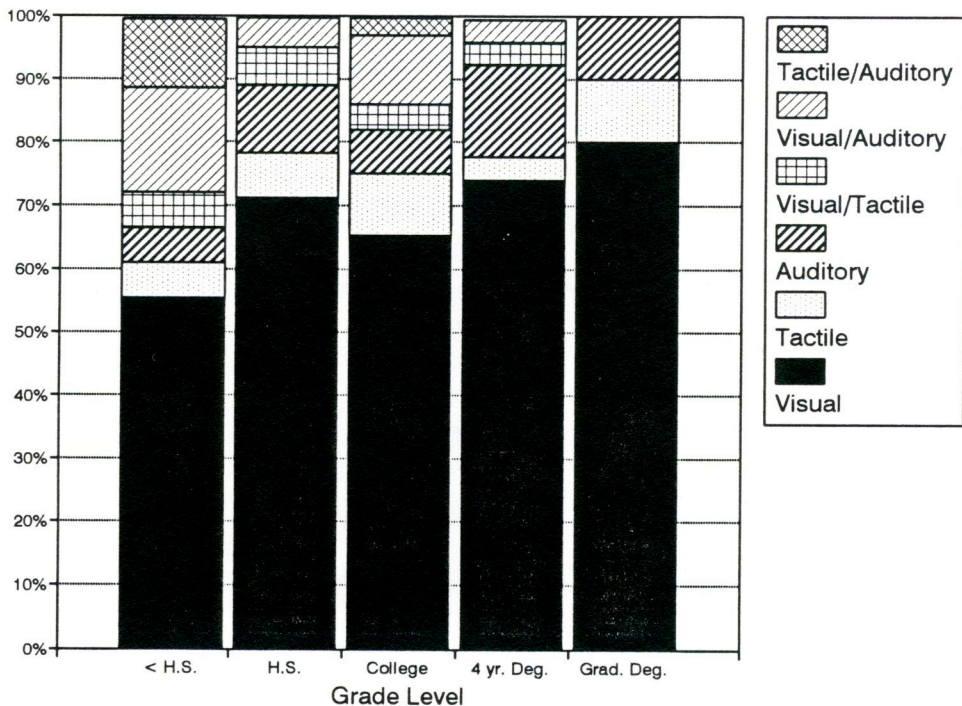
There were 83 participants that had a high school education. Of those, 71.1% preferred visual learning, 10.8% preferred auditory, and 7.2% preferred tactile learning.

There were 72 participants with some college education. Of those, 65.3% preferred visual learning, 9.7% preferred tactile, and 6.9% preferred auditory learning.

Table 6 Distribution of Learning Style Preferences by Grade Level Attainment

Learning Style Preference	Grade Level					Totals	Percent
	< High School	High School Diploma	Some College	4 year Degree	Graduate Degree		
Visual	10	59	47	20	8	144	
	55.6%	71.1%	65.3%	74.1%	80.0%		
Tactile	1	6	7	1	1	16	
	5.6%	7.2%	9.7%	3.7%	10.0%		
Auditory	1	9	5	4	1	20	
	5.6%	10.8%	6.9%	14.8%	10.0%		
Visual/Tactile	1	5	3	1		10	
	5.6%	6.0%	4.2%	3.7%			
Visual/Auditory	3	4	8	1		16	
	16.7%	4.8%	11.1%	3.7%			
Tactile/Auditory	2		2			4	
	11.1%		2.8%				
Total per Grade Level	18	83	72	27	10	210	100.0%

Figure 8
Distribution of Learning Style Preferences by Grade Level Attainment



There were 27 participants with a four year college degree. Of those, 74.1% preferred visual learning, 14.8% preferred auditory, and 3.7% preferred tactile learning.

There were 10 participants with a graduate degree. Of those, 80.0% preferred visual learning, 10.0% preferred tactile learning, and 10.0% preferred auditory learning.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of the study was to investigate three main learning styles (visual, auditory, and tactile) that older adults believe contribute to the success of learning. The study focused on adults age fifty-five and older.

The descriptive data-gathering technique was used in this study. Data was collected from participants at various movie theaters that sponsored senior adult events, senior centers and retirement communities. The researcher used a computer to analyze data from 225 questionnaires. The instrument used was a learning styles questionnaire obtained from a Train the Trainer Conference sponsored by the American Society for Training and Development in October of 1995. It was adapted from the IPS Resource Book. The test instrument consisted of thirty statements that categorize three learning styles; visual, auditory, and tactile. Participant responses were categorized by order of learning style preference.

Conclusions

The information derived from the questionnaire responses answered the research question: Which learning styles do older adults prefer when learning information? Overall, 68.0% preferred to learn visually, 10.2% preferred auditory learning, and 7.6% preferred tactile learning. Slightly different results were found

in a prior study that concluded that adults age fifty and older preferred visual learning first, tactile second, and auditory learning third.

When the results of this study were divided into groups according to gender, there were noticeable differences among learning style preferences between the two groups. Of the female participants, 75.6% preferred visual learning, 6.7% preferred auditory learning, and 5.0% preferred tactile learning. Of the male participants, 66.7% preferred visual learning, 11.6% preferred tactile learning, and 10.1% preferred auditory learning.

When the results of this study were divided into age groups, there were no significant differences among older adults and their learning style preferences. In the age groups 40-54 and 85 and older, there weren't enough participants to adequately compare those groups to the other age groups.

When the results of this study were divided according to grade level attainment, there were significant differences in learning style preferences among the groups. All age groups preferred visual learning as their primary learning style. Among participants with less than a high school education, only 55.6% preferred to learn visually, compared to those with a graduate degree where 80.0% preferred to learn visually. Of the participants that completed high school, 71.1% preferred to learn visually. Among the participants that completed some college, 65.3% preferred to learn visually. Of those participants with a four year college degree, 74.1% preferred to learn visually. In general, the higher the grade level attainment among older adults, the higher the preference for visual learning.

The results of this study mostly support the findings in the literature review regarding overall learning style preferences among older adults. The literature review shows that older adults prefer visual learning first, tactile second, and auditory learning third. This study concluded that the majority of older adults prefer visual learning first, auditory second, and tactile learning third. Even though this research shows a change in the order of the second and third learning preferences, it may not be significant enough due to the lack of a representative sample among all older adults.

Data gathered in this study regarding distribution of learning styles by age group, gender, and grade level attainment, cannot be compared to prior data or theories because there was no prior research related to these findings.

Recommendations

The research data affirms the importance of assessing the learning style preferences of participants in educational and training situations. If this is not possible, then the instructor should provide visual instruction as well as auditory and tactile teaching methods. Instruction and program planning should be organized around a student's strongest learning style. This design will help to meet the different learning needs within a group and to increase learning.

It is important to be aware that among older adults with higher educational attainment comes a strong preference for visual learning. Education and training of older college students and individuals with graduate degrees, should have instructional methods that rely mostly on visual aids. Older adults with less than a

high school education need less visual instruction and more auditory and tactile instruction. Additional research in this area should be conducted to determine the causes and implications.

Because the aging population is increasing and there are few research projects that focus on older adult learning, there is a need for additional research in this area. A more in depth analysis could concentrate on determining if adult learning style preferences change as adults get older.

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APPENDIX A

LEARNING STYLES QUESTIONNAIRE

Learning Styles Questionnaire

Thank you for taking the time to complete this survey. Your responses are confidential and will only be used by the researcher. This survey will be used to evaluate preferred learning styles among adults.

Check the statements that best describe how YOU learn or remember something. Only check an item if it is USUALLY true about you.

- ___ 1. Usually when I read a difficult essay or passage, it helps if I move my lips or say the words to myself.
- ___ 2. When I'm concentrating, I fidget or tap my feet or move around.
- ___ 3. I'm often aware of sounds around me, even when others around me are not aware of them.
- ___ 4. To learn something best, I take notes while I'm learning and review them later.
- ___ 5. The best way for me to learn how to do something new is to "just do it".
- ___ 6. When I am in a meeting, I will try to understand visual handouts even if they aren't very good.
- ___ 7. Some people considered me a "behavior problem" when I was in elementary school.
- ___ 8. When I tell people something, I expect that they will remember it, because I usually do.
- ___ 9. Usually I enjoy fixing things.
- ___ 10. I enjoy taking part in discussions with others.
- ___ 11. People can generally tell how I feel by my facial expressions.
- ___ 12. If I need to remember to do something, I will write it down.
- ___ 13. If I have difficulty learning something, it is helpful if I talk about it with someone else.
- ___ 14. I often have a hard time sitting still for very long.
- ___ 15. I usually don't like it if it is "too quiet" at work or at home.

(OVER)

- ___ 16. I often jot things down and/or doodle.
- ___ 17. I tend to keep things orderly and organized at work and at home.
- ___ 18. I tend to take notes even though I may or may not re-read them later.
- ___ 19. Usually, I become distracted by sounds around me.
- ___ 20. I usually prefer to read the directions first before I start anything new.
- ___ 21. I generally don't like to work very long in a quiet place by myself.
- ___ 22. If I were not looking at a sample of fabric, I could probably identify it just by touching it.
- ___ 23. If I'm trying to learn something, it is usually helpful if I re-copy what I've written down about it.
- ___ 24. I usually understand better when there is a picture or a diagram to look at.
- ___ 25. I like to have several tasks to do at once.
- ___ 26. I usually can name a song just as soon as I hear the beginning of it.
- ___ 27. I tend to notice billboards and street signs even if others do not.
- ___ 28. I learn best by doing a task.
- ___ 29. I usually understand better when the directions are explained to me.
- ___ 30. I prefer to read the directions first before I begin a new task.

Please check the following which applies to you.

___ male ___ female

What is your age?

- ___ Under 40 years
- ___ 40 to 54 years
- ___ 55 to 65 years
- ___ 66 to 75 years
- ___ 76 to 84 years
- ___ 85 and older

Last grade completed?

- ___ less than high school
- ___ high school diploma
- ___ some college
- ___ four year college degree
- ___ graduate degree

Thank you for your time in completing this survey.

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