

A DESCRIPTIVE STUDY OF THE INTRODUCTION OF PERSONAL COMPUTERS
TO FRAIL ELDERLY IN THE LONG-TERM CARE SETTING: ADVANTAGES,
IMPEDIMENTS AND FEASIBILITY

THESIS

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By

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DEDICATIONS

This work is dedicated to my devoted husband, J. B. Stringer, who has always provided the support, encouragement, understanding and love needed to live a life of joy, hope, and happiness in the face of daunting odds and history for over thirty years.

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I hope that I have been a success, as defined by Ralph Waldo Emerson, in this endeavor to improve the days of a few residents of two long-term care facilities.

To laugh often and much; to win the respect of intelligent people and affection of children; to earn the appreciation of honest critics and endure the betrayal of false friends; to appreciate beauty, to find the best in others; to leave the world a bit better, whether by a healthy child, a garden patch or a redeemed social condition; to know even one life has breathed easier because you have lived. This is to have succeeded.

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ABSTRACT

A DESCRIPTIVE STUDY OF THE INTRODUCTION OF PERSONAL COMPUTERS TO FRAIL ELDERLY IN THE LONG-TERM CARE SETTING: ADVANTAGES, IMPEDIMENTS AND FEASIBILITY

by

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Will or can long-term care residents learn to use personal computers? Will this experience improve their communication opportunities and provide an enjoyable individual activity for their daily lives? This thesis is a combination of two elements; *Project Certain*, which is an ongoing program by the Texas Long Term Care Institute of Southwest Texas State University and the researcher to introduce personal computers to the elderly residents at two long-term care facilities in San Marcos, Texas, and a descriptive study of the outcomes of this continuing project.

The participants at the two long-term care facilities are a self-selected convenience sample. Each individual resident participating received one-on-one tutoring sessions to learn how to use a personal computer. The tutors worked as facilitators with the residents selecting computer activities during each tutoring session. The most

popular activity with the computers is sending and receiving e-mails. The idea of browsing the Internet for information or entertainment was not received with much enthusiasm. Several residents in both facilities decided to use the computers primarily to play card games and other non-Internet activities.

Older adults can learn to use a computer! The joy experienced by the residents when receiving e-mails from siblings, children, and grandchildren cannot be underestimated. The reciprocal relationship that developed between tutors and residents is by itself a priceless contribution to both individual's lives. The participants do experience difficulty remembering all the steps involved with using the computer especially if tutoring is only available on a weekly basis and their learning curve is both steep and long. The elderly defer to the tutors to solve most problems encountered while using the computers, but several residents in each facility have learned to independently utilize this technological tool.

Several conclusions have become apparent during this tutoring project and study. Staff, administrators, tutors, and the researcher involved with this study confirm the belief that introducing computers to long-term care residents is a worthwhile endeavor. A computer program specifically designed to teach elderly users the basics of menu-driven software is needed. Plus with a small financial investment and a large time commitment by long-term care professionals, education professionals, and volunteers across the country, personal computer instruction can make a difference in the lives of our institutionalized frail elderly throughout the United States.

CHAPTER ONE

INTRODUCTION

Personal Computers and the Elderly

A technology that began as a resource for scientists and engineers has become a tool of everyday life in America. As a result of developments such as user-friendly graphical interfaces, competitive pricing, and widespread accessibility, the personal computer is today in offices, homes, and schools across the country. People use computers for business, entertainment, and communication. When the ‘baby boomer’ generation retires, a personal computer will be a normal technology in their everyday life. Yet today, many members of the oldest generation find themselves on the wrong side of the digital divide. This technological revolution has passed them by. The majority of residents of long-term care in the United States retired prior to the widespread use of personal computers in schools and business. An Internet service for senior citizens, Generations on Line, reports; “Only 1 in 5 people over age 70 have ever used a computer” (Generations on Line, 2000, Elders & the Internet section, ¶ 1). In the report Falling Through the Net: Toward Digital Inclusion, the government relates the fact that only 16.6% of Americans over the age of 50 and not in the labor force use the Internet (U. S. Department of Commerce, 2000). Although statistical information is not available, the percentage of residents in long-term care facilities that use computers and the Internet

is assumed to be substantially lower than the figures described above for the elderly population in general.

The use of personal computers can address the critical and growing problem of detachment and isolation of long-term care residents from family, friends, and mainstream society. A number of long-term care facilities are having negative impacts on their residents' quality of life by stripping these individuals of their autonomy, dignity, sense of mastery, and self-esteem. These losses often result in feelings of loneliness, helplessness, and boredom. The U.S. Congress sought to remedy these problems by enacting the Nursing Home Reform Act of 1987. This legislation was designed to maximize the quality of life for long-term care residents; it identified activity programs as a key element in attaining this mandate. Research has shown that activities for long-term care residents enhance their quality of life, provide cognitive and social benefits, and promote retention of functional abilities. Personal computers can provide an innovative expansion of the current activities offered to long-term care residents.

Goals and Objectives

The introduction of personal computers, as a leisure and educational activity, to residents of long-term care facilities is a possible means to lessen the loneliness and boredom experienced by these residents, especially nursing home residents. Personal computers and the Internet can provide a convenient and meaningful source of communication, entertainment, and information. The scope of this project is to examine the advantages, impediments, and feasibility of placing personal computers for resident use in long-term care facilities. The study is the result of a pilot project by the Texas

Long Term Care Institute affiliated with the College of Health Professions, at Southwest Texas State University and Carmen Ann Adams. The pilot project is entitled *Project Certain* an acronym for Project of Computers for the Elderly: A Rejuvenating Tool to Alleviate Institutional Norms. In addition, the word acronym “CERTAIN” expresses some of the attitudes and attributes that long-term care residents may gain by learning and using personal computers. Some synonyms for certain are satisfied, sure, positive, self-confident, secure, and untroubled.

Project Certain placed computers in two participating facilities in San Marcos, Texas: Merrill Gardens - Assisted Living Retirement Community and Hays Nursing Center. Work on the pilot project began in the January 2000. During the writing of this study, the project continues and will continue in the future due to the support of the long-term care facilities involved and the commitment of the Texas Long Term Care Institute.

The pilot project and this study have five primary goals: (a) to design and implement a program to introduce long-term care residents to personal computers with the aim of providing them with educational and experiential opportunities; (b) to address long-term care residents’ isolation and detachment from family, friends, and mainstream society; (c) to enhance long-term care residents’ quality of life and help them remain vibrant, vital, and active; (d) to explore the needs and desires of long-term care residents when using personal computers; and (e) to examine the potential services or products which might be developed to expand the use of personal computers as an activity in long-term care facilities. In order to accomplish these goals, the following objectives are being implemented:

1. Introducing long-term care residents to the basics of personal computers

through the use of a Web site, which facilitates resident's independent and self-initiated use of the Internet and e-mail.

2. Training and guidance of the long-term care residents so that they may
 - a. Initiate, continue, or reestablish personal relationships with family, friends, and new acquaintances by the use of e-mail.
 - b. Use the personal computer as a source of entertainment by playing games, doing puzzles, and surfing the Internet.
 - c. Employ the Internet as a source of information and enlightenment.
3. Providing one-to-one computer instruction and companionship in a non-threatening relaxed learning environment.
4. Empowering residents to make their own decisions during the learning process and to assure that each resident is treated with dignity and respect.

The seniors who decided to work with the computers in the two facilities experienced all the advantages of this new leisure activity as well as, providing information for the study component. Some of these advantages have included: reduction of boredom, increased communication with persons outside the facility, an increase in self-esteem, a sense of mastery, and just plain fun.

This descriptive study will accurately describe the experiences during the implementation of *Project Certain* in the two local long-term care facilities. The paper provides a discussion of the successes and failures through observations and anecdotes. A list of definitions of terms used throughout this study is located in Appendix A.

Limitations of the Study

There are several limitations to this study and pilot project. Some of these limitations are unique to *Project Certain* and others are endemic in the field of long-term care research:

- The limited numbers of long-term care facilities participating in the pilot study resulted in a small sample of elderly participants. The initial plans called for five long-term care facilities in the central Texas area to participate in *Project Certain*. A realization that this extensive implementation was not possible came early on in the pilot project due to the fact that a single individual produced the program and was involved with all initial tutoring of elderly residents participating in the project.
- The limited use of a sign-in program designed to track the computer use by specific residents. This program became a source of irritation for the facility staffs. The sign-in program blocked the use of the computers by staff and visitors to the facilities. This was the initial intent of the program, but the strife created was not conducive to the implementation of the project within the long-term care facilities. To eliminate this disharmony, the sign-in program was removed from each facility computer. This resulted in only acquiring observational data on the use of the computers by the elderly.
- The anonymity of any potential survey results was lost due to the strong personal relationships built between the computer tutor(s) and the residents. Once again this meant a descriptive study was the only reasonable report.

- No control group was established and all the computer users volunteered to participate in the activities and study.
- The mortality and morbidity experienced when doing longitudinal research extending beyond a few months with this particular population segment.
- Constraints to statistical measurement via surveys with frail elderly can be cognitive impairment, cognitive energy and motivation, response bias and estimation, and recall problems (New England States Consortium, 2001).

CHAPTER TWO

REVIEW OF THE LITERATURE

Demographic Information on Aging in America

The demographics of the United States are changing. The elderly represent an ever- increasing portion of the American population; see Figure 1. In 1998, 5,190 people per day celebrated their 65th birthday therefore becoming part of this segment of American (Administration on Aging, 1999). In 2000, approximately 35 million people

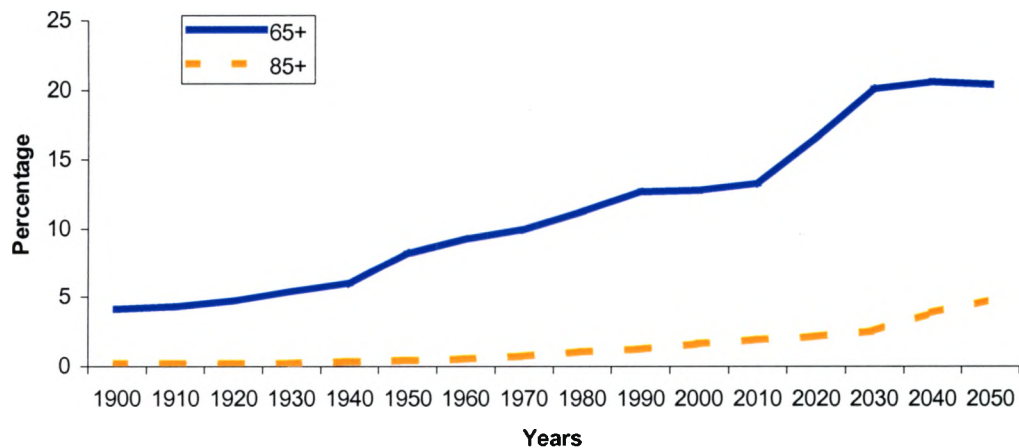


Figure 1. Percentage of United States population that is age 65 and older and age 85 and older, from 1900 to 2050. Years 2000 to 2050 are middle series projections.

are over the age of 65 in the United States (Federal Interagency Forum, 2000). The age group 85 and older is the fastest growing portion of the population. This subgroup of the

population will grow to 19 million by 2050 (Cramer Reed Center, 2000). The growth in the elderly population is due to the ‘baby boomers’, improved health care, and decreased infant mortality. Table 1 shows how American’s longevity is increasing (Urban Institute, 1998). One in five Americans will be over the age of 65 by 2030.

Table 1

Life Expectancy at Age 65

<u>Year Person Turns 65</u>	<u>Number of Years</u>	
	<u>Males</u>	<u>Females</u>
1940	11.9	13.4
1997	15.6	19.2
2040	17.5	20.9

In the report Demographic Profile of the Elderly in Texas by the Texas Department on Aging, the definition of old age is those Texans 60 years of age and older (2000). Due to the disparity with the national definition, 65 and older, a direct comparison of percentages is not possible. But in the report, the Texas State Data Center’s projection for the year 2000 is that the elderly will comprise 13 percent of the Texas population. In addition, the projected growth of the older population will increase by 176 % from 2000 to 2030. The Texas elderly population is distinct from the national population only in its absolute size. In Hays County, Texas, 10.5% of the population is

over the age of 60. Approximately 10,300 individuals make up this age group in Hays County (Area Agency on Aging, 2001).

Elderly and Long-Term Care

Long-term care is a “continuum of services” (Agency for Healthcare Research and Quality, 1996, Examining Long-Term Care, Overview section, ¶ 1). There are numerous definitions of long-term care in McKnight’s Online - Long-Term Care News (2000, February) three definitions from different organizations are provided:

Long-term care is a set of health care, personal care, and social services delivered over a sustained period of time to persons who have lost, or never acquired, some degree of functional capacity, as measured by an index of functional ability. – American Association of Retired Persons

Long-term care includes sub acute, rehabilitative, medical skilled nursing, and supportive social services for people who have functional limitations or chronic health conditions and who need ongoing health care or assistance with normal activities of daily living. – American Health Care Association

[Long-term care can be defined as] coordinated medical, nursing, rehabilitation, maintenance, and support services provided in the home, community, or institution for an extended period of time to patients of all ages with severe chronic diseases or disability, involving substantial functional impairment, regardless of diagnosis. The primary goal of long term care is to maintain the patient’s maximum functional independence. – Healthcare Financial Management Association

As described in the above definitions, the long-term care industry serves a diverse population of individuals in various situations. But in keeping with the majority of Americans who associate long-term care with the elderly and their life in residential facilities, this study when discussing long-term care will be dealing with those individuals living in nursing homes and assisted living facilities.

A brief review of institutional facilities for the elderly may help the reader understand the current long-term care options available. Today's long-term care institutional facilities have their roots in the poor houses or poor farms of colonial America, a model adopted from the English system. As early as the 1700s, the English had a Poor Law that provided funds for the elderly to be housed in institutions instead of their homes (Long Term Care Education.com, 2000). America developed long-term care facilities in the early 1900s due to the changes in family size and structure prompted by the urbanization and industrialization of America. The enactment of the Social Security Act on August 14, 1935 provided an insurance program for retirees over the age of 65 giving them continuing income after retirement from the workforce (Social Security Administration, 2000). This had two effects on the lives and housing of elderly in America. First, Social Security payments allowed some individuals to stay in their home because of the new influx of monies after their retirement. Second, Social Security allowed direct payments to vendors providing services to the elderly so many businessmen entered the field of long-term care because of this guaranteed flow of funds (Morris, 1995). Peter Uhlenberg (1997) relates "despite persistent criticism of conditions" in nursing homes the number of these facilities continued to grow in the 1950s "encouraged by the Hill-Burton Act that provided public money for construction of non-profit nursing homes" (Who created the nursing home section, ¶ 1). With the introduction of Medicaid and Medicare in the 1960s nursing homes residents began to change, Morris reports facilities were forced to "accept sicker and more difficult patients" (Twentieth century section, ¶ 7). These circumstances have expanded the use of the medical model in many nursing homes. The response to this situation and the continuing

criticism of care found in nursing home facilities are part of the reason for a relatively new type of housing option within the field of long-term care, assisted living communities. Linda Barton (1997) explains the background of assisted living:

Debuting in the United States in the 1980s, assisted living is patterned after Dutch and Scandinavian systems designed to provide housing and sheltered services for the frail elderly. The philosophy of assisted living makes it quite different from familiar medical/institutional models of care ... emphasizing the social and personal requirements of residents who need some assistance with daily activities and health care, but who desire and deserve to age with dignity.

An estimate of the number of individuals living in assisted living facilities in the United States is 1 million people (McKnight's, 2001). In the Executive Summary of testimony to Congress, the Health Care Financing Administration (HCFA) reported that there are 1.6 million individuals living in approximately 17,000 nursing home facilities in America (Health Care Financing Administration [HCFA], 2000).

Elderly Persons' Quality of Life

President John F. Kennedy said, "It is not enough for a great nation merely to have added new years to life - our objective must be also to add new life to those years" (Clinton, 2000, ¶ 13). The quality of life for elderly Americans continues to be of immense concern for both professionals and the public. Quality of life is a multifaceted concept and has numerous definitions. The idea of quality of life includes all parts of a person's life, such as each individual's material, physical, social, emotional, and spiritual well being (De Leo, et al., 1998). Marian Deutschman (1999) explains, "quality of life for the nursing home resident is elusive, confusing, personal, and multi-dimensional" (p. 1). Dignity, privacy, a sense of identity, fulfillment, a sense of meaning, social

participation, as well as control and choice over one's life are all elements which contribute to a person's quality of life (Kane, 1999). One definition of quality of life is: "A measure of the optimum energy or force that endows a person with the power to cope successfully with the full range of challenges encountered in the real world" (Anderson, Anderson, & Glanze, 1998, p. 7543). A second definition is: "A goodness of life related to an individual's perceived psychological, spiritual, socio-cultural, biological, and environmental well-being" (Galambos, 1997, p. 28).

Long-term care facilities often strip individuals of their autonomy, dignity, sense of mastery, and self-esteem (Coons & Mace, 1996). Family members and the health care team control many aspects of life for the elderly living in long-term care facilities. As a result, the resident may lose sight of his/her interests, values, and personal causations. In an article concerning a writing group activity in a Michigan nursing home, Elizabeth Schuster (1998) writes:

Too often, persons who have become very frail and old are perceived by society as being unproductive, and worse, unnecessary. The older adult, yielding to pressure from both internal and external forces, begins to assume the role of passive receiver, a role characterized by increased dependency.

Quality of life may be diminished by feelings of worthlessness and the coldness of the institutional environment (Seade, 1998). Although problems of the human spirit, these afflictions are as detrimental as physical limitations which may have precipitated the institutionalization of elderly in long-term care (Wyllie, 2001). Rosalie Kane identifies eleven domains of quality of life for individuals living in long-term care facilities: Sense of Safety, Security, and Order; Physical Comfort; Enjoyment; Meaningful Activities; Relationships; Functional Competence; Dignity; Privacy; Individuality; Autonomy /

Choice; and Spiritual Well-Being (Kane, 2001). Dr. William Thomas, founder of the Eden Alternative™, believes that residents are afflicted with what he calls the three plagues of nursing homes: loneliness, helplessness, and boredom (Thomas, 1994). These factors, if not addressed, can negatively impact residents' quality of life.

Activities in the Long-Term Care Setting

The United States Congress has sought to remedy problems associated with quality of care and quality of life for long-term care residents by enacting nursing home reform legislation. The Nursing Home Reform Act (Omnibus Budget Reconciliation Act of 1987 [OBRA], P.L. 100-203) was designed to maximize the quality of life for nursing home residents (Kiely, Simon, Jones, & Morris, 2000). OBRA identified activity programs as a key element in the attainment of this mandate. The idea of providing activities for the infirmed is as old as the ancient Romans and Greeks. In 1860, Florence Nightingale said: "a little needle-work, a little writing, ... would be the greatest relief the sick could have" (Lanza, 1997, p. 3). The United States Veterans Administration began providing recreation as a service within their programs in 1945, perhaps the establishing recreational therapy as a field of study (Lanza). In material provided for a live Web cast and satellite broadcast on September 29, 2000, the Health Care Financing Administration (HCFA) defined activities as:

Activities refer to any activity other than ADLs (Activities of Daily Living) that a resident pursues in order to enhance a sense of well being. These include activities that provide increased self-esteem, pleasure, comfort, education, creativity, success and emotional independence. Activities should also provide stimulation or solace; spiritual well being; promote physical, cognitive and/or emotional health. They also enhance, to the extent practicable, each resident's physical and mental status; and promote each resident's self-respect by providing activities that support self-expression and choice (Activities 101, p. 1).

State and federal surveyors seek to assure quality in long-term care facilities including surveying activities requirements. The State of Wisconsin has its surveyors evaluate participation in activities by asking questions such as: 1) is there a choice in activities for residents; 2) are the activities enjoyable, challenging, and stimulating; and 3) are connections with the outside community facilitated by activities within the home (Department of Health & Family Services, 2001). The Illinois Council on Long Term Care (2000, ¶ 2) reminds long-term care providers that, “Life satisfaction can be measured by one’s sense of accomplishment. This does not end when a person is admitted to a nursing home.” The Council suggests giving long-term care residents the opportunity to participate in activities which provide residents with a “sense of control,” make them “feel good,” allow for success, and can be done voluntarily. “By being able to engage in these activities, the residents experience security, control, inclusion, and affection.”

Voelkl and Nicholson (1992) cite the fact that activities for seniors in long-term care can enhance their quality of life, provide social and cognitive benefits, and promote retention of functional abilities. Ejaz, Schur, and Noelker (1997) report that if long-term care residents are not involved in activities this is apt to result in resident apathy, passivity, and boredom. Brenda Corbett in her book More Than a Game (1999) claims that life in a nursing home can be boring. She goes on to say: “For a resident with few significant mental limitations, it can get downright depressing. There is often a complete lack of challenge for someone who is oriented, able, and aware” (p. 50). A study of 60 elderly men living in Sydney, Australia states that mental engagement with the present can ameliorate the harmful effect of age related losses of health, work, and financial

independence (Bar-Tur, Levey-Shiff, & Burns, 1998). These researchers defined mental engagement as activities in which a person is cognitively involved such as: learning, reading, playing bridge, or thinking.

Over time, residents may experience detachment and isolation from family, friends, and mainstream society. These factors soon result in a negative impact on residents. Research conducted since the 1980's claim that activity programs in long-term care facilities can ameliorate the emotional health of elderly residents. In the book, Therapeutic Recreation for Long-Term Care Facilities, (as cited in Rancourt, 1991) the author claims: "Recreation activities which are regressive, which resemble busy work given to children, will not promote feeling of growth, achievement, and self worth. On the contrary, they will demoralize individuals, family, and staff." Rancourt goes on to explain: "When a human being is cut off from adequate stimuli, from sources of information and the opportunity to interact, previously attained competence levels begin to disintegrate" (p. 6). Institutional care may not promote independent living by its residents. Leisure activities are an appropriate tool to enhance a resident's sense of control and competence (Searle, Mahon, & Iso-Ahola, 1995). Joy Cornelius, President of the National Association of Activity Professionals, states: "If residents are more active, they're not as likely to be depressed" (Tetz, 2000, Bottom line question, ¶ 3). If residents are keep busy during the daytime, they should sleep better at night and the amount of sleeping medication may be decreased or eliminated (Bonn, 1999).

Many activities in long-term care facilities are diversional such as bingo, holiday celebrations, and entertainment from the community. Although these provide needed enjoyment, it is important to emphasize client participation as well as enjoyment in long-

term care activities (Elliot & Elliot, 1999). Especially in nursing homes, there is a need to provide one-on-one activities for long-term care residents due to the large variation in levels of functioning and ailments of the residents. The facility should allow for unstructured time in which residents can choose what they want to do. Residents express a high level of pleasure and choice when participating in unstructured activities (Voelkl & Nicholson, 1992). The activity director and facility should provide the resources and educational opportunities necessary for residents to partake in individualized activities. Kathy Hughes (1998) in an article about nursing home activities claims that activities will become smaller with projects that are designed to educate rather than entertain residents. HCFA provides a list of 27 examples of activity needs, it is interesting to note that the use of computers could help meet 17 of these needs (Computers could address those needs in bold typeface):

- **Continuation of life-long roles;**
- Improvement or maintenance of muscle strength and tolerance;
- **Improvement or maintenance of gross hand coordination;**
- **Improvement or maintenance of cognitive functioning;**
- Opportunities for movement;
- Reality assurance;
- **Enhancement of self-esteem;**
- **Independence through empowerment and choice;**
- **Stimulation of procedural memory;**
- Improvement or maintenance of joint range of motion;
- Maintenance of a "normalized" atmosphere;
- **Improvement or maintenance of concentration;**
- **Improvement of "alertness" level through focused stimulation;**
- **Socialization;**
- **Sensory stimulation;**
- Reminiscence;
- **Opportunities for nurturing and expressing affection;**
- **Opportunities for pleasure;**
- Opportunities for caring touch and physical contact;
- **Opportunities for self-expression;**
- **Opportunities to express emotions;**

- **Opportunities for family/significant other involvement;**
- **Opportunities to give something to others;**
- **Opportunities for nonverbal communication;**
- Opportunities for relaxation and alleviation of stress;
- Outlet for restless energy;
- Leadership roles (Activities 101, p. 1).

Elderly want a diverse program of activities that meet their interests and psychosocial needs. Objectives of activity involvement should be: 1) maintain social relationships, 2) promote meaningful activities, 3) find new directions for personal growth, 4) encourage feelings of self-worth, and 5) alleviate social isolation due to declining health or institutionalization (Hawkins, May, & Rogers, 1996). The introduction of personal computers as a learning activity in long-term care could address all of the activity objectives discussed by Hawkins, May, and Rogers. The personal computer use by the elderly in long-term care facilities can enhance their quality of life and provide an innovative, useful, and individualized leisure activity.

Computer Use by Seniors and the Elderly

Numerous articles available in journals and on the Internet refer to the subject of computer usage by seniors. At first it was thought that many members of the elderly population were technophobes, fearful of technology and computers. But recent research has contradicted this belief. In testimony to the United States Senate Mary Furlong, CEO of Thirdage Media and founder of SeniorNet, reported older adults approach computers with intelligence, enthusiasm, and a desire to master the new technology (Special Committee on Aging, 1998). Learning something new on a computer can provide a sense of accomplishment and satisfaction for elderly users (Shapiro, 1995).

There is conflicting research data as to whether older adults experience more

computer anxiety than younger persons. But in a study with 384 participants, age 20-75, no age group or gender effects were found for overall attitudes towards computers (Czaja & Sharit, 1998). The study did conclude that initial success at computer tasks and an explanation of the utility and benefits of the computer are important when teaching older persons to use a computer. Microsoft, in conjunction with the American Society on Aging, conducted a research study on seniors' attitudes toward computers. This research reports that 42% of senior non-users said computers intimidated them and 72% stated they did not perceive a need to learn to use computers (Microsoft, 1999). Cheryl Russell (1998) claims, "Millions of elderly Americans see no need for computers in their lives" (p. 10). There are people who cannot afford a computer, but most people who do not have a computer just do not want to own one. The majority of the "want-nots" are older Americans (Russell, p. 10). This part of the digital divide in American will close as baby boomers replace former generations in the 50 plus age group. Also, numerous organizations such as AARP (American Association of Retired Persons), Senior-Net, and Microsoft are attempting to show the importance and usefulness of computers to the current 65 plus generations to narrow the digital divide between younger people and the elderly.

Ellis and Allaire (1999) in an study regarding age, education, computer knowledge, and computer anxiety found a negative correlation between increasing age and computer knowledge as well as computer interest. The more knowledge of computer technology that the senior citizens had the less computer anxiety they reported (Ellis & Allaire; Dyck & Smither, 1994). "Higher levels of computer anxiety were related to lower levels of computer interest" (Ellis & Allaire, Results section, ¶ 2). Dyck and

Smither compared two groups of individuals (under 30 years of age and over 55 years of age), they reported older adults were more positive about computers with a better attitude, less anxiety, and liked computers more than the younger study group. Computer knowledge and computer anxiety accounted for the most of the variance reported in the interest in learning or using computers. Therefore, computer-training programs for the elderly should focus on increasing computer knowledge and reducing computer anxiety.

Research conducted in the early 1980s investigated the use computers with institutionalized elderly. Shulamith Weisman (1983) reported that elderly residents of the Hebrew Home of Greater Washington with an average age of 85 were interested in trying to play games on personal computers. Weisman states; “It was evident that the participants benefited from their feeling of mastery over the computer and considered it to be a learning experience” (p. 362). The computer games helped the residents concentrate and focus their attention as well as providing simple enjoyment. One study from the early 1990s, used a game to introduce the elderly to a computer, followed by a desktop publishing program, and then a cartoon program (Kautzmann, 1990). The study said that the elderly viewed the game, but few wanted to touch the keyboard. It was not until the first project using the desktop publishing program was printed that all the senior’s attention was captured. Kautzmann reports: “Seeing the picture and words emerge from the printer made the activity come alive and provided the stimulus for further participation” (p. 33). A personal computer can provide a new impetus for activities in the long-term care environment. If residents of long-term care facilities are given an opportunity to use computers in a friendly atmosphere with an activity that they understand and enjoy, the results should be positive.

Brief Discussion of the Internet

The Internet is a network of computer networks enabling numerous kinds of computers to directly communicate and share services. The beginnings of the Internet are found in the Advanced Research Projects Agency part of the United States Defense Department. President Eisenhower initiated this agency in response to the Soviet Union's launch of Sputnik in 1957 (ABCNews, n.d.; Gromov, n.d.; Leiner, et al., n.d.). In 1969, the first network, ARPANET, was formed between four universities. The first public demonstration of ARPANET was in 1972 and in that year, Ray Tomlinson introduced electronic mail. The World Wide Web was started in Switzerland by Tim Berner-Lee working at CERN, which is the acronym for Centre Européen pour la Recherche Nucléaire or European Laboratory for Particle Physics (Abrams, 1998).

The World Wide Web (WWW) is a tool to use the Internet for local or global communication. It is multimedia format, which can display text, graphics, animation, video, and sound. The WWW uses browsers, software programs, to display Web pages and sites. The WWW utilizes hyperlinks or hypertext technology. This allows a user to point and click a computer mouse to transfer to another part of a Web document or to another Web page. The basic language of the Web is HTML, Hypertext Markup Language. In everyday conversation, the names Internet and World Wide Web seem to be interchangeable even though the Web is a service on the Internet. E-mail is one of the most popular uses of personal computers by the general user on the Internet. Figure 2 shows the results of questions concerning Internet use by 4,113 adults in a study conducted by Nie and Erbing (2000) from Stanford University. E-mail has become a pervasive form of communication in the last few years. What began, as a form of

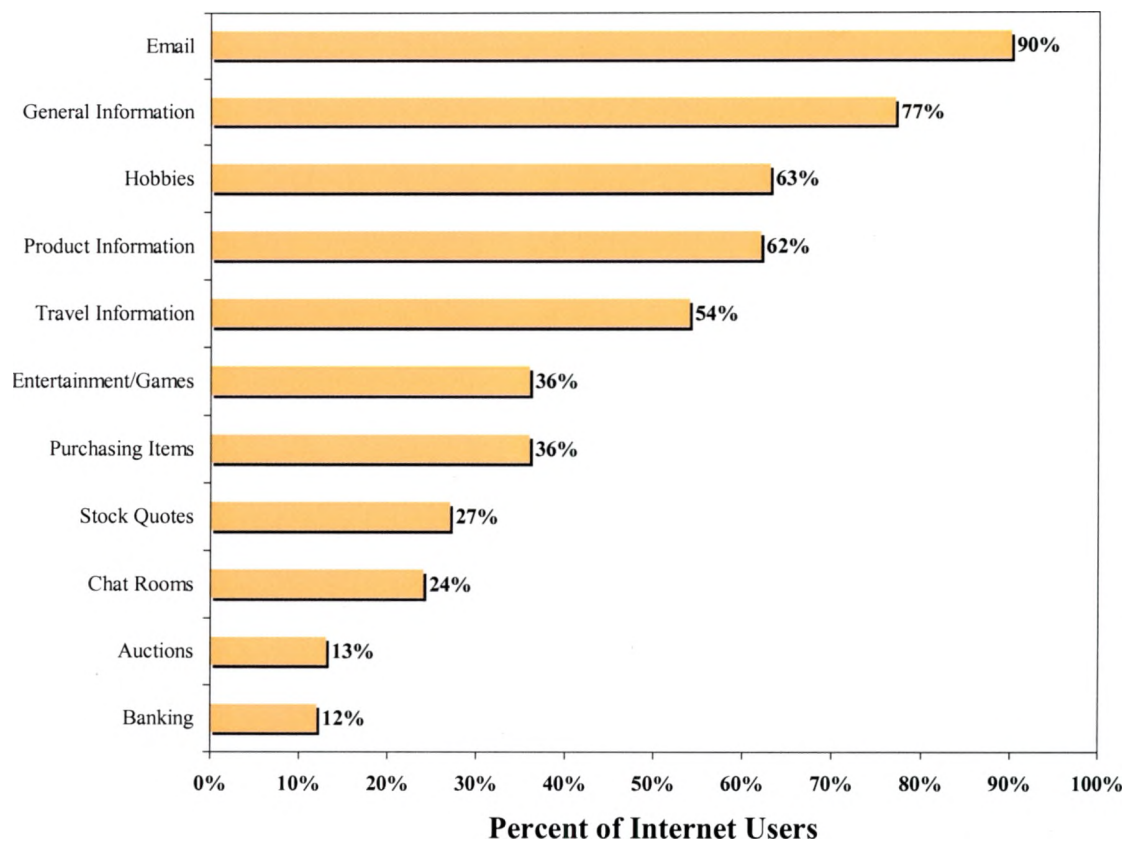


Figure 2. How individuals use the Internet, reported by percentage of users.

communication in labs and between university professors is now a form of every day personal correspondence for Americans of all ages.

The growth and impact of the Internet were impossible to predict at the beginning of this technical revolution. It is estimated that 180.68 million individuals are online in the United States and Canada (NUA Internet Surveys, n.d.). Harlan Lebo (2000) claims “The Internet has the potential to provide more communication power, purchasing capability, and knowledge gathering outreach than print and electronic media combined” (p. 4). Some remarkable Internet statistics included in the UCLA Internet Report are:

- The number of indexable documents online is greater than one billion.
- The Internet reached 30 percent of American households in seven years in

contrast to electricity, which took 46 years or the telephone, which took 38 years to reach this 30 percent penetration point.

- In 1998 the U.S. Postal Service delivered over 100 billions pieces of paper mail, while the Internet in the same year carried four trillion messages (Lebo).

Internet and E-mail Use by the Elderly and Senior Citizens

The Internet offers a means by which the elderly can take part, on a level playing field, with younger generations in accessing information or communicating with others. The Internet can “reduce isolation, promote lifelong learning, and facilitate achievement of activities of daily living” (National Aging Information Center, 2000, ¶ 1). As the elderly experience reduced mobility and lessening social networks interactive communication technology can allow for continued communication with relatives and friends. Bouwhuis and Melenhorst in a paper presented at the International Workshop on Gerontechnology in Japan during March 2001 state that:

Elderly who have successfully acquired Internet skills have a completely inverted cost-benefit ratio than those who turn away from it. For them, the investment made in learning the Internet is not perceived as effort, but rather as play, while the perceived benefit is extremely high (Abstract ¶ 1).

The increasing use of the Internet by senior citizens has been touted in the popular media. Media Metrix, an Internet research company, reported in April 2000 “the number of baby boomers and seniors on the Internet grew by 18.4 percent last year, making them the fastest growing Internet population” (¶ 1). An important factor when considering these statistics is that they are not discussing the elderly; the age bracket for the above study was 45 to 64 years of age. The U. S. Department of Commerce in Falling Through The Net: Toward Digital Inclusion - A Report on Americans’ Access to Technology Tools

(2000), the fourth annual report on Internet usage, states that labor force participation is an important determinant in Internet use for persons age 50 and over. In the age category 50 and above, 46.4% of those individuals employed report using the Internet while only 16.6% of non-workforce participants' use the Internet.

It is widely acknowledged that computer and Internet use decreases with each older age group, the information in Figure 3 is significant when considering access to the Internet by long-term care residents and other less independent seniors over the age of 65 (U.S. Department of Commerce, 2000). How low must the percentage of access by individuals over the age of 65 with physical disabilities be? Amanda Lenhart (2000) in a

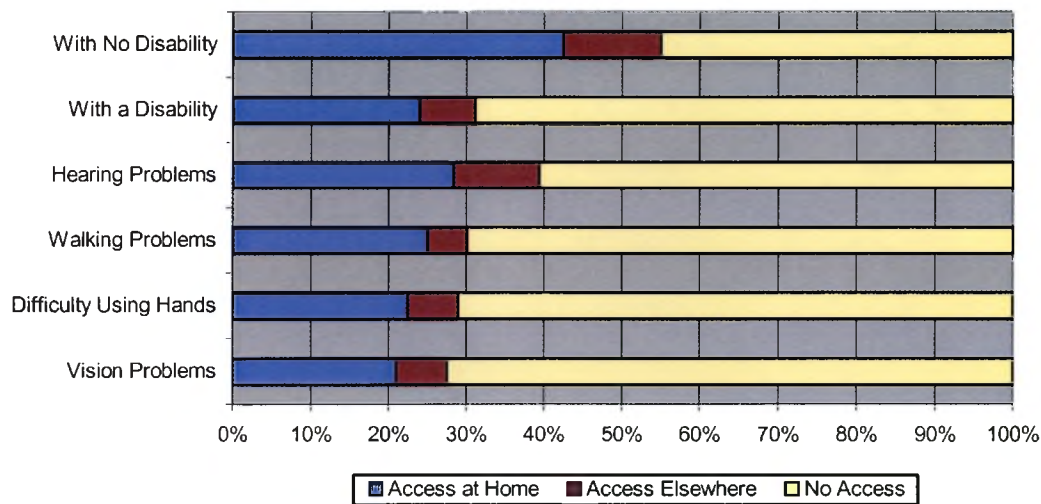


Figure 3. Percentage of Internet access for 50-64 year olds: Information is grouped by disability status and place of access.

paper for the Pew Internet & American Life Project says; “The ‘gray gap’ – aging Baby Boomers and senior citizens are the most resistant to the Internet” (p. 2). Ms. Lenhart reports that 87% of those 65 and over do not have Internet access plus 74% of those over 50 are not online and claim they will not get Internet access. The paper explains the

concerns of the “digital have-nots” are that 1) the Internet is dangerous – 54%, 2) the Internet does not provide anything they need – 51%, and 3) the online experience is confusing and hard to negotiate – 31% (p 3).

Even though access to the Internet is limited within the 65 and above age group, the Internet has been called the “fountain of youth”(Masland, 1998, ¶ 1). Senator Charles Grassley at a forum before the Special Committee on Aging of the United States Senate in July 1998, said of the Internet that “we are discussing a tool that has unlimited potential for improving the lives of older Americans” (p. 3). West Chester University sociologist, Douglas McConatha, conducted a study concerning nursing home residents’ introduction to the Internet (Lewis, 1999). McConatha said: “You can actually decrease depression, increase life satisfaction and increase activities of daily living by tearing down the boundaries that are often times put up by the walls of a nursing home” (¶ 2). The American Health Care Association’s 2001 planning guide for National Nursing Home Week states, “Residents can thrive with access to e-mail and the Internet. It can help to stimulate their interests and generate a sense of accomplishment” (Computers section, ¶ 1). The Duke Institute for Learning in Retirement conducted a comparison study between seniors introduced to the Internet and e-mail with a control group within a congregant living facility (White, et al., 1999). The majority of the participants were from assisted living, although four residents lived in skilled nursing. The study indicated that it is feasible to teach frail older adults to use computers and a decrease in loneliness, as measured by the UCLA Loneliness Scale (see Appendix B), was shown for those residents using the computers. It is noted in the article that it is impossible to determine whether the decrease in loneliness was due to socializing with computer tutors, being

with the other seniors using the computers, or with the contacts made via e-mail. David Lansdale, geriatrics expert from Stanford University and responsible for the *LinkAges* project using Web TV to bring the Internet to seniors, says the way to expand computer and Internet use by seniors and frail elderly is to develop software, equipment, and Web sites that are more accessible (Lewis, 1999). The oldest Americans are the least likely population group to have Internet access; but if they do use this new technology, their pattern of use is quite similar to other adult users (O'Toole, n.d.).

A research finding that the Internet had negative effects on social involvement and the psychological well-being among new user was widely reported in the popular media in the late 1990s. Robert Kraut, of Carnegie Mellon University, published this research in 1998. In 2001, Kraut is releasing a paper entitled Internet Paradox Revisited that basically reverses his earlier finding (Kraut, Kiesler, Boneva, Cummings, Helegeson, & Crawford, 2001). In this paper, the results of a 3-year follow-up study are reported. The authors said, "this sample experienced overall positive effects of using the Internet on communication, social involvement, and well-being" (p. 2). The only side note reported is that the Internet seems to provide better outcomes for extraverts rather than introverts.

Elderly Persons Learning Computers

Journal articles for the past twenty years have described the potential advantages of teaching senior adults to use personal computer. Several early articles dealt with the introduction of computers for the elderly through the use of video and educational games (Fisher, 1986; Hollander & Plummer, 1986; Riddick, Spector, & Drogin, 1986; Schueren, 1986; Weisman, 1983). These articles discussed the experiences with computers in three

nursing homes, an adult day care center, and a senior apartment building. The authors reported findings that are still evident today even though the sophistication of the personal computer has vastly increased since the 1980s. The senior citizens were hesitant at first to try the computers, the computers appealed to only a limited number of elderly either due to interest or ability levels, most participants enjoyed the computers, and finding exact therapeutic or rehabilitative benefits were difficult to measure. Literature continues to provide information concerning teaching the elderly to use computers. The three main areas of discussion are barriers to teaching the elderly to use computers, methods to help senior adults learn computers, and benefits of introducing the elderly to computers.

The barriers for elderly learning to use computers stem from physical, mental, and social factors commonly observed in long-term care residents. Several age-related traits of the elderly can be an impediment to learning and using computers. These characteristics include:

- Cognitive slowing that reduces the speed of learning.
- Limited mental processing that impedes remembering sequences of actions necessary to perform a task on the computer.
- Inability to focus that causes difficulty when learning in a less than ideal environment.
- Visual acuity that decreases the ability to read the information on the computer display screen and in printed instructional manuals.
- Manual dexterity that affects the ability to use computer input devices such as a mouse or keyboard (Festervand, Meinert, & Vitell, 1994; Echt, Morrell, & Park,

1998; Hutchison, Eastman, & Tirrito, 1997; Kelley & Charness, 1995; Umiker-Sebeok, Thompson, & Crosby, 1999; Zajicek, 2001).

In addition, social and background barriers have an effect on the elderly person trying to use a computer and the Internet. Today's elderly did not have computers when they were younger. Most of the long-term residents retired prior to the widespread use of personal computers in the commercial sector of the economy. This fact can make the vocabulary of personal computers obscure and impenetrable for the new elderly learner (Office of Learning Technology [OLT], 1999). For many senior adults, it is scores of years since they were in a formal educational or learning environment. Ronald Stone (1996) cautions "older people may feel less motivated to perform intellectually if they perceive a lack of ability and a decrease in performance may be related to a lack of practice of intellectual skills"(¶ 7). The Older Adults and Learning Technologies: Final Form Report produced by the Canadian Office of Learning Technologies (as cited in De Mello & Kiss, n.d.) points out:

Many older adults viewed activities such as surfing the Internet, joining chat rooms, and exploring the Internet in general as adventurous and daring. Because their education was relatively conservative, they were not trained to be daring and adventurous, and many initially felt very nervous and anxious about entering chat rooms or sending e-mails, even though there was no face to face contact with other people (Barriers section, ¶ 2).

The vast and seemingly endless character of the Internet confuses new computer users especially older adults. The Internet does not have hierarchical organization. The continuous linking through hypermedia can be difficult for the elderly to comprehend and conquer. Cahoon (1998) reminds educators that older adults are "accustomed to traditional print and broadcast media, in which the flow of information is centrally controlled and one-directional, they tend to find the diversity of the Internet baffling"

(Internet Skills section, ¶ 10). Although these barriers exist, it is important to remember, “older brains, when challenged with new activities, can continue to develop and learn until very late in life” (CHP Notes, 1999, Myth 3). It is not declining years but an unstimulating life style that can lead to intellectual decline.

Articles discussing the results of teaching elderly individuals to use computers are positive. Numerous articles report encouraging outcomes from introducing older adults to computers such as maintaining personal relationship via e-mail, filling voids in their lives, enhancing autonomy, improving their quality of life, and providing an intellectually stimulating activity. McConatha, McConatha, and Dermigny (1994) reported statistically significant increases in cognitive ability, increases in ADLs, and decreases in depression by 14 nursing home residents after a 6-month computer training project. The authors argue that the introduction and training of long-term care residents with computers and online service will enhance the residents’ autonomy and empower them to control their living environment. Cody, Dunn, Hoppin, and Wendt (1999) found “once trained, on-line adult learners experienced increased feelings of social support, connectivity, and reduced technology-related anxiety” (p. 281). In their study, the authors recruited nearly 300 elderly individuals living independently or in assisted living facilities to learn how to use the Internet and e-mail using Web TV. During the four month project over 48 percent of the participants withdrew, but the authors report that lower computer anxiety, higher computer efficacy, and better attitudes towards aging are significantly related to staying with programs to learn how to use online services.

Numerous researchers bemoan the lack of computer training software directed toward the elderly learner. As a general rule, most of the projects to teach elderly to use

computers have devised their own educational program. SeniorNet does have a complete education program but the cost can make this prohibitive for many long-term care facilities. SeniorNet is a nonprofit organization of computer-using adults, age 50 and older, which offers computer classes for senior citizens throughout the U. S. Bill Hudson (1996), who started a computer-training program for senior citizens in San Antonio, TX, reported

SeniorNet estimates that setting up a learning center with five computers will cost about \$21,000 for the first year, \$5,000 for the second year, and \$3,000 each year thereafter. This money will enable the volunteers to join the SeniorNet organization and maintain a SeniorNet Learning Center. (p. 3)

Common techniques and tips for teaching older adults are available in the literature although no specific instructional program is recommended. The two most widely noted factors involved with teaching elderly to use computers are 1) the older adults take longer to learn and to perform tasks on the computer approximately twice as long as other users and 2) the older adults ask more questions and depend on teachers and tutors for assistance very frequently (Baldi, 1997; Hudson, 1996; James, Gibson, McAuley, & McAuley, 1996; Jones & Bayen, 1998; OLT, 1997; Zandri & Charness, 1989). Jones and Bayen (1998) suggest that all software used with elderly learners should have a strong graphical interface and it is important to them about toolbars in Windows programs since problems with their memory may make using menus difficult. These authors believe in many of the modifications made by *Project Certain* such as: increasing button size on toolbars, using at least a 17" monitor, adjusting font size and background, and controlling the classroom or learning environment. Several studies discuss the importance of making the learning relevant to the older adults, their personal lives, and goals. Phil Agre (1996)

explains what this researcher believes is one of the most important elements to remember when teaching an elderly novice-user about computers, “A computer is a means to an end. The person you’re helping probably cares mostly about the end. This is reasonable” (Basic assumptions section, ¶ 2).

Computer Programs for Long-Term Care Facilities

The idea of placing computers in long-term care facilities is by no means unique. The Web contains numerous references to individual nursing homes and assisted living facilities that have placed computers in their facilities. Most of the projects are small and limited to one facility.

During this study, the researcher found three potentially nationwide for-profit companies delivering software and /or computers for the long-term care population. The first project was Legacy Link established in 1998 in Tyler, Texas. This business sold computers and custom software to long-term care facilities. They customized the computer with color-coded keys and had non-standard software for word processing, e-mail, and browsing the Internet (Legacy Link, 1999). Legacy Link is no longer in operation and the Web site is currently a sex-oriented pornography site. A second corporate organization to enter this field was FriendlyWorks. This company started in 1998 in Lenexa, Kansas. The corporation raised close to \$4 million in venture capital in 2000. During this period of time, the company had over 40 employees and served roughly 26 retirement homes. As of April 2001, the company closed and removed their Web site from the Internet (Roth, 2001). A representative of FriendlyWorks came to the Institute to discuss the possibility of a collaborative project after learning of our efforts with *Project Certain*. This company had an intriguing product using touch-screen

technology instead of a standard computer mouse and a complete graphical interface for e-mail designed to look like a roll-top desk. The sales price of the computer, monitor, and printer was \$2495 and a \$10.00 monthly fee for each resident using the system (FriendlyWorks, 2000). Both these companies aimed their services mainly at the assisted living community. The researcher believes that the high cost of the systems made it difficult to merchandise the above programs to the long-term care industry. Also, both programs used proprietary software, which means that the elderly learning on these products did not have transferable skills to work on standard menu-driven software or other computers. The third company SeniorSurfers is a training, support, and information project offering older adults computer and Internet workshops, home tutoring, and computer purchasing assistance. At the present moment, they are operating in California and Arizona, but plan on national expansion. They sell standard Dell computers at competitive prices and charge a \$99 fee for setup in a person's home. They currently have 20 computer labs in senior centers and long-term care facilities where they hold classes to teach the elderly about the Internet, e-mail, and software such as Microsoft Word (SeniorSurfers, 2001).

A nonprofit corporation Generations on Line from Philadelphia, Pennsylvania is providing customized software to provide e-mail, discussion groups, and a search engine for the Internet. The graphical user interface designed for the senior citizen population looks like an old-fashioned clothesline with photographic images representing the different Internet options available. Many of the photographs are from the World War II era. They are offering their services to senior citizen facilities at a onetime cost of \$250 and \$100 for each additional computer at the same location. The costs cover basic

instructional material and access to the corporation Web site. They do not provide the Internet service or the computers (Generation on Line, 2000).

Another three nonprofit projects for bringing the advantages of the Internet to long-term care residents are Elders Without Walls, Linking Ages, and “I, Witness to History”. Elders Without Walls is the personal avocation of a retired veteran from Tampa, Florida. He has donated computers to local nursing home facilities and maintains the Elders Without Walls Web site that offers a message board and e-mail pen-pal directory for residents of long-term care facilities (Elders Without Walls, 2001). Linking Ages is the project by David Lansdale, a professor at Stanford University in California. LinkAges started in 1998 has introduced hundreds of elderly in nursing homes and assisted living facilities in California to the Internet via Web TV (LinkingAges, 2000). “I, Witness to History” is an outstanding Web site developed at Larksfield Place a retirement community in Wichita, Kansas providing both assisted living and nursing home facilities. The site contains life stories and oral histories of residents in the retirement community. This project is the result of a collaborative relationship with Wichita State University. The Web site contains photographs, memorabilia, and stories from residents of Larksfield Place; it is worth a visit by any Internet user (I, Witness to History, 2000).

CHAPTER THREE

PROJECT CERTAIN A PILOT PROJECT OF COMPUTERS FOR THE ELDERLY: A REJUVENATING TOOL TO ALLEVIATE INSTITUTIONAL NORMS

Background Information on Pilot Project

The name *Project Certain* is an acronym for Project of Computers for the Elderly: A Rejuvenating Tool to Alleviate Institutional Norms. As stated in the introduction, the acronym “CERTAIN” expresses some of the attitudes and attributes such as satisfied, self-confident and positive that long-term care residents may gain by using computers. This ongoing pilot project and study examine the advantages, impediments, and feasibility of placing personal computers for resident use in long-term care facilities. *Project Certain* will help to close the existing digital divide experienced by some elderly in local long-term care facilities.

The pilot project placed computers in two long-term care communities in San Marcos, Texas. The project is the basis of this thesis and a program from the Texas Long Term Care Institute (Institute) an affiliate of the College of Health Professions at Southwest Texas State University. The *Project Certain* design and implementation is by Carmen Adams, author of this thesis and staff member of the Institute. One facility working with this pilot project is Hays Nursing Center (Hays). Hays is a non-profit, religious-sponsored, skilled nursing facility with 120 beds. Hays Nursing Center

provides the full spectrum of long-term care from short-term rehabilitative services to long-term custodial care. The other facility is Merrill Gardens (Merrill), a for-profit assisted living community. Merrill Garden has 67 apartments and an Alzheimer's unit called Memory Lane. Merrill Gardens is part of a national chain of assisted living facilities. "Through new construction and acquisition of existing communities, Merrill Gardens is now the largest operator of rental retirement communities in Washington State and one of the top 20 operators in the United States" (Merrill Gardens, n.d., ¶ 2). The initial plan for the pilot project was to place computers in five long-term care facilities, but the time commitment for handling two facilities required that any expansion be postponed until an effective means of using volunteer tutors is devised.

Initial Survey Instruments

The beginning of the study at Hays Nursing Center prior to the introduction of the computer was interviews with residents that the social work and activities staff thought had the cognitive and/or physical skills necessary to use the computer. The staff selected approximately 20 individuals in the nursing home. The interviews consisted of an informal discussion of the possibility of bringing a personal computer for the resident's use to the facility and the administration of a demographic and computer-attitude scale survey. A copy of the survey sheet is available in Appendix C. The computer-attitude scale is a modification of a nationally used scale developed by Loyd and Gressard. Further discussion of the scale can be found in the results section of this paper.

There was no initial contact with the residents of the Merrill Gardens Assisted Living facility prior to the arrival of their computer. Approximately 30 residents signed

up to have an introductory lesson on the computer. Each of these residents received the same interview sheet as the nursing home residents and in addition, they were given two psychological scales. The two psychological scales are the UCLA Loneliness Scale (Appendix B) and the Mood Scale (Appendix D).

In both facilities, the residents that decided to participate in *Project Certain* are self-selected. The staff of both facilities encouraged individual residents to try the computer tutoring. Thus all data is the result of a convenience sample and no control group was involved with the study.

Project Computer Hardware

Project Certain officially started in July 2000 with the placement of the computers in the two San Marcos long-term care facilities. The initial project computer hardware consists of a Gateway 433C PC, 17-inch monitor, multifunction keyboard, speakers, and an Epson Stylus 440 printer. Carmen Adams and her husband purchased the computer systems for the two facilities and provided computer paper for each residence. The Texas Long Term Care Institute provided the ink cartridges for the two homes throughout the first year of *Project Certain*.

The Hays Nursing Center computer is in their activities room. This room is located off the main hallway leading from the lobby to the wings containing the resident's rooms. All residents do not use the activities room, but the facility is small enough that all seniors possibly interested in participating in the project knew of the existence of the computer at the nursing home. The computer system sits on a multi-level home computer desk. The Merrill Gardens computer is placed in a multipurpose room

just behind the main lobby of the community. A purpose-built business computer desk is in one corner of this room. Most residents pass by this room on a daily basis.

Several accessibility devices are on the computers at the two facilities. After working with the residents for approximately a month, the Gateway mouse was replaced with a Kensington Expert Mouse trackball. A trackball is an upside-down computer mouse with the roller ball on the top. The Kensington Expert Mouse (see Figure 4) is programmable for numerous specialty operations, but it is in the out-of-the-box standard



Figure 4. Accessibility hardware used in the pilot project.

form without auto-scroll or other programming. Older adults may experience impaired hand function because of physical deformity, weakness, lessened fine motor coordination or pain (O’Leary, Mann, & Perlash, 1991). The trackball requires less hand and arm movement because only the ball needs to be moved not the entire device. Chaparro, Bohan, Fernandex, Choi, and Kattel (1998) concluded that “based on preferences, including levels of perceived exertion, and considerations of range of motion of the wrist the trackball may represent a better input device for older computer users (p. 512). The left click key used for most computer operations was marked with a red dot on the trackball.

A second accessibility feature added to the computers after approximately six months of the project was a Greystone Digital BigKeys LX keyboard (see Figure 4). A Web search for computer activities for seniors, revealed a site describing the BigKeys keyboard that seemed to offer an excellent addition to the pilot project computer systems. The larger keys would accommodate declines in motor skills and visual difficulties by the elderly users. The keys at 1-inch square are four times larger than regular computer keyboard keys. With this keyboard repeated letter output is impossible, no matter the length of time a key is depressed; the keyboard prints out one letter on the display screen. The keyboard has a 97-character key set for word processing and browsing the Internet (BigKeys, n.d.). The Institute purchased the large key keyboards for *Project Certain*.

A third accessibility peripheral installed at Merrill Gardens is a screen enhancer. These magnifiers are installed to assist with problems the elderly may have with visual acuity. Visual acuity is the level of spatial resolution that an individual has when reading (Kaiser, 1996). Carmen Adams purchased a CTC 20H Fresnel lens screen for the project (see Figure 4). A second magnifying screen tried for a short period of time at the assisted living facility is the Bausch & Lomb PC Magni-Viewer magnifier. This is a glass lens that is capable of magnifying the screen by 175%. It is a more expensive magnifier than the CTC 20H magnifying screen.

Project Software

The project incorporates numerous Microsoft Windows software accessibility modifications. Blue-sky wallpaper replaces the normal Windows desktop. This modification is available in Windows by viewing the active desktop as a Web page. It removes the program icons from the desktop. The reason for this modification is

threefold: 1) the icons can be confusing to a new computer user, 2) it facilitates the residents use of the quick launch taskbar, and 3) it helps eliminates the accidental opening of other windows and programs that can modify the basic systems or settings on the computer. Therefore, all program icons are on the quick launch taskbar located at the bottom of the screen in Microsoft software using the standard Windows accessibility option of larger icons. This modification allows the seniors to select a program by a single click rather than having to master the technique of double clicking. This is a reasonable accessibility modification since frail elderly may experience deteriorated motor skills and “finite mouse control can be troublesome and may be exacerbated by conditions such as arthritis” (SPRY Foundation, 1999, p. 7).

The display screen appearance scheme is white, large high-contrast; this is an option available in all recent Windows programs. This scheme replaces the normal gray background of Windows toolbars with bright white and black backgrounds. This modification may ameliorate physiological changes in vision by the elder since “often the ability to distinguish between light and dark is diminished because of a reduction in the transmission of light through the retina” (SPRY Foundation, 1999, p. 5-6).

The project computers have the following programs on the taskbar for the resident’s use:

- Microsoft Windows 98®
- Microsoft Word 2000®
- Microsoft Encarta Encyclopedia 2000®
- Microsoft Streets & Trips 2000®
- Microsoft Internet Explorer 5.0®

- Microsoft Solitaire®
- 123 Free Solitaire®

The Word program is for tasks the elders are accustomed to doing on a typewriter. The Encarta Encyclopedia and Streets & Trips are for the older adults to explore the computer without having to go on the Internet. Both Encarta and Street & Trips are loaded on the hard drive so that the residents do not have to use the CD program disk. It was a common sense assumption before starting the pilot project that individual program CD Rom disks might be difficult to work with and to keep track of. 123 Free Solitaire is a program with seven Solitaire card games. The Internet Explorer browser was bundled with the Gateway computer at the time of purchase.

A sign-in program designed for the study before the beginning of *Project Certain* was placed on the computers. The researcher wrote this program in Microsoft Visual Basic programming language. The reason for the sign-in program was to maintain the computer for the exclusive use of the residents and to be able to track computer use by the residents. The graphical user interfaces for the three pages of this sign-in program are in Appendix E. The sign-in program was on the start-up menu of Microsoft Windows and blocked access to all computer activities unless a registered individual signed in.

Project Web Site

The main emphasis of the computer training is teaching the seniors to independently use the Internet and e-mail. The seniors use a *Project Certain* Web page as their default home page. This page is displayed every time Internet Explorer is opened. The page enables the long-term care residents to link to Hotmail.com for e-mail, a links page created for the project, and a page displaying a list of six search engines. The

original design and maintenance of this Web site is by the researcher. The design is deliberate since the use of the Internet and a computer is new to most of the long-term care participants. The homepage is very simple see Figure 5. The homepage is a reassuring and calm oasis for the elderly residents to return to when using the Internet. The seniors may click on one of the three buttons for the Internet selection they want to work with. The Institute server hosts the *Project Certain* Web site.

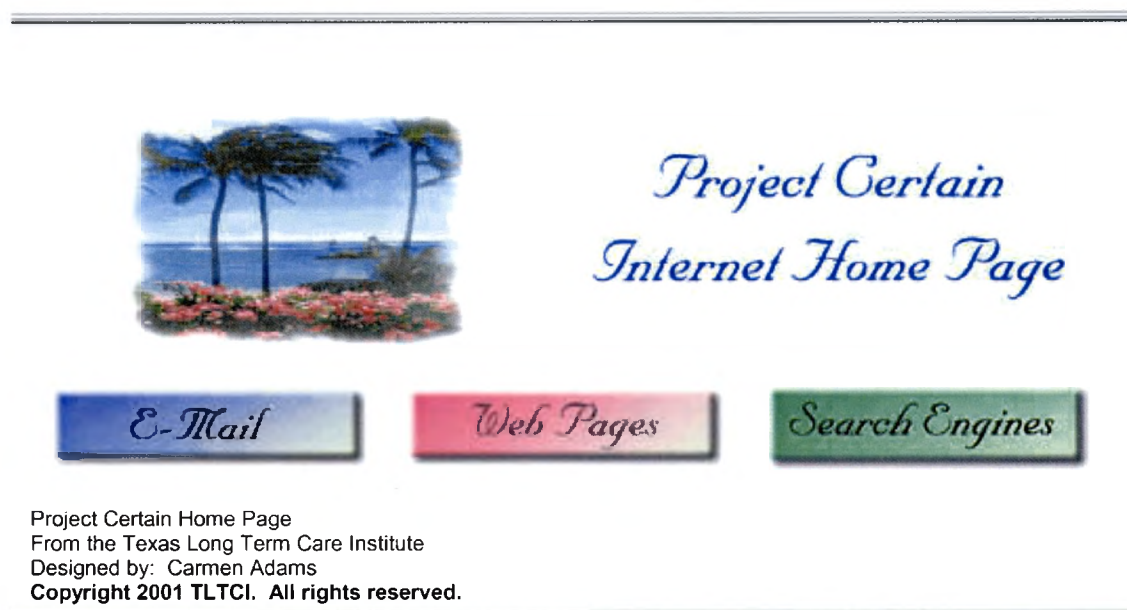


Figure 5. *Project Certain* home page used in pilot project.

Some long-term care facility staff charged with the safety and protection of their residents express reservations about the use of the Internet by the elderly at the beginning of *Project Certain*. Questions concerning pornography, explicit sexual content; Spam, unsolicited e-mails; and other potential dangers made some nursing home administrators contacted reluctant to introduce the Internet to their residents. Hays Nursing Center sent a letter to the researcher asking for answers to these types of questions regarding *Project*

Certain. After responding to their questions, the administration at Hays decided to allow the Internet connection for their residents.

The project uses Hotmail.com for e-mail. Hotmail is a free e-mail program offered by Microsoft Corporation. The program has an extremely easy graphical user interface. Many of the senior's relatives and other volunteers are capable of helping the seniors use Hotmail. Hotmail is accessible on any computer with Internet access. This allows the computer users at the assisted living facility to use their e-mail when they travel or visit relatives. Also, a free Web based e-mail allows the residents to use the mail service they become comfortable with on any other computers eventually secured by an individual resident or the facilities.

The links page contains 18 topics and over 250 links of possible interest to seniors, especially the frail elderly. Graphics and large type titles illustrate the different topics available. Each topic graphic links to another *Project Certain* Web page, which contains links to numerous Internet sites on the particular subject. The individual topic pages use graphical backgrounds to help the seniors remember and use the pages that interest them. A screen capture of the *Project Certain* links page is shown in Figure 6. The graphics help the seniors identify the topics on the individual pages. The topic links available to the participating seniors are: newspapers, television, sports, fine art, arts and crafts, Texas, health, books, history and culture, weather, federal government, military and veteran affairs, gardening and plants, magazines, senior sites, genealogy, nature and science plus a page that contains games, crossword puzzles, cards and other fun activities found on the Internet.



Figure 6. *Project Certain* links page used in pilot project.

A single-screen capture showing part of a topic Web pages is in Figure 7. This newspaper page links to the major Texas papers, national newspapers, and to those in the local area. The page links to a search engine for magazines and newspapers on the Web.

The health topics Web page shown in Figure 8 has the most Internet links. It has both governmental and commercial health links. This page links to over 40 Internet sites dedicated to specific diseases or conditions commonly experienced by the elderly. Many commercial and non-profit Internet sites stress the importance of the free medical information available to senior citizens capable of searching the Internet.

The search engine page gives the seniors an easy format for choosing a method to search the Internet. The researcher uses the search engines chosen for this page. Also,

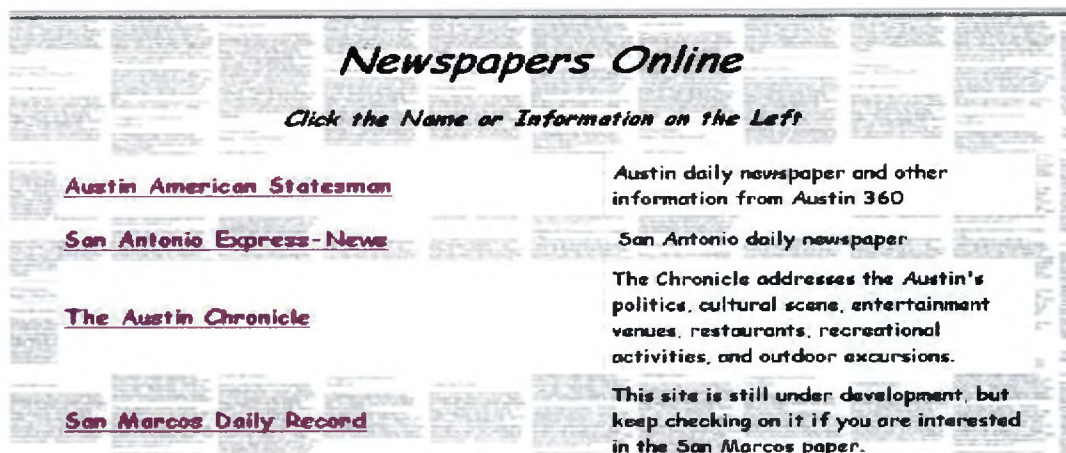


Figure 7. Partial screen capture newspaper links page used in pilot project.

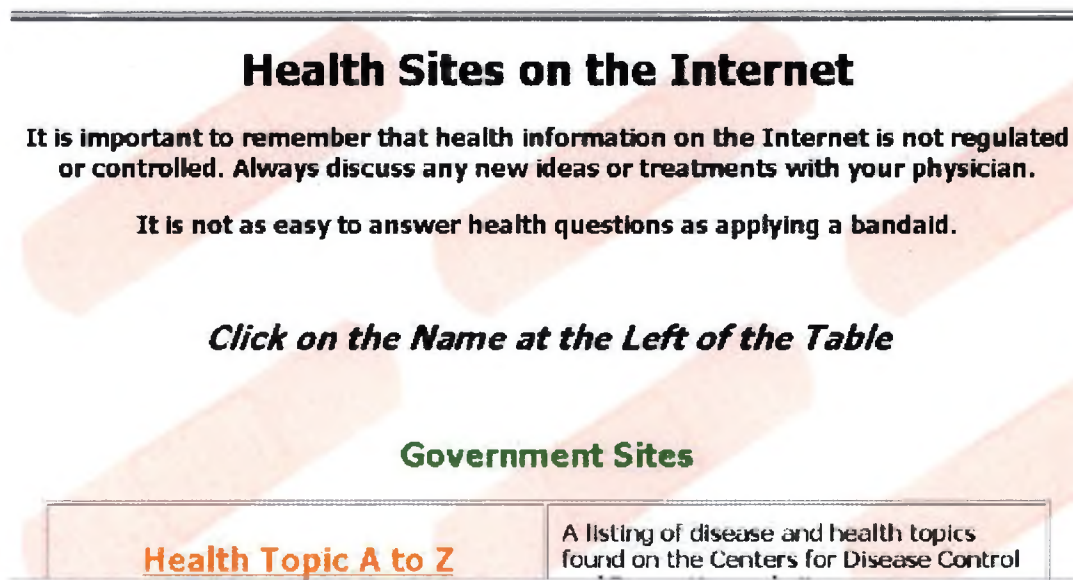


Figure 8. Partial screen capture health sites links page used in pilot project.

except for the Yahoo page which is a popular search engine, the individual search sites are designed specifically for this searching rather than those embedded on an informational Web site. These pages do not contain a great deal of extra and confusing information for the seniors to ‘fish through’ when they decide to try and search the Internet. This page shown in Figure 9 allows them to find a search engine that they are comfortable with and they do not have to remember the URL for any of the search engines.



Figure 9. Screen capture of search engine page used in pilot project.

The complete set of Web pages designed for this project can be viewed in Appendix F. The formatting of this paper required modifications to the original Web pages. Yet, the Appendix gives a realistic view of the pages available to the residents in this project. The researcher maintains all *Project Certain* Web pages intermittently

checking for accuracy and missing links. The incorporation of appropriate and requested links to new sites is an ongoing process.

Project Manuals and Tutoring

An instructional manual bound in a report cover is at each of the participating facilities. The entire manual is in Appendix G. These manuals are in full color, use 14-point fonts as a minimum and have numerous screen-capture or screen-shot images of the project software program's graphical user interfaces. They are placed at the long-term care facilities as information tools for any resident who wishes to use them, but they are not a required part of the instruction or tutoring.

The basic computer section of the manual describes the parts of the computer and has photographs of the actual Gateway PC. The actual name of the different components of a computer is not stressed during the tutoring with the elderly. Although most beginning computer classes start with a discussion of computer hardware and software, the researcher believes that very few individuals are interested in this information when they first try to learn computers. The majority of people do not ask how a telephone works and have no desire to learn the correct name for any of its internal parts. People just want to pick up the receiver and make or answer a telephone call. It is believed that the same fact is true with many new computer users. They do not care if they know what a CPU is, but they certainly want to learn how to send an e-mail to their family members. In addition, the elderly in long-term care facilities at this time did not have personal computers available throughout the more active years of their lives. Thus much of the computer jargon that is part of a young person's everyday vocabulary is like a foreign

language to many of the residents. Hence, this information is available but not stressed when teaching the residents.

The next two individual sections in the manual cover using a standard computer mouse and the computer keyboard. The mouse section includes information on where the name ‘mouse’ came from. This is a very common question by new computer users. The keyboard section tries to identify all of the many keys on a standard computer keyboard as well as the special keys on the Gateway keyboard. But encourages the residents to understand that they will use the letter keys for the bulk of the work they do on the computer. This section covers some of the common errors made by new computer users such as holding down a key and getting a repeated character. The section explains a few computer terms that relate to the keyboard such as the fact that “dot” in a Web site domain name is really a period on the keyboard and that “any key” means just that, to perform a specific computer task you may depress any key on the keyboard. With any future expansion of *Project Certain* these sections will expand to cover the trackball and large key keyboard accessibility devices.

Several sections cover individual software programs used by *Project Certain*. One section discusses how to use the freeware card game software incorporating screen captures of the actual game activities. Therefore, the elderly residents can visually learn how to play the Solitaire games. The Microsoft Word section explains the most basic ways to use the word processing software. This section is just text, no screen captures, because only the more advanced computer users in the long-term care facilities make use of this particular software.

The most extensive section in the manual describes how to use Hotmail to send and receive e-mail. The Hotmail graphical user interface has recently changed, but the manual represents the interface available at the beginning of the project. A new manual section is under construction at this time for this new Hotmail graphical user interface.

Also, Appendix G contains an example of a shortened version of Hotmail instructions, which is posted on the side of the monitor at the long-term care facilities. The final section of the manual is a glossary of computer and Internet terms. This is for reference when the elderly hear a word they do not know and is not extremely technical in nature.

Carmen Adams and Rich Wyllie, a grantee of the Texas Long Term Care Institute and a licensed social worker, presently conduct the tutoring of the long-term care residents in both facilities. At the beginning of the pilot project, a tutor was available for instructional sessions three to six hours a day and up to three to four days a week. The residents at the assisted living facility sign up on an appointment sheet originally circulated by the staff and later posted near the computer. The nursing home facility staff signs up individual residents for tutoring sessions.

The tutors when working with the residents use the strengths perspective approach. The social work profession adopted this approach, due to the need for utilization of an individual's unique qualities and strengths in planning treatments. If the focus is on the resident's capacities and strengths by viewing the resident as possessing wisdom and competence, it creates the opportunity to build on the positive aspects of their lives (Pray, 1992). This is a shift from the medical model perspective found in most long-term care facilities, especially nursing homes. The medical model centers on care

and treatment for elderly residents. This results in primarily focusing on the medical and mental deficits of the residents. By concentrating on the strengths of a resident, it allows the resident to attain his or her greatest level of independence and well-being. The implementation of the strengths perspective involves continuous verbal interaction between resident and tutor, which promotes a healthy, positive relationship where teaching and learning become a reciprocal process (Perkins & Tice, 1995).

The emphasis of the one-on-one tutoring sessions is to provide the elderly with an enjoyable and non-threatening environment in which to learn to use a computer. It is important to establish rapport and build trust between the tutor and the resident. Rapport with the residents fosters open and free communication. This type of communication is essential because while the elderly are learning to use e-mail, the tutor may be privy to numerous personal issues involving residents. The residents need to know that the tutors are there to help them, but they will not judge them on their computer skills or their personal relationships. All tutoring involves hands-on computer activities. No lecture type instruction is included in *Project Certain*.

After the first month, the tutoring continued on a twice a week basis at each long-term care facility. After approximately six months, the tutors changed to weekly visits. The activity staff at Hays is now helping the individual residents during other times during the week. Both facilities use student volunteers from Southwest Texas State University; these students help the residents with their e-mail when the tutors and staff are not available.

The individual tutoring sessions are between 30 and 45 minutes in length. Except for a limited number of initial visits, all tutoring sessions are on a one-to-one basis. The

elderly control the sessions. The goal is to empower the residents to make their own decisions during the learning process. They tell the tutors what they want to do on the computer and the tutors work as facilitators. The tutors encourage the residents to work independently on the computer offering guidance with problems encountered rather than avoiding problems or mistakes before they occur. Tutors stress that they are no silly or stupid questions and that computers can do strange things from time to time.

All residents in both facilities obtain an e-mail account during their first day using the computer. The tutors do most of the computer work to set up the original accounts. This is due to the fact that the signup process for Hotmail.com requires extensive page-scrolling, selection from option boxes, and highlighting toggle choices. The residents do not possess these computer skills when they start with *Project Certain*. The tutors maintain a register of all the individual e-mail accounts and passwords. At Hays Nursing Center, the activity staff also keeps a list of these accounts. When teaching the residents how to use Hotmail, the tutors draw numerous analogies to postal mail that the residents are familiar with.

The study of this pilot project covering the advantages, impediments, and feasibility of teaching frail elderly in long-term care facilities to use computers is provided in the remainder of this paper. The results section of this paper presents a discussion of the different activities that residents selected to do with the computers during their tutoring sessions. The study gives information about the outcomes of trying different accessibility hardware peripherals with the computers installed at the two facilities. An analysis of the data obtained from the initial survey instruments is presented as well as the reasons for eliminating scheduled follow-up surveys. The

researcher and the Texas Long Term Care Institute are pursuing a new direction of investigation and activities with regards to teaching frail elderly to use computers as a result of this pilot project. An explanation of the events and the future project are given in the Recommendation and Conclusion section. These remaining sections include numerous anecdotes and examples of the experiences while helping the long-term care residents to join the cyber society.

CHAPTER FOUR

RESULTS

Survey Instruments

One of the initial steps of this study was the distribution of a consent form (Appendix H) and the initial survey instruments discussed in the following paragraphs. The two facilities involved in the study are the Hays Nursing Center and the Merrill Gardens Assisted Living Community in San Marcos, Texas. The results shown in the following paragraphs are for each facility individually. The samples from both facilities are nonrandom and the study uses no control group.

The participants from the nursing home represent a judgment sample. The Hays Nursing Center social worker and the activities staff thought approximately 20 individuals in the nursing home would be able to use the computer. The project began by interviews with 13 of these individuals. The other residents on the staff's list either did not want to speak with the interviewer or were not currently in the facility due to factors such as hospitalization or visiting relatives. The interviews with the nursing home residents included an informal discussion concerning bringing a computer to Hays, a demographic survey, and a computer-attitude scale questionnaire, see Appendix C.

Figure 10 and Figure 11 provide some basic demographic information on the persons interviewed at Hays. Six men and seven women were interviewed. Although the gender distribution of those designated 'capable' by the nursing home staff is evenly

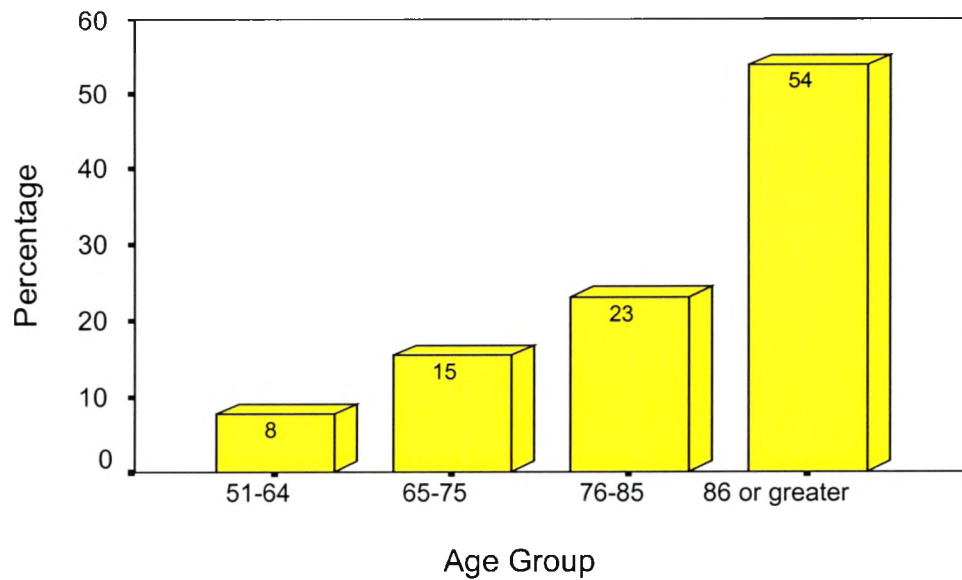


Figure 10. Percentage of four age groups reported during initial interview with designated residents at Hays Nursing Center.

Note. Numerical labels on individual bars represent rounded percentage

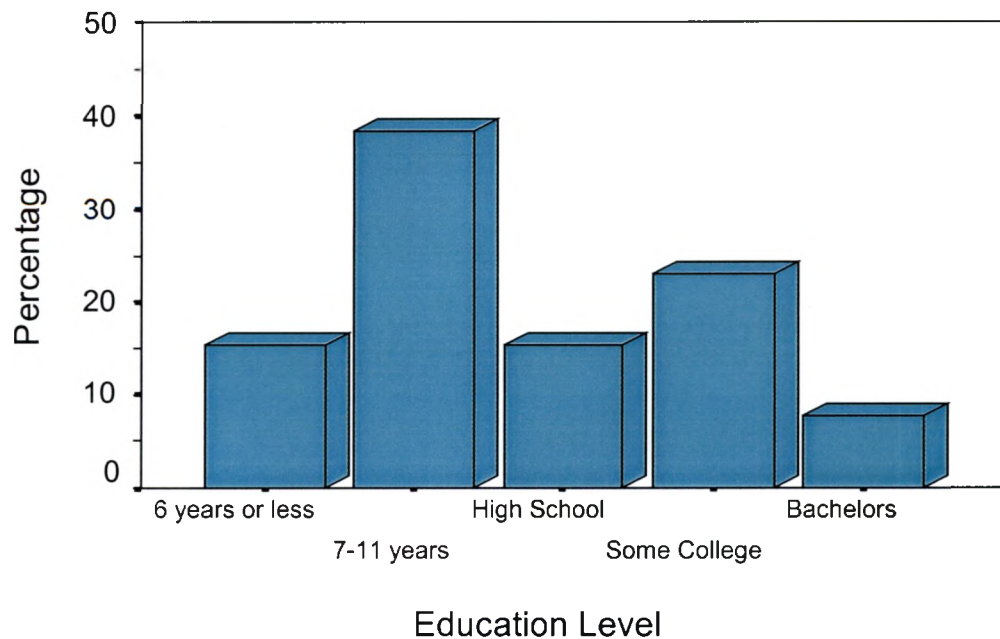


Figure 11. Percentage of education level reported during initial interview with designated residents at Hays Nursing Center.

divided, only one gentleman actually participated with the computer training to this point at Hays. The equal number of males and females does not reflect the customary nursing home population in the United States. As reported in the 1997 National Nursing Home Survey, there are 1,465,000 residents age 65 and older living in nursing homes and approximately 74.6% of these residents are women (U.S. Department of Health and Human Services [HHS], 1997). The age distribution of the sample from Hays is a more accurate reflection of the national nursing home population. According to the statistics in the 1997 survey it is reported that 50.4% of the nursing home residents are 85 years and over, while 54% of the Hays residents interviewed are over the age of 86 (HHS).

None of the residents initially interviewed had been exposed to computers or had used a computer. One of the questions on the computer-attitude survey asks if the respondent knows the term Internet; seven respondents knew the term Internet; six did not know this term. Eight of the residents interviewed said that they knew what e-mail was while five individuals said they did not know this term. In response to the question, "Do family members use computers?" 61.5% of the interviewees answered yes. It is quite possible that the respondents that answered negatively to this question were just not aware of the computer use by their children and grandchildren when the prevalence of computers in the United States is considered.

The Loyd/Gressard Computer Attitude Scale is the basis for the attitude scale used in these interviews. Brenda Loyd, past President of the National Council on Measurement in Education and Clarice Gressard developed the original scale. Doug Loyd gave permission for use and scoring information for the original scale (D. Loyd personal communication, e-mail, July 8, 1999). Two published articles describe the

reliability and factorial validity of the Computer Attitude Scales (Loyd & Gressard, 1984a, Loyd & Loyd, 1985). The original scale has 40 questions; this is too extensive a questionnaire for the average frail elderly person to comfortably complete. In addition, there are questions concerning employment in the original survey that are not relevant to nursing home residents. A modified ten-question survey was created. This scale was more appropriate since the residents had made no commitment to the project at the time of the interviews. This modification of the scale would nullify the tested reliability and validity of the original scale.

Table 2 gives the frequency data for this modified computer attitude scale. Some interesting responses are that 76.9 % of the respondents thought they would enjoy working with computers while the same percentage reported they thought it would be difficult for them to use a computer. Thus, these frail elderly are not afraid of a challenge. Almost all the respondents, 92.3 %, believe learning computers is worthwhile, yet 38.5 % felt that learning how to use a computer would be a waste of time. During informal discussions with these individuals, it seems the answer about learning computers was made 'in general' or for most people, but the answer about learning this skill being a waste of time was a response based on their personal situation. The remark heard most often beyond the actual survey was "I didn't or don't think I will ever have the opportunity to use a computer." The elderly resident's interest in computers was clear from these initial interviews and it is rewarding to be able to present them with the opportunity to experience using a computer.

Due to unforeseen delays, the computers did not arrive at Hays until almost nine months after these interviews; only three of the residents who participated in these initial

Table 2**Responses to Computer Attitude Scale at Hays**

Questions	Agree	Disagree
I would like working with computers if I had the opportunity	7	6
The word computer makes you very nervous *	7	5
Learning about computers is a waste of time	5	8
Working with computers would be enjoyable & stimulating	10	3
Learning about computers is worthwhile	12	2
I'm not the type to do well with different types of machines...	8	3
Computers make me feel uncomfortable	6	7
I think using machines like a computer are very hard for me *	10	2
I would feel comfortable working with a computer	7	6
Computers make me feel uneasy and confused	8	5

Note. * One person did not answer each of these questions.

interviews went on to work with the computers in the pilot project. No second administration of the survey is available due to the fact that no accurate measurement of whether involvement with computers changed any attitudes was possible since the individual residents involved with the study changed so extensively. This attrition of participants is a common problem with any longitudinal study of the elderly especially those living in nursing home facilities (Wyllie, 2001). This represents a fundamental limitation in the study since 53.8% of those interview said the word computer made them

nervous and 61.5 % agreed that computers make them feel uneasy and confused. It would be very enlightening to see if these attitudes changed after the residents had an opportunity to learn to use a personal computer, but these data are impossible to ascertain with this sample population.

The residents at the assisted living facility were a self-selected sample. The computer arrival preceded any involvement with the residents of Merrill Gardens. The day after the computer appeared Jason Murphy, the community relation's director at Merrill, presented a list of 30 residents who had signed up for a 20-minute introduction to the computer. At the time of the initial computer introduction, each participating resident was given the same survey instrument as the Hays residents and two other survey instruments. The UCLA Loneliness Scale (see Appendix A) and a Mood Scale that is a short form of Dr. Jerome Yesavage's, Stanford University Medical Center, Geriatric Depression Scale (see Appendix D); a discussion of these two scales is available later in this chapter. Only six individuals returned these surveys regardless of continual prompting to bring the forms back. Although the sample is exceptionally small, the results from the assisted living facility survey begin in the next paragraph.

The Merrill residents responding all knew about the Internet and e-mail, plus all reported they had family members who used computers. This demonstrates a different knowledge level than found at the nursing home where at least 35% of the respondents answered these questions negatively. The difference is almost certainly the result of the younger and more highly educated residents who returned the questionnaires. The age distribution of the respondents is not representative of assisted living in the United States. The average age of a resident in assisted living is 83 years (National Center for Assisted

Living, 1998). This increased knowledge about computer technology may be influenced by the fact that persons residing in assisted living are, in general, more active and involved than nursing home residents. Figures 12 and Figure 13 cover the same demographic items for Merrill Gardens' respondents as previously shown for the Hays Nursing Center interviewees. Table 3 shows the responses to the modified Loyd/Gressard Computer Attitude Scale. The negative responses about computers such as they make me feel uncomfortable, they make me feel uneasy, and not the type to do well with machines were not gender related; one male and one female gave the negative answers to these questions. Although very few individuals returned the survey instruments, their attitudes appear to be representative of the other participants involved in the pilot project study at Merrill Gardens.

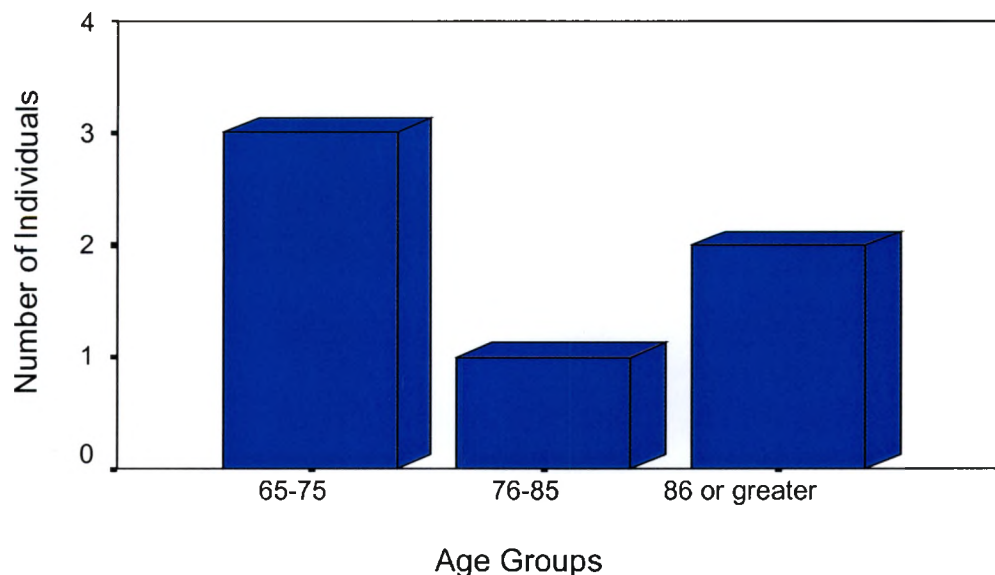


Figure 12. The age frequency distribution reported by Merrill Gardens respondents.

“The Mood Scale is a basic screening measure for depression in older adults” (Yesavage, n.d.). This is a public domain scale and has been translated into over 20 foreign languages. A discussion of the validity of the scale is available in an article by J. A. Yesavage et al. entitled Development and Validation of a Geriatric Depression Screening Scale: A Preliminary Report (Bennett, n.d.). The score on the test is

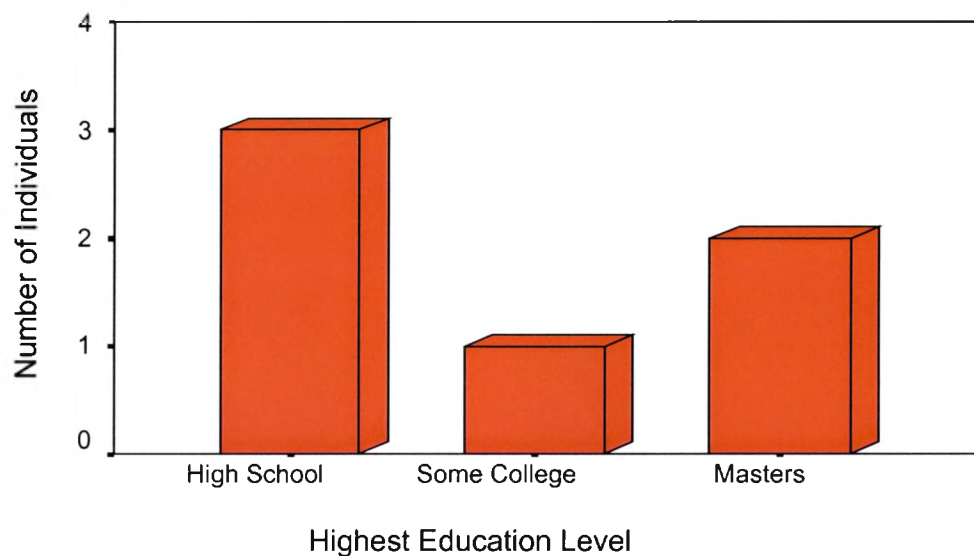


Figure 13. The highest educational level reported by Merrill Gardens respondents.

determined on a cumulative basis of all the answers. “Although differing sensitivities and specificities have been obtained across studies, for clinical purposes a score > 5 points is suggestive of depression” (Yesavage). The scores obtained on this test for the six individuals are 1, 5, 3, 1, 1, and 2. With these individuals, the two questions that registered a sign of depression most often are: “Do you often feel helpless?” and “Have you dropped many of your activities and interests?” Three individuals answered ‘yes’ to each of these questions.

The UCLA Loneliness Scale developed in the late 1970s is another public domain scale. The third version and an evaluation of reliability, validity, and factor structure of this scale are in an article by Daniel Russell (1996). The scale assesses subjective feelings of loneliness or social isolation. The revised version uses both negatively and positively directed questions. Test scores greater than 40 represent a higher than normal level of loneliness; scores of 65 or more may be symptomatic of depression. Four respondents from Merrill Gardens completed and returned this scale; the scores are 34, 27, 35, and 35.

Table 3

Responses to Computer Attitude Scale at Merrill

<u>Questions</u>	<u>Agree</u>	<u>Disagree</u>
I would like working with computers if I had the opportunity	6	0
The word computer makes you very nervous	1	5
Learning about computers is a waste of time	0	6
Working with computers would be enjoyable & stimulating	6	0
Learning about computers is worthwhile	6	0
I'm not the type to do well with different types of machines...	2	4
Computers make me feel uncomfortable	2	4
I think using machines like a computer are very hard for me	3	3
I would feel comfortable working with a computer	5	1
Computers make me feel uneasy and confused	2	4

No follow-up or re-administration of the surveys is available. Since the documents are anonymous, it is impossible to know who to administer a follow up survey with. Also after working with the elderly in both facilities, the idea of evaluating the impact of the introduction of the computer on their well being by means of a scaled test seems questionable. The elders of both facilities have so many issues that impact their lives from both within and outside their residential communities such as new or recurring health issues, family relationships, and world events that a subjective evaluation of their response to computer activities seems more rational than an objective survey instrument.

Equipment Outcomes

Issues involving the placement of the computer in the two facilities involve lighting, privacy, and a conducive learning environment. As explained in the methods section, the Hays Nursing Center computer is in the activities room at the facility. This is not always the most conducive environment as a result of the other activities and noise in the room. The use of the computer was seriously affected when another activity, beadwork, was scheduled at the same time as the computer tutoring. But after two weeks of trying to accommodate this dual use of the activities room, the tutoring sessions are now scheduled only when no other activity is planned for the room. In general, the seniors have adapted to the many distractions and extraneous noises while learning and using the computer.

After using the existing computer desk for almost six months, it became apparent that removing the raised monitor shelf would make it much easier for the residents to view the computer display screen. This was an easy modification. Since several of the residents have corrective bi-focal glasses to ameliorate the common aging problem of

presbyopia, it is easier for them to view the screen if it is lower and on the actual desktop.

“Presbyopia is a vision condition in which the crystalline lens of your eye loses its flexibility, which makes it difficult for you to focus on close objects” (American Optometric Association, 1997).

The location of the Merrill Gardens computer is more conducive than the computer placement in the nursing home. This is possibly due to the fact that the assisted living facility has more public rooms and is a recently built community. The majority of the time the computer area is quiet. The fact that the computer is not in a private area raises complaints from some of the computer project participants. They express the fact that they would prefer to be able to write letters and send e-mails without other residents stopping at the computer to check out what they are doing. Most users avoid the computer during a few activities such as Bingo and Wheel of Fortune that flood the room with participants, but at least one of the users is not deterred and is often typing away in the middle of all this mayhem.

The first accessibility modification in the project was to purchase 17-inch monitors instead of the standard 15-inch. These monitors can present more screen information in a larger size than the standard monitors. Although they are an upgrade and increase the expense of the basic computer package, it is a worthwhile expenditure when purchasing monitors for use with the frail elderly. In both facilities the problem of glare on the monitor display screens is controlled by the use of blinds on the windows.

After working with the residents, a trackball replaced the standard Gateway mouse. The elderly residents found it extremely difficult to click the standard mouse without moving it at the same time. This finding supports results published by Smith,

Sharit, and Czaja (1999) comparing computer mouse task abilities between young, middle aged, and older computer users. They reported the older user made significantly more slip errors than the other groups, which is when a user finds the target with the pointer arrow but the pointer leaves the target area before completing the task. The net result was that they would be trying to open one file in their e-mail or some other program but would open something else instead. The larger ball, big buttons, and not having to control the movement of the mouse make it much easier for the residents to use the computer with the trackball as the input device. The result of changing this input device is less confusion and fewer episodes of having to start over again on a particular task by the residents. To accommodate the reduction in psychomotor speed experienced by many older adults, the pointer speed for the trackball is at a slower than normal rate. This is a standard Microsoft option available in the control panel settings. Only one participant at the assisted living community expressed initial displeasure with this accessibility modification, but they have gone on to become an expert with the trackball and a very frequent user of the computer.

The large key keyboard is a favorite accessibility feature at the nursing home. After installing it at the assisted living facility, the residents using the computer conducted a poll on keeping this new feature. Only one resident wanted this different keyboard. So the assisted living residents use the original standard keyboard from Gateway. At the nursing home numerous seniors experienced both digital dexterity and eyesight difficulties when using the standard keyboard. In addition, the function keys were almost irresistible to some of the residents with rather amazing results. The elders got the computer to perform tasks that have never been contemplated by hardware or

software designers. The larger keys on the new keyboard make it easier for the older adults to locate particular letters since the majority of the residents use the "hunt and peck" method of typing. The only difficulty experienced with the Greystone Digital BigKeys LX keyboard is the fact that the Tab key is located directly next to the shift key. Depressing the tab key when using Hotmail.com can have some unusual results. The worst of these results is the erasing of all the typing previously done by a resident. After a few very frustrating experiences, all but one of the residents is managing to avoid the Tab key when they do not mean to use it. Luckily, the person experiencing the difficulty is learning to laugh at these mishaps rather than being frustrated or angry.

The pilot project installed magnifying screens only at Merrill Gardens. The assisted living residents are a bit more flexible and understanding of change than the residents at the nursing home. Some residents at both facilities expressed the fact that they had trouble reading the monitor screen even with the software modification for accessibility such as enlarged text size. The first screen installed was the CT Readscope Industrial Corporation's CTC 20H Fresnel lens screen. The magnifying screen did not seem to work for the majority of the seniors using the computer. Three users felt that this screen magnifier improved their ability to read the computer monitor therefore the mounting brackets are on the computer and those residents that like this accessibility peripheral can install it when they use the computer. This magnifying screen is not in use at the nursing home due to the mediocre review of this peripheral at the assisted living facility. Next, we installed the Bausch & Lomb PC Magni-Viewer magnifier. This is a glass lens that is capable of magnifying the screen by 175%. This more expensive screen magnifier was not as popular as the original Fresnel lens magnifier. The PC Magni-

Viewer is about half the size of the computer display screen and sits in front of the monitor attached from one side. The first difficulty encountered was that if anyone moved the magnifier screen it would take approximately twenty minutes to get it aligned again. This might be a result of the project installation versus a defect in the equipment, but it was very annoying. The second difficulty with this magnifying device is its size. In fact, many smiles from staff, researcher and residents occurred with the Bausch & Lomb PC Magni-Viewer magnifier because most of the seniors spend their time trying to look around behind the magnifier instead of through it to see the computer screen. The decision to proceed without any magnifying screen came after the experiences with these two screen enlargers.

Neither of the above magnifying screens provided enough magnification for our centenarian participant. Therefore a software solution was tried. The project installed a Zoom Text® screen magnifier program to accommodate this user. This program proved a challenge for the senior and he never really conquered it. But the magnification of over 4X is necessary for him to be able to read the writing on the computer screen. This gentleman began working on the computer with this software but after two cataract operations and having the constant assistance of one of his nieces he now uses the computer without employing the magnifying software.

Software Outcomes

The modifications to the Windows operating system are basic to the use of the computer. The modification of not using the normal Windows desktop and instead having the program icons on the taskbar is an excellent change. This modification and using the trackball allows the seniors to complete their computer work without learning

how to double click a computer mouse. During correspondence with a senior's listserv, some of the individuals on the listserv felt that this was not the correct solution to the problem of learning to double click. They expressed the belief that to use a computer a person has to learn to double click a pointer device. The researcher agrees that if the majority of the residents would be going on to purchase their own computer then teaching them to double click would be valuable, but since most of the elders will only be using the project computer it seems unreasonable to irritate them by forcing them to learn this particular computer skill. After nearly 16 months of tutoring and working with the seniors, the issue of not learning to double click a mouse is not a problem for the participants.

Hiding the desktop icons proved to be a valuable modification. "Free-wheeling" clicks are an often-found problem when working with the elderly residents. The seniors have a new adage, instead of 'if at first you don't succeed try - try again'; it is 'if at first your click doesn't work, click - click again'. Eliminating potential mistakes in clicking on items and then not knowing how to go back is worthwhile with this particular population. After some of these preventive modifications, the tutors allow the elderly to make mistakes so that they can learn error recovery as well as the initial steps to perform tasks on the computer.

The experiences with the diverse software programs on the Project Certain computers are varied. Microsoft Word is used frequently at the assisted living facility. The participating residents use Word to type letters to their relatives and friends who do not have e-mail. One resident finds it easier to compose lengthy e-mails in Word and then copy them to her e-mail account. They make use of the word processing program to

conduct their personal business correspondence. One resident creates a sign-up sheet for volunteers at her church on a monthly basis. The residents in the nursing home use Word infrequently. Only a few of the frail elderly at Hays are currently capable of using the e-mail independently. The participants seem determined to learn how to use e-mail on their own before trying to use other software on the computer. Thus, the majority of word processing at Hays is by the tutors and activities staff. One monthly activity utilizes the computer and Word at Hays. The activity director at Hays formed a birthday committee. The researcher placed a selection of clip art in a file available from the pilot project's home page. The residents on the birthday committee and the activities staff at Hays use the clip art to create a door decoration for each resident having a birthday during a particular month. Once when the researcher arrived to hold tutoring sessions, she found one resident using the keyboard and one resident managing the trackball while the activity director supervised this creative endeavor.

This decision to place the entire program and database for Microsoft Encarta Encyclopedia and Microsoft Streets & Trips on the hard drive of the computers proved to be very reasonable. At Hays, the activity staff has installed several small programs on the computer. It never fails that when the project tutors arrive at Hays someone from the activity staff asks if we have seen the CD for a particular program.

At both facilities mainly the staff utilizes the Encarta Encyclopedia program. The tutors showed the initial groups of elderly that came for the first introductory sessions how the encyclopedia worked. The elders all watched attentively, but they appeared more interested in e-mail than in the wonders of multimedia computer technology. Activity staff members at both facilities look up information to answer questions or to

plan holiday presentations in the encyclopedia. One of the most interesting uses of this program occurs at the assisted living facility. As mentioned earlier, Merrill Gardens has an Alzheimer's unit called Memory Lane. A gentleman from this section of Merrill has a friend who visits the facility daily. The visitor often stops to check his e-mail on the project computer and passes time while visiting with his friend by looking at entries in Encarta. It is impossible to know how much of the multimedia presentation the resident understands, but it seems to entertain him and the resident acknowledges individual images on the computer.

Microsoft Streets & Trips, a mapping and geographic information software program, was installed on the computers at the beginning of the pilot project. The researcher thought that the residents might enjoy looking up places they lived or visited and finding information on where their relatives and friends lived with Streets & Trips. The assumption that the residents would enjoy this program did not materialize. The program received little to no use so the program icons were removed from the quick launch toolbar and the program uninstalled to free up more hard disk space on the computers after several months of the pilot project.

Another type of software installed on the pilot project computers is card games. Both a freeware solitaire program, 123 Free Solitaire, and Microsoft solitaire are on the quick launch taskbar. The favorite is the freeware program. In fact, one resident at each facility uses this program almost exclusively. The nursing home resident uses the card games as her only involvement with the computer. This resident is very alert, intelligent, and active, but it is her choice to solely play card games when the tutors are at Hays. Originally, the tutors and activity staff spent considerable energy trying to convince this

resident to use e-mail and other programs while working on the computer. But after much prodding, the researcher reminded all tutors and staff that a goal of this project is to promote resident choice, autonomy and empowerment. If this is the only program a resident wants to use then it is certainly a valid use of the computer. One resident at the assisted living facility plays card games incessantly. Since there is only one resident computer at the facility, some complaints about her extended use of the computer to play card games arose. The tutors reminded the disgruntled residents not to judge another persons use of the computer. Through negotiations with all parties involved, the card playing resident allows other residents to check their e-mail account or get stock quotes in the middle of her card playing marathons. This resident does have an e-mail account and is interested in working on her family genealogy with her relatives on the computer, but she just love playing solitaire. It is interesting to watch this resident play solitaire. Even if you consider winning or losing card games is only a matter of luck; she devotes a considerable amount of time analyzing which move to make in order to win the game.

The sign-in or login program created by the researcher worked exactly as designed. The program forced all individuals wanting to use the project computer to log in. The program facilitated making sure only the residents could use the computer. This was the idea behind the program, but it turned out to be a point of immense concern within the two facilities. Many staff member desired to use the computer especially in the evenings when the majority of the residents are not in the public areas of the facilities. The administrators wanted to make sure that the employees were doing their jobs and not wasting time on the computer. Yet at the same time, the administrators saw the extra computer as an asset to their employees that did not have access to a computer at work.

The researcher removed the program after an extensive amount of discussion with the administrators and staff at both communities. This decision limited some of the demographic information collected during the pilot project. But after working with the residents at both facilities, the researcher decided that helping the seniors and facility staff to gain the skills to use a computer was of equal status with collecting potential research data especially since the sample sizes were so small.

Internet Outcomes

All the elderly using the computers appreciate the pilot project home page. It simplifies their use of the Internet and e-mail. Even as some of the residents become independent in their use of the computer, they want to have this home page as a base when entering cyberspace. In fact if a visitor changes the default home page setting on the computer at the assisted living facility, a call is received at the Institute to return the *Project Certain* home page. Although an explanation of how to change the default home page is on the bulletin board next to the computer, the residents seem happier with one of the tutors fixing this problem. This reluctance to modify computer setting is evident with most of the elderly users. In this manner the long-term care users may differ from the average computer owner. Some might interpret this as a lack of ability by the elderly residents, but the researcher believes that this is more than likely a case of them showing respect for the equipment which does not belong to them.

Numerous seniors find the Internet to be a bit overwhelming. Most experienced Web users normally use a home page such as Yahoo.com or MSN.com. The almost bewildering number of stories, links, and other information available on these Web pages are why the researcher rejected them as a home page for the pilot project. The three

buttons on the home page allow the residents to use the Internet and e-mail without sifting through extraneous information.

Searching and viewing the Internet is not as popular as sending and receiving e-mail. One of the residents explains that the Internet is certainly like a highway with all the links being detours that stop you from getting where you want to go. As cited in the literature review, senior citizens exhibit less ability to navigate the Internet without repeated attempts to find a specific item, which could account for this finding. In talking with the elderly at both facilities, the reasons for the reluctance to ‘surf’ the Internet have not been completely determined. Numerous participants have checked out the linked sites on the Project Certain links page, but they do not seem to venture beyond these pages. Although never specifically explained as a reason by the residents, this reluctance may be a result of fear concerning what is on the Internet. The popular media frequently touts the pitfalls and security concerns of Internet usage. A few new users have asked questions regarding the safety of the Internet. The majority of the residents avoid the Internet except for e-mail, but the activities staff of both facilities actively uses the Internet. At Hays, many new creative projects for the activity department now come from this source.

The exception to this is seniors who have a particular interest or question. One assisted living resident gathers materials to share with her church’s Senior Women’s Bible study group. In fact, the Bible study group complains if she does not find them a new site or some new information each time they meet. The result of sharing her experience with the Internet is that another member of the Bible study group purchased a computer. A second Merrill resident is trying to find information concerning her family’s

history on the Internet. In fact, several residents at the assisted living facility express the desire for a guest lecturer to discuss genealogy and the Internet. A nursing home resident worked with the Health Sites links page to research Ritalin. She had just learned that her grandson was taking this drug after a diagnosis of Attention Deficit Hyperactivity Disorder. After reviewing several articles on this issue, she printed copies of the most informative and relevant commentaries to give to her daughter. Another nursing home resident was bursting with pride when the tutors helped her find the Web site for her family business, which she had managed for nearly a half century. The researcher found it interesting that the family members now managing the business did not think she would be interested in the Web site constructed for the business. When the tutors first started to help her search, she was sure that the business did not have a Web page. A final example of Internet use by the nursing home residents is a rather sad commentary on working with this particular population. The Internet story concerns the one male computer participant at Hays. He quietly watched the computer activities for approximately three to four months before asking if he could look for something on the Internet. He explained that he was in the Navy during World War II and wondered if we could find any of his shipmates. The researcher used the Military links page from the *Project Certain* Web site and we found some information about finding veterans. The researcher entered his information and convinced him to get an e-mail account in case someone answered his queries. The sad portion of this story is that within a week of this activity he suffered a massive heart attack. After he passed away the researcher checked his e-mail account, unfortunately a shipmate of his had responded to his search. The researcher sent a

message to this individual explaining the situation and he generously responded via e-mail with his condolences for the resident's family.

The administration at the nursing home asked several pointed questions about the Internet before the installation of the computers. They ask if a blocking program was installed on the computers. The researcher responded that no blocking program was planned and explained that the researcher believes the residents of nursing homes are adults and should have free choice of how they use the Internet. The tutors did explain to each new computer users the importance of not bothering other residents with their choice of Internet browsing whether it is adult sites, music, or other types of Web sites. There is no report of problems, even though the tutors discussed methods of handling this potential problem before starting the pilot project. A second concern was maintaining the privacy of the residents using e-mail. The residents know how to sign-out of the e-mail program and there are no reports of non-authorized individuals accessing private files and accounts on the public computer.

As designer of the Project Certain links page it is rewarding that one of the residents shows the links page to everyone that walks up while she is using the computer. She just loves all the graphics and all the opportunities to visit different Web pages. Just as a side note, some staff members at the Institute use the links page as a simple search engine because it is easy and fun to use. The newspaper page generates the most usage. Reading the headlines and stories from out-of-town papers is of interest to the assisted living facility residents since many of them are not long-term San Marcos residents. This page links to a search engine covering printed media available on the Internet. This search engine has The San Saba newspaper listed on it. San Saba, Texas is the hometown

of one of the assisted living residents who uses the computer. The resident was delighted when we found her hometown newspaper on the Web and regularly reads the Website to find out what is going on with her friends and relatives. In fact after working with her for a short period of time, the tutors learned that she and her late husband published this newspaper for many years. So even though the Internet does not have the popularity of e-mail, its inclusion in any project for the elderly seems worthwhile.

E-Mail Outcomes

E-mail provides the greatest joy, entertainment, and learning opportunity for residents at both facilities. E-mail allows for increased communication with friends and relatives especially those living outside of San Marcos. Many phone bills are smaller since the introduction of this new means of communication. Also, some of the residents relate that they can now keep in touch with relatives who did not write letters and found long-distance telephone communication too expensive. Several of the participants have encouraged reluctant siblings to obtain access to a computer and to communicate with them via e-mail.

E-mail gives the elderly residents the opportunity to span generational lines. Many grandchildren have been delighted with a new means of communicating with their grandparent. This is especially true of computer users who have grandchildren in college or working at their first jobs. The establishment of e-mail relationships with elementary school age grandchildren seems to be more challenging. But even if e-mail from a very young grandchild comes only once every few months, the smiles and tears of happiness are difficult to forget when working with the long-term care residents.

Numerous participants relate the tremendous pride their grandchildren and children feel about the fact that they are learning to use the computer. One resident at the assisted living facility commented that she was disappointed because no one had expressed this to her. After she went to a large family gathering for Thanksgiving she related this short narrative.

While everyone gathered at the dining room table, she remarked that no one had congratulated her on learning to use a computer and sending them e-mails. In response her granddaughter, who would graduate with honors from college within the next year, said; "Why Grandmother – You can do anything! So what is surprising about you learning to use a computer?"

You did not even have to look at her face to know the pride she took in this conversation. Her voice gave away just how overwhelmed she was by her family's attitude.

Social isolation is a real problem in long-term care facilities. Many people surround each resident on a daily basis including staff, other residents, and visitors. However real relationships and friendships are sometimes difficult to establish and sustain especially in a nursing home environment. E-mail gives the participating residents an invaluable tool in maintaining or reestablishing relationships outside the facility. Since social isolation can be associated with adverse health outcomes and lessened quality of life, the introduction of this new technology provides an opportunity for real improvement in long-term care residents lives.

Countless anecdotes are available concerning the residents using their e-mail accounts. Just a few are included to demonstrate the happiness, excitement, and some times frustration that the residents experienced while using e-mail. Not a week passes without some memorable event relating to the residents working with e-mail. Some short chronicles are:

- The resident who was sure she had broken the computer after she sent an E-mail to Canada and the next day the local telephone company had a buried line cut, so that the Internet service went down.
- A resident's excitement when sending and receiving e-mails to and from a niece who is a missionary in Africa. Before she had e-mail, it would be weeks between their communications and now it takes less than 24 hours.
- The great grandmother who received photos of her first great grandchild within hours of the birth.
- The resident who established a friendship with a volunteer's daughter who is an airline pilot and lives outside of Texas. This nursing home resident vicariously experienced every trip the pilot flew whether it was from hearing about the magnificent sunsets on the California coast or the majestic snow capped mountains in Colorado.
- The nursing home resident reading her first e-mails who brought Rich Wyllie to tears. The electronic messages were from her two sons. When she saw their names in the Inbox column, she began to sob. After just a minute, Mr. Wyllie realized these were tears of joy and found himself having to remove his glasses and looking for a Kleenex.
- The resident who worked for three weeks to e-mail her son and finally realized his wife forgot a "dot" or period when relaying his e-mail address.
- The assisted living resident who found help for her pocket book through the use of e-mail. She found out that her attorney would answer her questions via e-mail without charging a per hour fee.

- A married resident whose husband visits but tends to make somewhat disparaging comments concerning her activities in the nursing home. One day he came into the activity room while she was working on the computer. She had just received e-mail from a relative with their new address. He saw what on the screen and said; “Make me a copy of that.” After he left, she was grinning from ear to ear that she had something he needed or wanted.

These are just a few of the many stories regarding the residents and their e-mail adventures. E-mail has had a positive impact on the lives of the participating residents. It helps the residents feel connected with those individuals they left behind when entering the sheltered world of long-term care. People have called the Internet a ‘fountain of youth’, this may be an overstatement; but the Internet and its related services such as e-mail do open a new world for the long-term care resident that undertake the challenge of using a personal computer.

Unfortunately not every story of e-mail and long-term care residents is positive. One resident undertook her training on the computer with unparalleled intensity. After working with her for a couple of weeks, she told the researcher that her daughter used the Internet and e-mail every evening. This was the driving force behind her wanting to learn how to use the computer. She was one of our fastest learners and felt she had found the perfect way to communicate with her daughter who lived hundreds of miles away from San Marcos. She sent at least a dozen e-mails before receiving the first rather terse answer from her daughter. Not being deterred she continued to send light-hearted e-mails to her daughter. But soon her e-mails were filled with fervent pleas to answer her. As the individual who had started this whole ball rolling, the researcher wrote an e-mail

message to the daughter explaining a simple reply saying hello would delight her mother. The researcher received a reply the same day saying that the fact that her mother had access to e-mail was a tremendous annoyance and could we please limit the number of e-mails her mother sent. This whole episode produced doubt as to whether this project was worthwhile. But just as the researcher was deciding to subtly discourage the resident from sending e-mails, a second daughter entered the picture. The resident explained upon seeing the first e-mail from her that they had never had a very close relationship. Over the next few months before the resident moved to another facility, years of lost opportunities were wiped away as a relationship between these two women developed through the exchange of e-mails. This resident moved to another city in Texas. The researcher and she continue their friendship by the use of regular mail since her new long-term facility does not have a computer for their residents. Every time she writes the researcher, she explains how she is encouraging her new nursing home to obtain a computer. Knowing her as well as the researcher does, probably her new facility wishes this subject had never come up.

Other residents have experienced some of the normal annoyances of having an electronic mail account. One assisted living resident has a family friend that insists on sending her about five e-mails a day each one with a joke or funny story. The resident has little or no interest in these communications. But after trying to delicately explain the situation to the sender with no avail, she related to the tutors that she started reading the stories and jokes and gets a good laugh at least a couple of times a week. A nursing home resident learned first hand about spam on the Internet. She allowed her grandson to use her e-mail account one weekend when he visited the nursing home. From that day

forward, her account filled with inappropriate messages from unknown sources. When asked if she wanted a new e-mail account, she just laughed and said; “I’ve been through worse in raising my own children.”

Therefore, the Internet and its related services such as e-mail are not magic bullets, but in general it increases the independence and autonomy of the long-term care residents. E-mail will not heal all wounds. One of the residents is estranged from her son. This son rarely visits his mother at the long-term care facility. The resident got an e-mail account and the son is making efforts to communicate with his mother via electronic mail. She is funny in the fact that she reads the e-mails he sends, but only responds with rather terse and cranky messages. Yet regardless of these setbacks, the researcher continues her efforts to encourage all willing long-term care residents to use the facility computer and the Internet.

Observations and Experiences at the Nursing Home

The residents at Hays Nursing Center greeted the arrival of the computer with excitement but also with a degree of reservation. As the tutors arrived to setup the computer, they saw a resident sitting in the hall outside the activities room elegantly dressed in a bright red suit. They learned that she came to welcome the computer, but she did not speak to the tutors that day. The tutors soon met her and this resident is still using the computer. She is the only member from the original five residents that started the computer pilot project still with the group. This illustration demonstrates one of the greatest problems with doing longitudinal research with nursing home residents. Although the computer tutoring continues to serve approximately 5% of the residents, the actual individuals are constantly changing. Participants are lost because they move to

other facilities, finish rehabilitation and go home, their medical problems progress or change, and of course, they pass away. As a tutor you develop very strong relationships with the residents and it is like losing a good friend when they are no longer involved with the program.

The pilot program at Hays offers the opportunity for residents with various physical capabilities to use the computer. Some of the residents have ailments that preclude them from actually operating the keyboard and trackball. Due to financial constraints, accessibility tools such as voice-activated software are not available to the project. But the residents still take great pride in learning about this advanced technology. Even though they may only compose their e-mails, they all say that they use the computer. The tutors encourage this attitude with the other residents and staff. No matter what the residents do on the computer, whether they use it independently or with the help of the tutors, it is acknowledged that they are all the computer users at Hays.

The administration and activities staff at Hays are happy with the outcome of having the computer in their facility. The staff tells all new residents about the computer and encourages them to participate. They are all excited because within the last month they received another computer as a donation. At the present moment, the activities room is being rearranged to handle both computers. The administration is currently arranging for Internet service through their corporate intranet since the donated ISP service from Century Tel will expire in November 2001. This is an amazing transformation from a two-page questionnaire given to the Institute regarding the idea of bringing the computers into the facility and worries about the security of their corporate intranet and the possible

negative effects of the computer on their residents. All of the staff at Hays concur that the computer has improved the lives of all of their participating residents.

The most rewarding experience involving the computer at Hays Nursing Center came about entirely by accident. Last December, a nursing home resident, who previously did not use the computer, asked if there were poems on the Internet. The resident sat down at the computer and watched while the tutor searched the Internet for a poem. After finding a poem that the resident liked, the resident asked if the poem could be printed and sent to a relative. Carmen Adams said that would be easy but suggested that a Christmas card including the poem be constructed.

This small remark turned into an exciting and rewarding activity for numerous residents at Hays Nursing Center. After the researcher and resident created the card, the resident proudly showed it to numerous other people at Hays. The residents and staff started to ask if others could create a card. In response, the researcher created a three-ring notebook for the card project with over 950 images in 30 categories such as religious images, Santa Claus, Christmas trees, and many others. Also, the notebook included 30 messages for the cards and 20 images for the back of the cards. Each card back has a clip art image and at least two pieces of information. One it identifies the cards as coming from the “Hays Nursing Center Printing Press 2000” and it tells the recipient that the card was “Designed for you by: *Resident’s Name*.” An example of a card created by a resident is in Figure 14. Each interested resident was able to pick their own images and sayings for their personalized holiday greetings. Due to the limited time until the holiday, the researcher did all the actual computer work.



Figure 14. Example of a Christmas card designed by a resident.

Note: Top Left to Bottom Right shows Card Front, Left Inside, Right Inside and Card Back. The name of the resident has been changed.

The card project resulted in the creation of holiday cards for over 25 percent of the nursing home residents. This is an enormous response to an activity in a nursing home facility. The residents participating in this project represented a real cross-section of the

facility residents. The activities staff took the notebook to residents who are unable to leave their room. Several relatives of residents spent time picking images and messages for cards with their loved ones who have dementia and other debilitating illnesses. Each resident received between 10 and 20 of their personalized cards. The activity staff helped address and mail the cards. The residents paid for the postage, but the administration contributed the postage costs for several residents who did not have enough money in their personal expenses accounts.

The surprise and excitement of the residents who received unexpected greetings in return made this project a delightful experience. The hallway outside the activity room filled with each individual card backed by a construction paper frame. Visitors and residents stopped to view this display throughout the holiday season. The Christmas card activity was such an overwhelming success; the researcher realized that this activity could have far reaching benefits for all long-term care residents. The Conclusion and Recommendation chapter has a short discussion of the activities of the Institute and the researcher as a result of this amazing experience at Hays Nursing Center.

The outcome of tutoring frail elderly at the nursing home facility is positive. At any particular time, approximately five to eight residents are involved with the computer pilot project. In general, only one or two of these residents can independently use the computer. This fact demonstrates two issues found during the pilot project: 1) the need for more frequent tutoring sessions and 2) the need for community volunteers to successfully implement the introduction of a personal computer in nursing homes. As stated earlier, the tutors from the Institute originally visited Hays twice a week, but due to time constraints and the need to carry on with other responsibilities at the Institute the

visits are now only once a week. The tutoring sessions are between 20 and 45 minutes in length. With the current weekly schedule, the residents seem to forget many of the steps necessary to send e-mail or perform some other computer task between the learning opportunities. As frequently cited in the popular media, there is a staffing problem in nursing homes in the United States. Nursing homes are experiencing extreme financial pressure. It is estimated that approximately 25% of the 1,250 Texas nursing are in bankruptcy (Blakeslee, 2001). As a result, rather than expanding staff in departments such as activities numerous nursing homes are reducing these staff positions. Thus the introduction of computers to nursing home residents may only be possible by the use of outside tutors. The only viable solution to both the extra time needed by the residents to learn computer activities and the current financial crisis appears to be the use of volunteers to implement a residents' computer introduction program.

The participants in the pilot project enjoy the companionship and reciprocal interaction with the Institute's tutors almost as much as working on the computer. Some days the residents at the nursing home come in to the activity room and when asked what they would like to do on the computer they answer; "Oh! Anything. I just wanted to come by and see you." The loneliness and boredom of residing in a nursing home is one of the problems that this pilot project has ameliorated for participating seniors. All too often these residents have few if any visitors. The fact that the tutors show up consistently even through the University holidays is appreciated by the residents and the staff at Hays. These relationships so enjoyed by the residents would prove to be an external threat to any formal statistical analysis. The Hawthorne effect is certainly influencing the outcome of any individualized tutoring of institutionalized elderly on the

use of computers. This problem for statistical analysis can be explained as:

Scientifically, an experiment is an occasion to measure subjects' responses to certain intentionally and systematically varied stimuli. However, other stimuli related to the social aspects of the occasion may have unintended effects which account for subjects' response as much or more than the intended experimental manipulation. (Singleton & Straits, 1999, p. 195)

The variable that a researcher would be attempting to measure is the effects of the computer training, but any measurements of depression levels, moods, loneliness, or boredom would all be strongly influenced by the personal attention given to each participating resident by the tutors. Deciding whether a new friend or a new piece of technology produced the smiles on the residents' faces would be a difficult call.

Observations and Experiences at the Assisted Living Facility

The experience with Merrill Gardens during the pilot project is somewhat different than that with Hays Nursing Center. At the beginning of the program the response seemed overwhelming. Almost 30 residents initially came to the original introduction sessions. This number of participants has declined precipitously from the very beginning of the project. The first reason is the enthusiasm verging on coercion by the assisted living facility staff that precipitated the huge initial turnout. Since this unbelievable start several reasons are responsible for the decline in participation:

- The assisted living facility residents are more independent than the nursing home residents. This fact influences their lack of enthusiasm for conducting private activities such as e-mail and checking stock quotes on a public computer.
- Several residents learned the computer basics during the project, but have gone on to purchase their own personal computers or Web TV equipment.

- The population at the assisted living facility has not changed to the extent that it has at the nursing facility. Therefore those individuals interested in the project came at the beginning. Plus the residents seem reluctant to change their position on learning the computer, even if they communicate to computer users that they wish they had decided to learn how to use e-mail.
- New residents at the facility have taken advantage of the computer, but have found their own sources of assistance in using the computer if they were not computer literate.
- In general, the assisted living residents seem to establish and maintain more personal relationships with individuals within and outside the facility. Therefore, the computer does not provide the only light in a dark tunnel as seen at the nursing home.
- After the initial sessions, the staff did not encourage the residents to participate in the pilot project. This differs significantly from the staff at the nursing home.

In addition, the community had several individuals that were Mac users and did not want to convert to learning the IBM compatible computer. An individual who purchased Web TV is very happy with her decision. The tutors assisted her in the initial use of her unit, but she now uses it completely on her own.

The project's greatest success story is a wonderful lady who lives at Merrill. This individual had no previous experience with computers and has become an avid computer user. One of her talents did help in this learning process; she regained some of her touch-typist skills. It surprised the tutors to learn that she told some individuals that learning to

use the computer has “help fill her time” and “ has increased her self-esteem.” The tutors have trouble fitting into her busy schedule with church and volunteer commitments. In addition, she is so capable any lack of self-esteem came as a surprise. Even though this individual has used the computer for over a year, every time the researcher sees her she is adding a new friend or relative to her e-mail address book. In addition, she frequently e-mails the researcher with a question about how to perform some new task on the computer.

The management of the assisted living facility finds that having the computer is a fantastic sales device. They show it to every possible new resident and many of their family members are quite impressed. The staff member who so warmly welcomed the pilot project is no longer at the facility. This individual transferred to another Merrill Gardens facility as administrator, which was a promotion for him and a tremendous loss to the pilot project. At the present time, there are no real experienced computer users working on the staff at Merrill; thus the Institute continues to provide technical support. No scheduled tutoring sessions are available, but any resident using the computer knows the tutors are no farther away than a phone call or e-mail. Approximately once a month, the researcher checks the computer and does some basic computer maintenance.

Whether due to their independence or their busy lives after the first few months the majority of communication between the assisted living residents and the tutors was for the most part via written notices, telephone answering machine messages and e-mails. The tutors are not in the assisted living facility with the consistency that they are at the nursing home. Since the tutors’ presence is limited this may account for some decline in use of the computer and the lack of new participants. In addition, the tutors developed

strong relationships with members of the administration and staff at Hays Nursing Center, but this is not true at Merrill. The staff at the assisted living facility is quite a bit younger than the tutors; this might account for the lack of rapport. The staff seem willing to use the computer to help get new residents, but have been far less supportive of the seniors using the computer. Numerous times, computer project participants report that they ask for help from the facility staff and the response is that the staff does not have time or does not know how to solve the problem.

A mistake made during the pilot project with respect to the assisted living facility is that we promoted individual tutoring. The project tutors did not try to establish a group or club for the computer users. After visiting the facility for numerous months, the researcher realizes that the majority of the activities fit into two categories at Merrill Gardens. There are activities for all the residents such as holiday celebrations and entertainment opportunities. The other type of activity seems to involve a group of residents that participate on a weekly or monthly basis sharing a particular interest or activity. Thus developing a computer club might increase the participation in an assisted living facility. When reading about successful computer projects in long-term care facilities on the Internet, the researcher found that numerous of these projects did involve the formation of a computer club or group. This difference between the assisted living residents and nursing home residents in this perspective may be explained by the fact the majority of the residents in an assisted living facility chose to move to a communal living environment. The residents of a nursing facility are normally relegated to institutional living due to health issues, financial issues, or the inability to care for themselves independently. Thus these facts might explain why the nursing home residents thrive on

the individual attention, but the assisted living residents seem to function better with a group of cohorts. The assisted living residents view group activities as an asset while many nursing home residents view group activities as a requirement of their life in an institutional setting.

CHAPTER FIVE

DISCUSSION

The pilot project to introduce long-term care residents to personal computers and the Internet continues. Some preliminary findings have come to the forefront in the previous 16 months of the pilot project. The findings from this pilot project can be divided into three general categories: the residents of long-term care, the long-term care facilities, and tutoring plus equipment.

Residents of Long-Term Care and Computers

The study revealed numerous lessons about long-term care residents using personal computers. Five noteworthy findings regarding the residents and computers are:

1. Residents can learn to use computers.
2. Residents like to use computers.
3. Residents want to produce something with the computer.
4. Residents will communicate with people outside their facility via e-mail.
5. Residents are real people and computers are not a magic bullet.

The following paragraphs give a brief overview of these findings. These findings are subjective in nature based on the observations of the researcher, tutors, and staff from the two long-term care facilities in San Marcos.

The residents of long-term care both in assisted living and nursing home facilities can learn to use a personal computer. This finding in itself is significant due to the idea held by the general public and some researchers that the elderly have more computer anxiety and are basically technophobes. From the very beginning of this study, this puzzled the researcher. The idea that senior citizens are technophobes seems to be an interesting interpretation since during the lifetime of the average nursing home resident, age 79, the world has adopted numerous new technologies such as the: telephone, radio, automobiles, electrical home appliances, airplanes, space travel, and many others. Accepting technology has been part of long-term care residents' lives. As my own father who would be a centenarian (103 years of age) if he were still alive once said, "I have gone from seeing only horses in the streets to space craft in the sky – who would have dreamed such a life." The elderly do not learn to use a computer without work, but they can learn. Small adjustments are needed along the way such as realizing that an e-mail address must be typed exactly. One of the nursing home residents asked; "Why are these computers so persnickety? The U.S. Post Office delivers my letters when I have the address about 75% correct." During this pilot project involving approximately 50 elderly living in the two facilities, not a single senior citizen who desired to learn to use the computer has failed in their endeavor. Not all of the residents have learned to use the computer independently, but none of the residents at the nursing home that attended a tutoring session voluntarily stopped using the computers.

The elderly enjoy using the computers. Whether they like the challenge of a jigsaw puzzle, the immediacy of e-mail communication or the endless array of pictures and information on the Internet, they seem to take to the computer with delight. The

seniors take longer to learn computer skills, but those that decided to participate are determined and have endless patience with the process. Their pride in accomplishing a task on the computer seems to spill over into their everyday lives. We see tears of joy and smiles of delight constantly during the computer tutoring. Some residents claim the computers are a fun way to fill their days.

As shown by experiences such as the Christmas card project at Hays, the minimal interest in the Encarta Encyclopedia program and the limited undirected surfing on the Internet; the elderly like to produce something while using the computer. This is not specific to seniors, but from the observation of the pilot project computer users it is definitely relevant to elderly learning computers. John M. Carroll in his books The Nurnberg Funnel (1990) and Minimalism Beyond the Nurnberg Funnel (1998) describes minimalism as a task-oriented approach to computer instruction that emphasizes the importance of realistic activities for effective learning. Carroll believes it is essential to help new computer users produce real work and to provide easy instructions. These concepts about software, computer documentation, and instruction are in direct correlation to the results found in studies regarding teaching computers to the elderly. The pervasiveness of this attitude in long-term care computer users may come from the background of the elderly in long-term care at this time. During the working life of today's elderly, computer technology had a minimal presence in the workplace. In addition, this generation is known for their hard work, determination, humility, and great sense of personal responsibility. Tom Brokaw calls these individuals the "Greatest Generation". They do not exhibit the fascination with leisure time activity as later

generations do. Producing something with the computer is more important than merely viewing the technological marvels of computers such as multimedia presentations.

The majority of the residents in both facilities use the computers for sending and receiving e-mail. They send messages to friends, family, and business associates. This establishes and in some cases reestablishes communication for the residents. One resident at Merrill Gardens shared an animated and musical electronic greeting card she received from her granddaughter with at least half of the other residents in the assisted living facility. A member of the Texas Silver-Haired Legislator lives at Merrill Gardens. While the Silver-Haired Legislature was in session, a torrent of e-mails pertaining to these governmental activities flowed in to his e-mail account. He learned to use e-mail through the pilot project and this knowledge facilitated his advocacy work. Another resident has a communication disorder, aphasia. By giving this resident the time necessary to decide on content of e-mails and encouraging her to read the content out loud, the tutors assist this resident in expanding their communication opportunities and abilities. The long-term care residents like the speed at which e-mail messages can be exchanged. In many cases, they like the fact that they do not have to use any of their limited financial resources to communicate with individuals across the United States and in some cases around the world.

It is important to remember that the Internet and its services such as e-mail are not a magic bullet. There are strained family relations that cannot be solved by e-mails. The researcher believes a few of the participating elders were “dumped” in a nursing home by relatives that live far away or are too busy to visit. Even learning the skills necessary to use e-mail has not eliminated the fact that these residents are often ignored and forgotten

by their relatives. When children or grandchildren do not answer their e-mails quickly enough, annoyance is present. It is important for individuals introducing long-term care residents to e-mail to remember and be prepared for the families that do not participate with the residents. In the tutors' experience during this study, attempts to build relationships with strangers via e-mail are not very interesting to the residents. E-mail like all types of communication is a two-way street. Not every elder who decides to learn to use e-mail is fortunate enough to have an understanding family who will reciprocate. In addition, the process can have its own pitfalls such as the frustration that can erupt when the seniors do something like use the tab key in Hotmail and their whole e-mail message disappears into cyberspace. The normal difficulties with Internet dial-up connections like disconnections for no apparent reason and connection problems when trying to initiate the service seem to annoy the volunteer tutors more than they bother the long-term care residents. Computer speed and the time it takes to do something on a computer are relevant. What may be considered slow to an experienced computer user is often seen as a amazing time savings compared to doing the same task without any technological support by the elderly.

Also, as stated earlier, the tutors have had little success with getting the seniors to surf the Internet. It is possible that the fact that none of the tutors spend a tremendous amount of time doing this influences the senior's attitudes. The researcher finds the Internet is an incomparable reference tool, but just wandering from site to site often seems worthless. As discussed below in the Tutor and Equipment section, a tutorial regarding the information available on the Web might increase the seniors' awareness of the value of Internet opportunities beyond e-mail. The last factor in this area is the

elderly who stand firm in their belief that the computer has nothing to offer them. This type of rejection of computer technology is not limited to long-term care residents. Numerous studies show that many non-users have no plans to learn how to use a computer. Tutors and staff must respect these resident choices. Allowing them to make a decision to ignore the computer training may be as important as learning the computer for some of these individuals.

Long-Term Care Facilities and Residents' Computers

The introduction of a computer for the residents' use has far reaching benefits for a long-term care facility. Three findings regarding this subject are:

1. The computer signals a positive attitude about the residents by the administration.
2. The computer can provide a valued activity.
3. The computer provides a marketing tool for the administration.

The attitude of the administration in long-term care facilities toward the residents is an important factor in determining the quality of care and quality of life within the facility. The attitudes of long-term care administrators can vary from disdain for the residents to active involvement with their lives and concerns. The presence of a computer for the residents' use signals the fact that the administration views their residents as viable individuals capable of learning, independent activity, and accepting of new opportunities. This type of attitude is especially significant in nursing homes. It is far too easy to merely treat the residents as patients in a medical facility rather than providing an invigorating home environment for them to live in.

The computer can provide an exciting new activity for the residents of long-term care. Currently, the majority of activities are focused on group activity. Whether it is

Bingo or baking cookies, most activities involve a staff member and several residents. Overwhelmed by the dynamics of the group, the personality and desires of many individual residents are forgotten. The computer provides a new possibility for individualized activities. This is important due to the large variance in physical, mental, and health conditions of residents within a long-term care facility. The one-size fits all approach to activities within long-term care facilities is not appropriate. The problem of providing childlike activities to accommodate diminished capabilities of the residents is prominent in long-term care. Many long-term care residents are capable of undertaking more challenging tasks. A personal computer allows the residents the opportunity to learn a useful skill and to use this skill at any level they are comfortable with. As the Internet distributes more vital information, it is essential that seniors living in long-term care facilities not be marginalized by their lack of access or their inability to use personal computers. A prime example of this situation is the Internet site posted by the Social Security Administration. A senior's questions about his or her benefits can be answered without the expense of long distance phone calls or the necessity of travel which is problematic for many long-term care residents. The staff values the computer since it offers an activity for the resident that does not require constant involvement by the activities staff. The activities staff is already extremely busy. Also, it is worth noting that the majority of computer participants at the nursing home are not active participants in other scheduled activities within the facility. One individual who learned to independently use the computer during this pilot project had never participated in any scheduled activity within the nursing home prior to the arrival of the computer. This

person resided in the facility for approximately three years prior to the computer program.

The computers are marketing tools for both the assisted living and the nursing home facilities in the study. The administration proudly shows the computer to visitors and prospective residents. The fact that the new residents have access to individualized training on the computer is emphasized. Several new residents at the nursing home were encouraged by their children to learn to use the computer so that they could communicate via e-mail.

The one negative factor involving the long-term care facility discovered by the researcher is the limited number of residents that are potential computer users especially in nursing homes. The computer is a valuable addition to a nursing home, but even with the lower prices on computers the approximate \$1,000 investment represents a major portion of most activity departments discretionary budgets. This means that the facilities should try to obtain a computer through a donation if at all possible. Thus activity funds will not be diverted from other activities within the home. A message on a bulletin board or a notice in a facility newsletter may be all that is necessary to obtain a donated computer.

Computer Tutoring and Equipment in Long-Term Care

The findings from this study concerning the successful introduction of computers and tutoring activities in long-term care facilities are separated into five areas of interest. The project experiences reveal the following:

1. Basic computer equipment is satisfactory for long-term care projects.

2. Random introduction to computers works but a specific program might improve the learning rate and retention of the residents.
3. Group activities might increase participation especially in assisted living facilities.
4. Greater frequency of tutoring sessions and use of the computer would help in nursing home facilities.
5. One-to-one instructional sessions provide companionship that may be as valuable to the residents as the computer training.

The most basic of computer equipment is all that is necessary to begin a computer-tutoring project in a long-term care facility. This means that donated equipment is a viable solution for cash strapped facilities. Two accessibility hardware peripherals are in use at the nursing home and only the trackball is in use at the assisted living facility. The large key keyboard and the trackball are both appreciated additions to the computer setup at the nursing home; but the additional cost of these items is not necessary for a nursing home to use computers with their residents. All a long-term care facility needs is a basic computer with a 56K modem. The computers have Microsoft Windows 98® although the newer version Windows 2000® is currently available. The amount of hard disk storage is not an issue since the majority of the residents print out documents that they wish to save. All this information merely acknowledges that donated or used computers are viable equipment for long-term care facilities.

There was no script for the tutoring sessions during the pilot project. Each tutor was free to work with the elderly in any method they found appropriate. The tutors consistently tried to facilitate whatever computer activities the residents selected. Due to the fact that only two individuals participating as tutors are in close communication on a daily basis, this possibly haphazard method of tutoring was effective in the pilot project. The residents appear to appreciate specific steps to perform a task on the computer.

Simplicity and consistency are essential elements when teaching long-term care residents this form of technology. If the two tutors provided a different method for performing a step in a program such as moving the cursor to the enter button and clicking versus using the enter key on the keyboard in Hotmail, the residents seemed to believe that one of the tutors was in error. They remained consistent in their belief that there was only one right way to do a task. Another example was a conversation between two participants in *Project Certain*, the topic of discussion involved the difference between the two “Enter” buttons on the standard computer keyboard. It was a detailed explanation of when you could use one of the “Enter” keys and when you could use the other. The researcher did not contradict the person giving the information at the particular moment of the conversation, but did make sure that both participants realized that either key could be used at a future tutoring session. The tutors discovered that the learning rate and retention of the elderly residents is impeded by the steep learning curve involved with using computers for the first time. A specific program directed at helping the elderly learn the basics of the Windows operating system while producing a tangible product might solve this difficulty. A possible solution to this potential problem is discussed in the Conclusion and Recommendation chapter of this thesis. Also, a controlled method to introduce the Internet is necessary. The tutorial should allow the residents to learn of the useful information on the Internet, but at the same time it should limit the number of links they deal with at this beginning level. A possible collaboration with an established national Web site would be ideal. The researcher intends to pursue the construction of this type of tutorial in the near future.

The project at Merrill Gardens Assisted Living community illustrated the probable advantage of establishing a computer club or group in assisted living facilities. The residents at Merrill seem more comfortable when working as a group. They still have considerable control over their own personal lives, but enjoy the assistance and support found in a group when undertaking new activities.

The largest gains in computer skills attained by the residents came when the tutors were available several times a week. With the new computer users at the nursing home a tremendous amount of redundant training is taking place now that the tutors are only available on a weekly basis. This problem is exasperated by missed tutoring sessions due to physical and health complications with the residents. The tutors make sure that they speak to every computer user while at the nursing home, but not every user is willing or able to work with the computer each week. This demonstrates that facilities looking to undertake a similar project need to try and provide as much support and instruction as possible during the initial learning stages with any new computer user.

The fact that one-on-one instructional sessions may be as valuable to the residents due to the relationships built with the tutors as the computer training should provide relief to prospective tutors and long-term care facilities. The residents especially nursing home residents are delighted with the companionship that this individualized activity provides. A potential computer tutor does not need to be a computer wizard. A new face and a new opportunity for personal interaction are precious to most of the residents. In talking to potential new tutors for Hays, many individuals express the fact that they do not have the computer expertise to teach the frail elderly. The researcher always reassures them that the residents are patient and caring with both the computers and the tutors. It is also

stressed that like with many other skills, the best way to learn something is to teach someone else to do it. The researcher will never forget the friendships made during this pilot project with a delightful group of senior citizens. My life has been enriched by the opportunity to introduce these individuals to computer technology. The sharing and learning has truly been a reciprocal relationship.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

The observations by the tutors, staff, administrators, and researcher involved with this study confirm the postulation that introducing computers to long-term care residents is a worthwhile endeavor. The residents take pleasure in learning and using the computers. The older adults increased their communication with individuals outside the facilities through the use of e-mail. The presence of the tutors provided valuable companionship for the elderly especially in the nursing home facility. In the simplest terms, the use of personal computers with long-term care residents should be actively pursued by all groups and facilities involved with this population.

Three diverse recommendations concerning the introduction of computers to institutionalized elderly came to the forefront during this study. The recommendations suggested by this researcher would be:

- A more rigorous investigation of the outcomes from the use of personal computers by long-term care residents is necessary.
- A method of delivery that facilitates the inclusion of bedfast residents should be investigated.
- A software program specifically designed to introduce long-term care residents to personal computers would help the process move more smoothly for facilities and the older adults.

There is a need for a more clinical study that performs statistical analysis using inferential as well as descriptive statistics to affirm the alternative hypothesis of the potential decrease in feelings of isolation, the expected decrease in levels of depression, and the probable increase in quality of life measures for the long-term care residents after the introduction of personal computers. This type of study would require a large sample population due to the inherent attrition of this population group during a longitudinal study. If nursing home residents were to be the focus of such a study, it would mandate the inclusion of numerous facilities due to the low percentage of nursing home residents in any one facility capable and willing to learn about computers. The use of a control group and attention to the many extraneous variables influencing the psychosocial attitudes of long-term care residents are necessary components of the research. One method to eliminate the effect of the increased attention provided by the tutors when teaching participants to use the computer might be to enlist volunteers to help the control group write letters in long-hand. Thus, the participants in either group could experience increased communication capabilities and the personalized attention given by a volunteer or tutor allowing the effect of the computer to be analyzed more efficiently.

The most isolated and often neglected residents in a nursing home may well be the bedfast (bedridden) residents. The entire nursing home population is separate from the mainstream community and the bedfast resident is apart from the nursing home community. A computer and the Internet could be a tremendous tool for these individuals. The researcher is not an active proponent of Web TV (MSN TV) because of its limitations in displaying advanced multimedia websites plus its limited interactivity with regards to card games, crossword puzzles, and jigsaw puzzles. Since each bedfast

resident would need his or her own Internet access, MSN TV might be a reasonable solution with the base system ranging from \$100 to \$200 (MSN TV, n.d.). Another option is wireless Internet service and a shared laptop used by the bedfast residents in a facility. Both these solutions are expensive to implement at the present moment, but as the technology expands the consumer cost is likely to decrease. A continuous review of possible methods to deliver Internet service to bedfast residents is recommended.

The Institute and the researcher are developing educational software to assist with computer instruction of long-term care residents. Evaluation of *Project Certain* indicates an overall lack of ability by residents to easily learn standard Windows software. Residents are having difficulty remembering all the steps necessary to complete tasks. The Internet has provided more confusion than enlightenment for the residents. Only a limited number of residents have shown interest in card games, crossword and jigsaw puzzles, although a few have become avid players. The most active computers users are those residents, at both facilities, who regularly correspond with family and friends via e-mail. Family support for e-mail, however, has not always manifested itself. As a result, some individuals have become discouraged or have been left with few computer activities.

The Christmas card activity was such an overwhelming success at Hays Nursing Center; the researcher realized that this activity could have far reaching benefits for all long-term care residents. An investigation of current greeting card software revealed two distinct types of programs: a) menu-driven programs that allow for numerous projects but require more computer savvy than most residents possess, and b) programs that have extensive graphics but fail to teach any basic computer skills. Since neither of these

types of programs seemed appropriate for use with the seniors' learning process, we decided to develop a new computer greeting card program.

This software will provide an uncomplicated yet comprehensive introduction to personal computers. The program will emulate the format and tools of popular Microsoft Windows® programs such as Word, Excel, and Internet Explorer. It will be “Elder Friendly” addressing some of the functional challenges experienced by persons as they age. Adaptive features including large type, high-contrast screen displays, and help dialog boxes will facilitate the learning process. The on-screen help will be continuously displayed, in a fixed location, to answer the most relevant questions concerning the greeting card construction process. The greeting card format should provide the elders with an opportunity to practice on the computer while producing a usable and creative item. All the artwork will be pre-sized to fit the format of the greeting cards. An album containing the colored artwork images, similar to a notebook used with the Christmas card project, will be included in the educational package. Residents, at their convenience, will be able to independently select the exact format for the card they wish to create. It will also give residents, who are low functioning, opportunities to select designs in order that a volunteer tutor can quickly construct the chosen greeting card. The initial design and programming of this software are currently in progress. After beta testing in several nursing homes during the spring of 2002, the software will be available for sale through the Institute.

This author and the staff of the Institute believe that computers can have far reaching benefits by facilitating the development and restoration of relationships, building self-esteem, and rekindling a sense of purpose for thousands of lonely and

isolated long-term care residents throughout this country. A person is never too old to learn and never too close to death to undertake a new adventure in life. The joys of using a computer can be an inspiration and delight until the last days of a person's life. The wonderful woman whose request started the Christmas card activities with *Project Certain* started to use e-mail during the same month, December 2001. She eagerly awaited the arrival of the tutors each week until she passed away in early February. With the interest and help of long-term care professionals, education professionals, and volunteers across the country; personal computer instruction can make a difference in the lives of our institutionalized frail elderly throughout the United States.

REFERENCES

- ABC News. (n.d.). The answer geek's guide to the Internet. Retrieved October 22, 1999, from <http://moreabcnews.go.com/sections/tech/netguide/>
- Abrams, M. (1998). World Wide Web – beyond the basics. Upper Saddle River, NJ: Prentice Hall.
- Administration on Aging. (1999). Profile of older Americans: 1999. Washington, DC: Department of Health and Human Resources. Retrieved November 19, 1999, from <http://www.aoa.dhhs.gov/aoa/stats/profile/profile99.html>
- Agency for Healthcare Research and Quality. (1996, March). Examining long-term care Research in Action Fact Sheet [Electronic Version]. (AHCPR Publication No. 96-P039). Rockville, MD: Retrieved January 16, 2001, from <http://www.ahrq.gov/research/longterm.htm>
- Agre, P. (1996). How to help someone use a computer. SeniorNet. Retrieved January 28, 2001, from <http://www.seniornet.org/edu/art/teach.shtml>
- American Health Care Association. (2001, May). National nursing home week: Love is ageless: Planning guide [Announcement]. Washington, DC: Retrieved May 16, 2001, from <http://www.ahca.org/news/nnhw/nnhwbroch.pdf>
- American Optometric Association. Common Vision Conditions – Presbyopia. Retrieved October 8, 2001, from <http://www.aoanet.org>

- Anderson, K. N. (Ed.), Anderson, L.E. (Ed.), & Glanze, W. D. (1998). Mosby's medical, nursing, and allied health dictionary (5th ed. p. 7543). St. Louis, MO: Mosby, Inc.
- Area Agency on Aging of the Capital Area. (2001, July). Austin, TX: Retrieved July 30, 2001, from <http://www.aaacap.org/hays.html>
- Baldi, R. A. (1997). Training older adults to use the computer: Issues related to the workplace, attitudes, and training [Electronic version]. Educational Gerontology, 23, 453-465.
- Barton, L. J. (1997, July). A shoulder to lean on: Assisted living in the U.S. American Demographics, 19, 45-51.
- Bar-Tur, L., Levy-Shiff, R., & Burns, A. (1998, Spring). Well-being in aging: Mental engagements in elderly men as a moderator of losses. Journal of Aging Studies, 12(1), 1-17.
- Bennett, L. (n.d.). Bipolar Disorder Digest. Retrieved August 16, 2001, from <http://www.lorenbennett.org>
- BigKeys. (n.d.). BigKeys LX. The BigKeys Company. Retrieved November 3, 2001, from <http://www.bigkeys.com>
- Blakeslee, N. (2001, February 2). Blaming the victim: Are patients responsible for the nursing home crisis? The Texas Observer. Retrieved October 13, 2001, from <http://texasobserver.org>
- Bonn, K. L. (1999). Getting everyone into the act. Nursing Homes, 48(2), 80.
- Bouwhuis, D. G. & Melenhorst, A. S. (2001). Perceived cost-benefit ratios of using interactive communication. Paper presented at the International Workshop on

- Gerontechnology held March 13-16, 2001 in Tsukuba, Japan. Abstract retrieved August 24, 2001, from
http://www.aist.go.jp/NIBH/~gerontech_ws/session_abstracts.html
- Cahoon, B. (1998). Adult Learning and the Internet. Retrieved August 25, 2001, from
<http://www.gactr.uga.edu/webid/internet/skills.html>
- Carroll, J. M. (1990). The Nurnberg funnel: Designing minimalist instruction for practical computer skill. Cambridge, MA: MIT Press.
- Carroll, J. M. (1998). Minimalism beyond the Nurnberg funnel. Cambridge, MA: MIT Press.
- Chaparro, A., Bohan, M., Fernandex, J., Choi, S., & Kattel, B. (1999). The impact of age on computer input device use: Psychophysical and physiological measures. International Journal of Industrial Ergonomics, 24, p. 503-513.
- CHP Notes. (1999). Aging: Debunking the myths. The Community Health Promotion Network Atlantic. Retrieved October 17, 2001, from
http://www.chebucto.ns.ca/Community Support/CHPNA/chpnotes2_99.html
- Clinton, W. J. (2000, September 16). Radio address of the president to the nation [Transcript]. Retrieved September 16, 2000, Washington, DC: from
http://www.whitehouse.gov/WH/html/Saturday_September_16_2000.html
- Cody, M. J., Dunn, D., Hoppin, S., & Wendt, P. (1999, October). Silver surfers: Training and evaluating Internet use among older adult learners. Communication Education, 48, 269-286.
- Coons, D. & Mace, N. (1996). Quality of life in long-term care. New York: Hawthorne Press, Inc.

- Corbett, F. (1999). More than a game: A new focus on senior activities services. State College, PA: Venture Publishing Inc.
- Cramer Reed Center for Successful Aging Wichita State University. (n.d.). The challenge: The crest of the wave. Retrieved March 19, 2001, from http://www.successfulagingcenter.org/THE_CHALLENGE/The_Challenge_2.html
- Czaja, S. J. & Sharit, J. (1998). Age differences in attitudes toward computers. The Journal of Gerontology, 53B(5), 329-340.
- De Leo, D., Diekstra, R., Lonnqvist, J., Trabucchi, M., Cleiren, M., Frisoni, G., et al. (1998, Spring). LEIPAD, an internationally applicable instrument to assess quality of life in the elderly. Behavioral Medicine, 24(1), 17-27.
- De Mello, L. & Kiss, V. (n.d.). Information technology and older adults. The Good Age Online. Retrieved March 20, 2001, from <http://www.essence.com.au/geront/age.html>
- Department of Health & Family Services. (2001). Quality review in Wisconsin nursing homes by the Bureau of Quality Assurance in the Department of Health and Family Service. Wisconsin: Retrieved June 16, 2001, from http://www.dhfa.state.wi.us/Aging/Age_News/No112/qualrevw.htm
- Deutschman, M. (1999, March). How do you know what 'quality' means to a resident? Ask. The Brown University Long-Term Care Quality, 11(3), 1.
- Dyck, J. L. & Smither, J. A. (1994). Age differences in computer anxiety: The role of computer experience, gender and education. Journal of Educational Computing Research, 10(3), 239-248.
- Echt, K. V., Morrell, R. W., & Park, D. C. (1998). Effects of age and training formats on basic computer skill acquisition in older adults. Educational Gerontology, 24,

3-25.

Ejaz, F. K., Schur, D., & Noelker, L. S. (1997). The effect of activity involvement and social relationships on boredom among nursing home residents. Activities, Adaptation & Aging, 21(4), 53-67.

Elders Without Walls. (2001) Brings the world to your door. Retrieved June 12, 2001, from <http://www.elderswithoutwalls.com>

Elliot, J. A. & Elliot, J. E. (1999). Recreation for older adults: Individual and group activities. State College, PA: Venture Publishing, Inc.

Ellis, R. D. & Allaire, J. C. (1999, September). Modeling computer interest in older adults: The role of age, education, computer knowledge, and computer anxiety. Human Factors, 41(3), 345-355.

Federal Interagency Forum on Aging-Related Statistics. (2000). Older Americans 2000: Key indicators of well-being. Washington, DC: National Center for Health Statistics.

Festervand, R.A., Meinert, D. B., & Vitell, S. J. (1994). Older adults' attitudes toward and adoption of personal computers and computer-based lifestyle assistance. Journal of Applied Business Research, 10(2), 13-22.

Fisher, S. (1986). Increasing participation with a computer in an adult day care setting. Activities, Adaptation & Aging, 8(1), 31-37.

FriendlyWorks. (2000). Who knew e-mail could be this easy...and so much fun [Brochure]. Lenexa, KS: Friendly Works, Inc.

Galambos, C. M. (1997, November 3). Quality of life for the elder: A reality or an illusion? Journal of Gerontological Social Work, 27(3), 27-44.

- Generations on Line. (2000). Elders & the Internet. Retrieved February 7, 2000, from <http://www.generationsonline.com/elders.html>
- Gromov, G. R. (n.d.). The roads and crossroads of the Internet's history [Electronic version-hypertext of nine main pages]. Retrieved September 29, 2001, from <http://www.netvalley.com/intval.html>
- Hawkins, B. A., May, M. E., & Rogers, N.B. (1996). Therapeutic activity intervention with the elderly: Foundations & practices. State College, PA: Venture Publishing, Inc.
- Health Care Financing Administration. (2000, Fall). Interim report on nursing home quality of care and implementation of the nursing home initiative. Report to Congress. Retrieved July 23, 2001, from <http://www.hcfa.gov/medicaid/reports.rtcfall0.htm>
- Health Care Financing Administration. (2000, September 29). Activities satellite broadcast handouts. Retrieved March 23, 2001, from <http://www.hcfa.gov/medicaid/nursingfac/webcs900.htm>
- Hollander, E. K. & Plummer, H. R. (1986). An innovative therapy and enrichment program for senior adults utilizing the personal computer. Activities, Adaptation & Aging, 8(1), 59-68.
- Hudson, B. (1996, April 1). Teaching Computers to Senior Citizens. Retrieved July 22, 1999, from <http://www.seniorcomp.org/engcomp8.html>
- Hughes, K. (1998, November). The activities challenge. Nursing Homes, 47(11), 42.
- Hutchison, D., Eastman, C., & Tirrito, T. (1997). Designing user interfaces for older adults. Educational Gerontology, 23, 497-513.

- I, Witness to History. (2000). Reminiscences, Life Stories, Oral Histories. Retrieved January 27, 2001, from <http://www.iwitnessstohistory.org>
- Illinois Council on Long Term Care. (2000, April 7). Activities: The key to creating a sense of community. The Council Close-Up, 363. Retrieved January 26, 2001, from <http://www.nursinghome.org/closeup/cupdocuments/cu363.htm>
- James, D., Gibson, F., McAuley, G., & McAuley, J. (1996). Introducing older learners to information technology through life history writing. International Journal of Lifelong Education, 15(1), 50-58.
- Jones, B. D. & Bayen, U. J. (1998). Teaching older adults to use computers: Recommendations based on cognitive aging research. Educational Gerontology, 24, 675-689.
- Kaiser, P. K. (1996). Visual Acuity. The joy of visual perception: A web book. Retrieved November 3, 2001, from <http://www.yorku.ca/eye>
- Kane, R. A. (1999). Ask the residents about quality. American Society of Aging panel discussion. Retrieved November 11, 1999, from ASAGING database.
- Kane, R. A. (2001). Long-term care and a good quality of life: Bringing them closer together. The Gerontologist, 48(3), 293-304.
- Kautzmann, L. N. (1990). Introducing computers to the elderly. Physical & Occupational Therapy in Geriatrics, 9(1), 27-36.
- Kelley, C. L. & Charness, N. (1995). Issues in training older adults to use computers. Behaviour & Information Technology, 14(2), 107-120.
- Kiely, D. K., Simon, S. F., Jones, R. N., & Morris, J.N. (2000). The protective effect of social engagement on mortality in long-term care. Journal of the American

- Geriatrics Society, 48, 1367-1372.
- Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2001, July 17). Internet Paradox Revisited Version 15.0 Carnegie Mellon University.
- Lanza, S. E. (1997). Essentials for the activity professional in long-term care. Albany, NY: Delmar Publishers.
- Lebo, H. (2000, November). The UCLA Internet report: Surveying the digital future. Los Angeles, CA: UCLA Center for Communication Policy.
- Legacy Link. (1998). The World at Your Fingertips [Brochure]. Tyler, TX: Legacy Link, Inc.
- Leiner, B.M., Cerf, V.G., Clark, D.D., Kahn R. E., Kleinrock, L., Lynch, D.C., Postel, J., Roberts, L. G., & Wolff, S. (n.d.) A brief history of the Internet. Retrieved August 24, 1998, from <http://www.isoc.org>
- Lenhart, A. (2000). Who's not online: 57% of those without Internet access say they do not plan to log on. Pew Internet & American Life Project. Retrieved August 23, 2001, from <http://www.pewinternet.org>
- Lewis, G. (1999, November 23). MSNBC. Can the Net be a fountain of youth? Retrieved November 24, 1999, from <http://www.msnbc.com/news/338786.asp>
- Linking Ages. (2000). Linking Ages. Retrieved June 12, 2001, from <http://linkages.net>
- Long Term Care Education.com. (n.d.). History of the long term care industry. Retrieved September 17, 2001, from <http://www.longtermcareeducation.com>
- Loyd, B. H. & Gressard, C.P. (1984a). Reliability and factorial validity of computer attitude scales. Educational and Psychological Measurement, 44.
- Loyd, B.H. & Loyd, D. E. (1985). The Reliability and validity of an instrument for the

- assessment of computer attitudes. Educational and Psychological Measurement, 45, 903-908.
- Masland, M. (1998, August 3). MSNBC. Net gives seniors new worlds to visit. Retrieved January 1, 2000, from <http://www.msnbc.com/news/178302.asp>
- McConatha, D., McConatha, J. T., & Dermigny, R. (1994). The use of interactive computer services to enhance the quality of life of long-term care residents. The Gerontologist, 34(4), 553-556.
- McKnight's Online. (2000, February 5.). Frequently asked questions – What is long-term care? Mcknight's Long-Term Care News Online. Retrieved March 28, 2000, from <http://www.mcknightsonline.com/faqs/index.html>
- McKnight's Online. (2001). Frequently asked questions - How many residents live in assisted living facilities? Mcknight's Long-Term Care News Online. Retrieved September 20, 2001, from <http://www.mcknightsonline.com/faqs>
- Media Metrix. (2000, April 4). U.S. baby boomers and seniors are fastest growing Internet demographic group [Press Release]. Retrieved August 16, 2000, from <http://www.mediametrix.com/pres/releases/200000404.jsp>
- Merrill Gardens. (n.d.). Merrill Gardens history. Retrieved September 29, 2001, from <http://www.merrillgardens.com/>
- Microsoft. (1999). Seniors' attitudes & perceptions of computers and the Internet. Microsoft Seniors & Technology. Retrieved January 15, 1999, from <http://www.microsoft.com/seniors>
- Morris, R. (1995, Winter). The evolution of the nursing home as an intermediary institution [Electronic version]. Generations, 19(4), 57.

- MSN TV. (n.d.). Buyer's guide. MSN TV Service. Retrieved November 6, 2001, from <http://msntv.com/buyersguide.html>
- National Aging Information Center. (2000, February 8). Internet information notes: The Internet and older adults. Retrieved February 12, 2000, from <http://www.aoa.Gov/naic/Notes/internet&adults.html>
- National Center for Assisted Living. (1998). Assisted living resident profile. Retrieved October 6, 2001, from <http://ncal.org>
- Nie, N. H. & Erbing, L. (2000). Internet and society: A preliminary report. Retrieved November 16, 2001, from <http://www.stanford.edu/group/siqss>
- New England States Consortium. (2001, August). Designing effective survey methods for frail elders [Symposium Proceedings]. Medicare/Medicaid Integration Project. (Technical Assistance Paper No. 11). Princeton, NJ:
- NUA Internet Surveys. (n.d.). Retrieved October 25, 2001, from http://www.nua.ie/surveys/how_many_online/index.html
- O'Leary, S., Mann, C. & Perlash, I. (1991, July). Access to computers for older adults: Problems and solutions. The American Journal of Occupational Therapy, 45(7), 636-642.
- OLT – Office of Learning Technology. (1997, March). Older adults and learning technologies: An assessment of computer and multimedia hardware/software that satisfy the learning needs of older adults. OLT Publications. Human Resources Development Canada. Retrieved October 18, 1999, from <http://olt-bta.hrdc-drhc.gc.ca/publicat/oldtech.html>
- OLT – Office of Learning Technology. (1999, February). Learning technologies and

- older adults: Forum summary. OLT Conference Centre. Human Resources Development Canada. Retrieved October 18, 1999, from <http://olt-bta.hrdc-drhc.gc.ca/online/oldade.html>
- O'Toole, K. (n.d.). Study takes early look at social consequences of Net use. Stanford Online Reports. Retrieved August 25, 2001, from <http://www.stanford.edu/dept/news/report/news/february16/internetsurvey-216.html>
- Perkins, K. & Tice, C. (1995). A strengths perspective in practice: Older people and mental health challenges. Journal of Gerontological Social Work, 23(3/4), 83-97.
- Pray, J. E. (1992). Maximizing the patient's uniqueness and strengths: A challenge for home health care. Social Work in Health Care, 17(3), 71-79.
- Rancourt, A. M. (1991). Programming quality services for older adults in long-term care facilities. Activities, Adaptation & Aging, 15(3), 1-11.
- Riddick, C. C., Spector, S. G., & Drogin, E. B. (1986). The effects of videogame play on the emotional states and affiliative behavior of nursing home residents. Activities, Adaptation & Aging, 8(1), 95-106.
- Roth, S. (2001, April 27). Software marketer FriendlyWorks closes office site. The Business Journal of Kansas City. Retrieved October 27, 2001, from <http://kansascity.bcentral.com/kansascity/stories/2001/04/30/story8.html>
- Russell, C. (1998, April). The haves and the want-nots. American Demographics, 20(4), 10-12.
- Russell, D. (1996). The UCLA loneliness scale (Version 3): Reliability, validity, and factor structure. Journal of Personality Assessment, 66, 20-40.

- Schueren, B. (1986). Video games: An exploration of their potential as recreational activity programs in nursing homes. Activities, Adaptation & Aging, 8(1), 49-58.
- Schuster, E. (1998, Summer). A community bound by words: Reflections on a nursing home writing group. Journal of Aging Studies, 12(2), 137-147.
- Seade, K. (1998). An individualized approach to the development of recreational program for the elderly in health care facilities. Retrieved January 11, 2001, from University of Puget Sound, School of Occupational and Physical Therapy Web site: <http://otpt.ups.edu/courses/pt/pt621/Papers98/SeadeK.html>
- Searle, M. S., Mahon, M. J., & Iso-Ahola, S. E. (1995). Enhancing a sense of independence and psychological well-being among the elderly: A field experiment. Journal of Leisure Research, 27(2), 107-24.
- SeniorSurfers. (2001). Computer Training by Seniors. Retrieved October 26, 2001, from <http://www.seniorsurfers.com>
- Singleton, R. A. & Straits, B.C. (1999). Approaches to Social Research. New York: Oxford University Press.
- Shapiro, P. (1995). Computer use and the elderly. Washington Apple Pi Journal, 17(6). Retrieved October 26, 1999, from http://www.user-groups.com/Library/Phil_Shapiro/Elderly.html
- Smith, M. W., Sharit, J., & Czaja, S. J. (1999, September). Aging, motor control, and the performance of computer mouse tasks. Human Factors, 41(3), 388-396.
- Social Security Administration. (2000, August). A brief history of social security: Issued on Social Security's 65th Anniversary. (SSA Publication No. 21-059).

- Retrieved September 19, 2001, from Social Security Online, from
<http://www.ssa.gov/history/reports/briefhistory.html>
- Special Committee on Aging United States Senate. (1998, July 16). Older Americans and the Worldwide Web: The new wave of Internet users. Serial No. 105-29.
Washington, DC: U.S. Government Printing Office.
- SPRY Foundation. (1999). Older adults and the World Wide Web: A guide for Web site creators. Washington, DC: Spry Foundation.
- Stone, R. G. (1996). Communication issues associated with aging. Gerontology Manual. University of Puget Sound. Retrieved October 9, 2001, from
http://optpt.ups.edu/Gerontological_Resources/Gerontology_Manual/Kergil-D.html
- Tetz, G. (2000, February). The heart of a nursing home. Activities News-Snalf.com
Retrieved February 26, 2000, from
<http://www.activepro.net/information/news/snalf.htm>
- Texas Department on Aging. (2000, March). Demographic profile of the elderly in Texas. Austin, TX: Policy and Planning Division.
- Thomas, W. (1994). The Eden alternative: Nature, hope & nursing homes. Sherburne, New York: Eden Alternative Foundation.
- Uhlenberg, P. (1997, Summer). Replacing the nursing home [Electronic version]. The Public Interest, 128, 73-87.
- Umiker-Sebeok, J., Thompson, S., & Crosby, A. (1999, July 5). Teaching older adults to use computers. SeniorCyberNet Instructional Materials. Retrieved August 25, 2001, from http://www.seniorcybernet.org/resource_usecomputer.html

- Urban Institute. (1998). Policy challenges posed by the aging of America. Retrieved January 16, 2001, from <http://www.urban.org/health/oldpol.html>
- U. S. Department of Commerce. (2000, October). Falling through the net: Toward digital inclusion – A report on Americans' access to technology tools [Electronic version]. Washington, DC.
- U.S. Department of Health and Human Services. (1997). National nursing home survey. National Center for Health Statistics. Hyattsville, MD.
- Voelkl, J. E. & Nicholson, L. A. (1992). Perceptions of daily life among residents of a long-term care facility. Activities, Adaptation & Aging, 16(4), 99-114.
- Weisman, S. (1983). Computer games for the frail elderly. The Gerontologist, 23(4), 361-363.
- White, H., McConnell, E., Clipp, E., Bynum, L., Teague, C., Navas, L., et al. (1999, September). Surfing the Net in later life: A review of the literature and pilot study of computer use and quality of life. The Journal of Applied Gerontology, 19(3), 358-378.
- Wyllie, R. (2001). Impact of the Eden alternative™ on Texas nursing homes residents' quality of life: A psychosocial perspective (TLTCI Series Report 01-2). San Marcos, TX: Southwest Texas State University, College of Health Professions, Texas Long Term Care Institute.
- Yesavage, J.A. (n.d.) Geriatric Depression Scale. Retrieved September 23, 2001, from <http://www.stanford.edu/~yesavage/GDS.html>
- Zajicek, M. (2001). Supporting older adults at the interface. Paper presented at the Human-Computer Interaction International 2001 Conference, New Orleans, LA.

Zandri, E. & Charness, N. (1989). Training older and younger adults to use software.
Educational Gerontology, 15, 615-631.

APPENDIX A

Definition of Terms

Accessibility: Accessibility means accommodations for each user's needs and preferences. Providing easy access to the Internet, World Wide Web and E-mail by individuals with disabilities is the goal of Internet Accessibility.

ADLs: Activities of Daily Living. These include matters such as feeding, bathing, communication, mobility and other activities performed during normal daily life.

Aphasia: Aphasia is an acquired language disorder involving severe impairments in both comprehension and production. Aphasia makes it difficult to read, write, speak, or understand speech. It impairs language comprehension and expression. It often doesn't affect thinking and intelligence, only language.

Application Software: Computer programs that do real work for users such as word processing.

Assisted Living: A residential living facility providing meals, supportive services, and assistance for individuals who might need help with daily living; but do not need skilled medical care.

Baby Boomer: People born between 1945 and 1962 in the United States.

Browser: A software program allowing computer users to view the contents of the World Wide Web. The software interprets and displays hypertext documents.

Click: When an instruction is to click this means to tap on a mouse button. The user must press the mouse button down and then immediately release it. This action will select an object on the display screen and input a command to the computer.

Clipart: Electronic illustrations that can be inserted into a document.

Computer: Is a programmable machine that responds to specific commands and executes predefined instructions such as those found in a software program. Computers have two main components hardware and software.

Cursor: A special symbol, usually a solid vertical line or a blinking underline character signifying where the next character will be displayed on the display screen. If you are using a graphics-based program, the cursor may appear as a small arrow called a pointer.

Cyberspace: A metaphor for describing the non-physical environment created by computer systems. Online systems create a cyberspace within which people can communicate with one another, do research, or simply wander through the venue.

Dial Up Connection: A connection between two computers using telephone lines and a modem. This is the method by which the computers in this study were connected to the Internet.

Desktop: The area on the display screen where icons are grouped. It is often referred to as the desktop because the icons are intended to represent real objects on a real desktop. It is normally the default screen on personal computers.

Desktop Publishing: This is the form of software that allows a computer user to produce high quality print documents. They allow the user to have more control over the end product and normally display on the monitor screen the exact format of the final product.

Digital Divide: This term refers to the difference in access and usage of technology and communication tools, such as computers and the Internet by various population groups. The groups are usually defined by age, employment, ethnicity, income and/or place of residence (urban, suburban or rural).

Display Screen: The part of the monitor where the user sees the output from the computer. The display part of a monitor.

Double Click: A second method of clicking on a mouse button. A double click means that a user must click the mouse button twice in quick succession.

Drag: This is a method of operating a mouse. The mouse button is depressed and held down while the pointer is directed towards a specific object on the display screen. The mouse is moved and the object on the display screen moves in a coordinated manner.

This input function is used while playing many card games introduced during this study.

E-mail: A digital message transmitted over a communication network such as the Internet. E-mail is a method of paperless communication between individuals using computers.

Freeware: Copyrighted software distributed at no cost by the author. The author retains the copyright, which usually means that you can use the software, but cannot sell it.

Fresnel Lens: A lens that has a surface consisting of a concentric series of simple lens sections so that a thin lens with a short focal length and large diameter is possible.

Graphical User Interface: A program interface providing users with a 'picture-oriented' means of interacting with a computer. Well-designed graphical user interfaces are easier for beginning computer users to understand and implement

Hard Disk: A magnetic disk on which you can store computer data. The term hard is used to distinguish it from a soft, or floppy disk. Hard disks hold more data and are faster than floppy disks. Hard disks are normally an internal device in a personal computer.

Hardware: Computer parts or objects that you can actually touch such as disks, display screens or monitors, printers, keyboards, a mouse, etc. In contrast, software is ideas, concepts, and symbols but it has no substance.

Home Page: The first page seen by a visitor when they connect with a Web site. It is an introduction and directory to other resources or pages on the site.

Hyperlink: A specially encoded section of text or an image in a Web page that allows the user to move to another place on the web by clicking a mouse. The pointer will change to a pointing hand when it moves over a hyperlink on a Web document.

Hypertext Transfer Protocol: HTTP is the basic rules or protocol used on the World Wide Web. These rules determine how items are formatted and transmitted on the Web.

Icon: In a computer's graphical user interface an icon is an image that represents an application, a capability, or some other concept or specific entity with meaning for the user.

Ink-jet Printer: An output-printing device that makes the images on paper by spraying ink droplets. This is the type of printer used in the study.

Input Device: A machine or device that provides data for a computer. It is the means of giving instructions to the computer. Examples of input devices are the computer keyboard, a mouse or a trackball.

Intranet: An Intranet is a private network belonging to an organization, usually a corporation, accessible only by the organization's members, employees, or others with authorization. It is like a mini version of the Internet. It is used to share information and to bring the Internet to the organization.

Interface: The operating system commands, graphical displays, and other physical devices used to communicate with a computer or software program.

Internet: A global network of computers allowing personal computers to supercomputers to communicate with each other.

ISP - Internet Service Provider: A company, which provides access to the Internet for individuals or small companies.

IRB: Institutional Review Board. Provides approval for the use of human subjects in research projects.

Keyboard: An input device used with computers. It is one of the primary means of communicating instructions to the computer. Normally the keys are arranged like a typewriter keyboard, but there are numerous additional keys with special functions.

Link: An abbreviation for hyperlink.

Listserv: An electronic discussion group. The messages are distributed to individuals who subscribe to the service via e-mail.

Long-Term Care: This field describes services that are provided for individuals who have chronic health problems or have functional limitations especially with respect to ADLs. Long-term care is provided in many facilities such as nursing homes, assisted living facilities, adult day care and other community-based settings.

Mac: Mac is an abbreviation for Mac OS that is the computer operating system for Apple Computer's Macintosh line of personal computers.

Menu(s): A list of commands or options a user can choose. All Windows applications are menu-driven. You can choose an item from the menu by highlighting it and then pressing the Enter key or by simply pointing to the item and clicking the mouse.

Microsoft Internet Explorer: A popular browser for personal computers.

Microsoft Word: A word processing program.

Modem: The word modem is a combination of two words modulation and demodulation.

A modem converts data between analog and digital. The modem is used to connect with the Internet Service Provider via telephone lines.

Monitor: Another term for the display screen. The term usually refers to the entire box, whereas display screen can mean just the viewing area. Monitors can be classified by color capabilities and size. The size is determined by a diagonal measurement of the actual display screen.

Morbidity: The relative incidence of disease and sickness

Mortality: The number of deaths in a time and place.

Mouse: A device that controls the movement of the cursor or pointer on a display screen.

A mouse is a small object you can roll along a hard, flat surface. As you move the mouse, the pointer on the display screen moves in the same direction.

Mouse Button: A mouse *button* is a button on a computer mouse that you click to perform various functions, such as selecting a command or object.

Multimedia: A presentation that combines videos, sound, graphics, and text on a computer. There are multimedia programs and multimedia Web sites.

Network: A group of two or more computers that are interconnected or linked together. They can be linked by actual physical wire in the same facility or via telephone lines.

Nursing Home: A facility that provides custodial and/or skilled care for individuals with various conditions and morbidity that precludes their living in other situations, but who do not need the immediate acute care offered by a hospital.

Operating System: The most important program that runs on a computer. Every general-purpose computer must have an operating system to run other programs. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices.

Output Device: An output device shows what a computer is doing or has done.

Examples of output devices are monitor display screens and printers.

Peripheral: Any hardware device connected to a computer.

Personal Computer: A small, relatively inexpensive computer designed for an individual user.

Pointer: A symbol that appears on the display screen that you move to select objects and/or commands within a computer program or operating system. Normally, the pointer appears as a small angled arrow. Word-processing applications often use an I-beam a pointer that is shaped like a capital *I*.

Pointing Device: A piece of computer hardware such as a mouse or trackball enabling the user to select objects on the display screen.

Pornography: The depiction in writing or pictures of erotic acts intended to arouse intense emotional reaction.

Project Certain: An acronym for Project of Computers for the Elderly: A Rejuvenating Tool to Alleviate Institutional Norms.

Screen Capture or Screen Shot: Refers to the act of copying what is currently displayed on a screen to a file or printer.

Search Engine: A type of program available on the World Wide Web that searches for documents containing or referring to specific topics that are entered as keywords by the individual Internet user.

Server: The computer that a server program runs in is referred to as a server. In general, a server is a computer program that provides services to other computer programs in the same or other computers.

Software: Instructions used by a computer. Software exists as ideas, concepts, and symbols, but it has no substance. The words programs and software are often used interchangeably.

Spam: An unsolicited e-mail. Spam on the Internet is unsolicited e-mail, usually sent to thousands of e-mail accounts and mainly selling some questionable product or service, but spam sometimes comes as a political or religious e-mail. It is the equivalent of junk mail sent to an individual via the postal service.

Surf or Surfing: To move from place to place on the Internet. The term *surfing* is a slang term to describe a rather undirected type of Web browsing in which the user jumps from page to page rather capriciously, rather than searching for specific information.

Trackball: A pointing device, which serves the same purpose as the common computer mouse. Essentially, a trackball is an upside down mouse. To move the on-screen pointer, you rotate the ball with your fingers or the palm of your hand.

URL: An abbreviation for Uniform Resource Locator. This is the unique address of documents and pages on the World Wide Web.

User: An individual who uses a computer.

User-Friendly: This is a common term in the computer industry to mean that a program or computer is easy to operate. Many times reality and the claim do not meet when the term user-friendly is employed.

Web Page: A document formatted and posted on the World Wide Web. Each page has a unique address called a URL.

Web Site: A site or area on the World Wide Web. These sites contain numerous pages and are maintained by individuals, companies, organizations and governments.

Web TV: Web TV is a device that is contain in a box, which sits on top of your present television and allows you to send (and receive) e-mail and to surf the Internet. The setup includes a wireless keyboard. The quality is not as high as on a computer and some Web pages cannot be displayed correctly but you don't have to purchase a computer to enjoy some of the benefits of a personal computer. Web TV is now known as MSN TV.

Windows®: Microsoft Windows is a family of operating systems for personal computers. Windows dominates the personal computer world, running, by some estimates, on 90% of all personal computers.

Word Processor: A program or software enables a user to perform word processing functions. These programs are sophisticated electric typewriters with numerous features to make composition and correction easier.

World Wide Web: The Web is all the computers, servers, Web sites, resources and users on the Internet, which are utilizing HTTP (Hypertext Transfer Protocol).

APPENDIX B

The UCLA Loneliness Scale

DIRECTIONS: Indicate how often you feel the way described in each of the following statements. Circle only one number for each statement.

	Never	Rarely	Sometimes	Often
1. I feel in tune with the people around me.	1	2	3	4
2. I lack companionship.	1	2	3	4
3. There is no one I can turn to.	1	2	3	4
4. I do not feel alone.	1	2	3	4
5. I feel part of a group of friends.	1	2	3	4
6. I have a lot in common with the people around me.	1	2	3	4
7. I am no longer close to anyone.	1	2	3	4
8. Those around me do not share my interests and ideas.	1	2	3	4
9. I am an outgoing person.	1	2	3	4
10. There are people I feel close to.	1	2	3	4
11. I feel left out.	1	2	3	4
12. My social relationships are superficial.	1	2	3	4
13. No one really knows me well.	1	2	3	4
14. I feel isolated from others.	1	2	3	4
15. I can find companionship when I want it.	1	2	3	4
16. There are people who really understand me.	1	2	3	4
17. I am unhappy being withdrawn.	1	2	3	4
18. People are around me but not with me.	1	2	3	4
19. There are people I can talk to.	1	2	3	4
20. There are people I can turn to.	1	2	3	4

APPENDIX C

Demographic and Computer Attitude Scale

SURVEY OF LONG TERM CARE RESIDENTS' ATTITUDES TOWARD LEARNING ABOUT AND WORKING WITH COMPUTERS

The purpose of this survey is to gather information concerning long term care residents' attitudes toward learning about and working with computers. It should take just a few minutes to complete this survey. All responses are confidential.

Please check the blank that applies.

1. Age: ☐ 50 or less ☐ 51-64 ☐ 65-75 ☐ 76-85 ☐ 86 or greater
2. Education Level/years completed: ☐ 6 years or less ☐ 7-11 years ☐ High School
☐ Some College ☐ Bachelors ☐ Masters ☐ Doctorate
3. Gender: ☐ Male ☐ Female
4. Do family members use computers? ☐ Yes ☐ No ☐ Don't Know
5. Have you had exposure to computers? ☐ Yes ☐ No
- If yes, have you used a computer? ☐ Yes ☐ No

Explain: _____

6. Do you know the term "INTERNET"? ☐ Yes ☐ No
7. Do you know the term "E-MAIL"? ☐ Yes ☐ No

Loyd/Gressard COMPUTER ATTITUDE SCALE (LONG TERM CARE VERSION)

Below are a series of statements. There are no right or wrong answers to these statements. They are designed to determine the extent to which you agree or disagree with the ideas expressed.

Please check the blank that applies.

- | | Agree | Disagree |
|--------------------------------------------------------------------------------------|-------|----------|
| 1. I would like working with computers if I had the opportunity..... | ___ | ___ |
| 2. The word computer makes you very nervous..... | ___ | ___ |
| 3. Learning about computers is a waste of time..... | ___ | ___ |
| 4. I think working with computers would be enjoyable and stimulating..... | ___ | ___ |
| 5. Learning about computers is worthwhile..... | ___ | ___ |
| 6. I'm not the type to do well with different types of machines like a computer..... | ___ | ___ |
| 7. Computers make me feel uncomfortable..... | ___ | ___ |
| 8. I think using machines like a computer are very hard for me..... | ___ | ___ |
| 9. I would feel comfortable working with a computer..... | ___ | ___ |
| 10. Computers make me feel uneasy and confused..... | ___ | ___ |

APPENDIX D

Mood Scale

DIRECTIONS: Choose the best answer for how you have felt over the past few weeks.

1. Are you basically satisfied with your life?	YES	NO
2. Have you dropped any of your activities and interests?	YES	NO
3. Do you feel that your life is empty?	YES	NO
4. Do you often get bored?	YES	NO
5. Are you in good spirits most of the time?	YES	NO
6. Are you afraid that something bad is going to happen to you?	YES	NO
7. Do you feel happy most of the time?	YES	NO
8. Do you often feel helpless?	YES	NO
9. Do you prefer to stay in your room, rather than leaving?	YES	NO
10. Do you feel you have more problems with memory than most?	YES	NO
11. Do you think it is wonderful to be alive now?	YES	NO
12. Do you feel pretty worthless the way you are now?	YES	NO
13. Do you feel full of energy?	YES	NO
14. Do you feel that your situation is hopeless?	YES	NO
15. Do you think that most people are better off than you are?	YES	NO

Short Form of Dr. Jerome Yesavage's Geriatric Depression Scale (GDS) from Stanford University Medical Center

APPENDIX E

Project Certain Sign-in Program Graphical User Interface

(Continues on the following three pages)



Welcome to Project Certain

Please type in your username and then click the Enter Button.
If this is your first time to use the computer, please click the
Register Button.

Username

Enter

Register

Thank you for registering! The information will be used for the research that made the
computer available to your long term care facility.

Project Certain Registration

Please type in a username. Click on the correct answer for your gender, age, educational level, facility type, status and length of time. Thank you!

Your username cannot be longer than 12 letters.

You need to remember your username to use the Project Certain computer.

Username

Gender

- ☐ Male
☐ Female

Age

- ☐ 50 or less ☐ 76 - 85
☐ 51 - 64 ☐ 86 or greater
☐ 65 - 75

Education Level / Years Completed

- ☐ 6 years or less ☐ Bachelors
☐ 7 - 11 years ☐ Masters
☐ High School ☐ Doctorate
☐ Some College or
Technical Training

Facility Type

- ☐ Nursing Home
☐ Assisted Living
☐ Independent
Living

Status

- ☐ Resident
☐ Staff

Length of Time in Long Term Care

of Years

of Months

Return

*On Welcome Screen,
type in your username
and then click the
Enter Button*



**The username you typed
in was not found.**

Please click the Ok Button,

Then after returning to the Welcome Screen

Either try entering your username again and
then clicking the Enter Button

Or

Click the Register Button.

OK

APPENDIX F

Project Certain Web Site Link Pages

(Continues on the following 38 pages)

Note: Some font sizes, backgrounds, and colors have been modified to accommodate the formatting of this document.

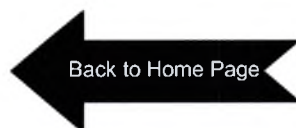


The links above are just a few of the many exciting sites on the Internet.

I hope you find something that interests you!

Project Certain does not necessarily endorse the content of the links above.

If you would like to search on your own, please close this web page and go back to the Home Page.



Newspapers Online

Click the Name or Information on the Left

<u>Austin American Statesman</u>	Austin daily newspaper and other information from Austin 360
<u>San Antonio Express-News</u>	San Antonio daily newspaper
<u>The Austin Chronicle</u>	The Chronicle addresses Austin's politics, cultural scene, restaurants, entertainment venues, recreational activities, and outdoor excursions
<u>San Marcos Daily Record</u>	San Marcos daily paper – this is a new site for the newspaper
<u>New Braunfels Herald-Zeitung</u>	New Braunfel's hometown paper
<u>The Dallas Morning News</u>	Dallas daily newspaper
<u>The New York Times</u>	The online version of the New York Times Newspaper
<u>The Washington Post</u>	The hometown newspaper of our nation's capitol
<u>Christian Science Monitor</u>	A respected national newspaper
<u>The Wall Street Journal</u>	The online public version of the Wall Street Journal
<u>USA Today</u>	The newspaper that changed who reads a newspaper
<u>That's News to Me.com</u>	This site contains links to online newspapers for many geographical areas and numerous topics

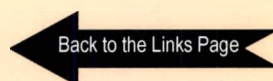
Back to Links Page

Project Certain Newspaper Links
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TV Networks, Stations and Shows Online

Click on the Name

ABC	CBS
<u>ABC World News Tonight</u>	<u>CBS Nightly News</u>
<u>Good Morning America</u>	<u>The Early Show</u>
<u>20/20</u>	<u>48 Hours</u>
<u>Nightline</u>	<u>60 Minutes</u>
<u>KVUE Austin</u>	<u>KEYE Austin</u>
	<u>KMOL San Antonio</u>
NBC	PBS
<u>Nightly News</u>	<u>KLRU Austin</u>
<u>The Today Show</u>	<u>KLRN San Antonio</u>
<u>Dateline</u>	
<u>KXAN Austin</u>	
<u>KMOL San Antonio</u>	
FOX	
<u>KTBC Austin</u>	
<u>KABB San Antonio</u>	
<u>CNN</u>	<u>Discovery Channel</u>
<u>ESPN</u>	<u>History Channel</u>



Project Certain TV Links
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Sports Online

[Click on the Names](#)

(Types of Sport such as Baseball are not links)



Baseball

[Houston Astros](#)

[Texas Rangers](#)

[Major League Baseball](#)

[San Antonio Missions](#)

[Round Rock Express](#)



Basketball

[San Antonio Spurs](#)

[Houston Rockets](#)

[Dallas Mavericks](#)

[NBA - National Basketball Association](#)



Football

[Dallas Cowboys](#)

[NFL - National Football League](#)



Golf

[PGA of America](#)

[Joe Ditzel's Humor Column on Golf](#)

[A Tribute to Tiger Woods](#)



Ice Hockey

[Austin Ice Bats](#)

[Dallas Stars Ice Hockey Team](#)

[NHL - National Hockey League](#)



Auto Racing

[NASCAR](#)

[FedEx Championship Series](#)

[Indy Racing League](#)

[A Tribute to Dale Earnhardt](#)

[ESPN on the Web](#)

[Fox Sports Online](#)

Back to Links Page

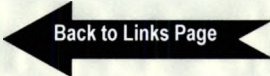
Project Certain Sports Links
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Last Updated: October 2001

Fine Arts and Artists

Click the Name on the Left

<i>Link</i>	<i>Information About Site</i>
<u><i>Carol Gerten's Fine Art</i></u>	There are hundreds of thumbnail pictures of artwork, which you can enlarge and many biographies of the artists. The site is very easy to navigate. Do not be distracted by the advertising banners on the top of the pages.
<u><i>The Detroit Institute of Arts</i></u>	To view the paintings and other artwork click on the word Collection on the site's menu bar, then pick what you would like to view. You can click on any image to see it enlarged. If the collection you look at does not have back or next arrows, click on the enlarged image to go back where you came from.
<u><i>The Library of Congress Exhibitions</i></u>	This is a web site that you should enjoy surfing. The Life of the People shows realistic drawings from the early 1900's through 1940's. Declaring Independence gives information about the drafting of the Declaration of Independence as well as images of the draft copies.
<u><i>Fine Arts Museums of San Francisco</i></u>	This site includes an unbelievable 75,000 images. On the home page click on the area entitled The Thinker Image Base. The important thing to remember is to use the search box at the Bottom of the Pages to access the Image Base. The only complaint with this site is that the text is written in a very small font.
<u><i>Internet Art Resources</i></u>	This is a guide to art on the Internet. The Artist Link has a group of featured artists and images of their work. The Image Catalogue provides you with up to six constantly changing images. The Missing Link takes you to "Missing from View!" a discussion of stolen, lost, looted or censored works of art from around the world.
<u><i>World Wide Arts Resources Austin San Antonio</i></u>	This is an easy to use web site that has a tremendous number of links to artists and art resources. It includes paintings, sculpture, architecture, performing arts and more. There is a monthly group of e-cards that you can send to a friend or family. There are also links to geographic areas San Antonio and Austin are linked here.

Fine Arts Links Page
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 **Back to Links Page**

Arts and Crafts

[Aleene's Your Home for Crafting](#)

[Family.com Craft Finder](#)

[Crafts by the Hobbies Industry Association](#)

[Happy Crafter *Scroll down the page to see links](#)

[HGTV Crafts and Collectibles](#)

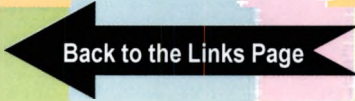
[Knitting: Links to Knitting Sites on the Web](#)

[Kraft Projects by Susan](#)

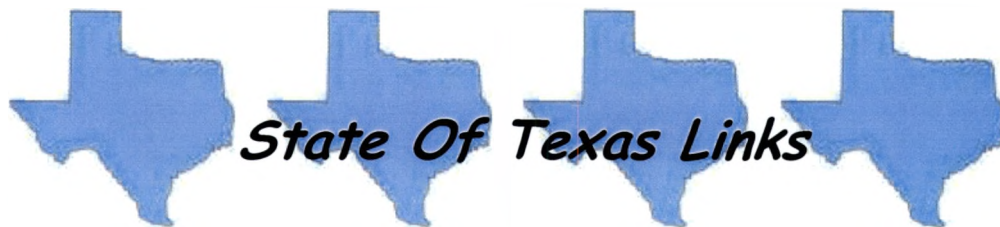
[Joann.com, Fabrics, Crafts and Home](#)

[The Quilt Channel](#)

[Wonderful Stitches](#)

Back to the Links Page

Project Certain Arts and Crafts Links
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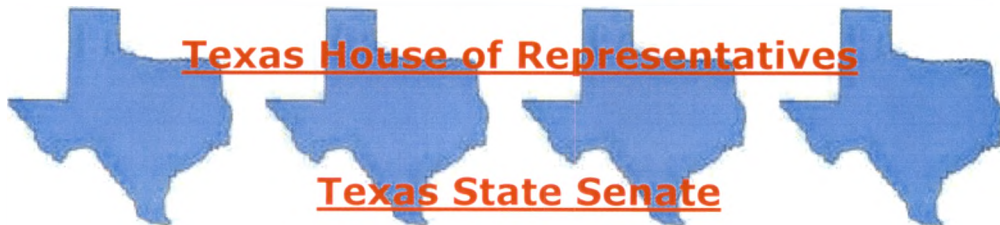


State Of Texas Links



[Office of the Governor](#)

[Texas Department on Aging](#)



[Texas House of Representatives](#)

[Texas State Senate](#)



[The Texas Silver-Haired Legislature](#)

[Welcome to the State of Texas](#)



[Window on State Government](#)



Back to Links Page



Project Certain State of Texas Links
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Health Sites on the Internet

**It is important to remember that health information on the Internet is not regulated or controlled.
Always discuss any new ideas or treatments with your physician.**

It is not as easy to answer health questions as applying a Band-Aid.

Click on the Name at the Left of the Table

Government Sites

<u>Health Topic A to Z</u>	A listing of disease and health topics found on the Centers for Disease Control and Prevention website.
<u>healthfinder®</u>	Your free guide to reliable health information, a service of the U.S. Department of Health and Human Services
<u>Medicare</u>	Medicare site with consumer information
<u>National Institute on Aging's Publication Database</u>	A search engine for National Institute of Aging Publications
<u>National Institute on Aging's Resource Directory of Health Information</u>	A resource page for organizations that serve the elderly and those concerned with elder issues. Each listing has the mission, services and publications of the group.
<u>National Library of Medicine</u>	Find information on hundreds of diseases, conditions and wellness issues.

General Health Sites

<u>Health Oasis Provided by the Mayo Clinic</u>	This site features new articles on diverse health topics. The site offers headlines, ask a physician, reference articles, quizzes, glossary and links to other sites for 11 centers such as Women, Cancer, etc.
<u>Merck Manual of Geriatrics</u>	The manual provides 130 topics and a searchable database.
<u>Health A to Z</u>	This is a family health site. The parent company is Medical Network, Inc an Internet health information and e-commerce company.

Prescription Drugs

<u>The Internet Drug Index</u>	The Internet drug index offers information on the top 200 prescription drugs, alternative medicine, keyword search and much more.
<u>Medline Plus Drug Information</u>	National Library of Medicine presents a site that lists 9,000 prescription and over-the-counter medications. Has links to other Medline sites with drug information.

Specific Conditions or Diseases
Alzheimer's & Related Disorders

[Alzheimer's Association](#)

[Alzheimer's Association - Greater Austin Chapter](#)

[Alzheimer's Disease Education & Referral Center](#)

[Dementia Web](#)

[Institute for Brain Aging and Dementia](#)

Arthritis & Related Diseases

[Arthritis Insight](#)

[Fibromyalgia](#)

[National Institute of Arthritis/Musculoskeletal/Skin Disease](#)

Cancer

[American Cancer Society](#)

[Cancer Group Institute](#)

[National Cancer Institute](#)

Diabetes

[Diabetes Mall](#)

[International Diabetes Institute - Australia](#)

[National Institute of Diabetes and Digestive and Kidney Diseases](#)

-

-

Respiratory Tract Diseases

[AARC - American Association for Respiratory Care](#)

[Chronic Bronchitis](#)

[COPD - Chronic Obstructive Pulmonary Disease](#)

[EFFORTS - Emphysema Foundation for Our Right to Survive](#)

Urogenitary Tract Diseases

[Incontinence Education Center](#)

[Menopause Online](#)

[Midlife Passages - Female and Male](#)

[Patient Information - Digital Urology Journal](#)

[Prostatitis Home Page](#)

[Urinary Incontinence](#)

[Viagra - Consumer & Physician Information](#)

Eye Sight Loss / Blindness

[Causes of Vision Loss in the Elderly](#)

[Eye Problems](#)

Glaucoma Research Foundation

Large Print Books to Order Online

Hearing Loss / Deafness

American Speech Language Hearing Association

Hearing and Older People

**National Information Center on Deafness -
Gallaudet University**

**Net Connections for Communication Disorders and
Sciences**

Heart Disease / Stroke

American Heart Association

The Mining Co - Heart Disease Page

**National Institute of Neurological Disorders and
Stroke**

Healthful Living

Nutrition for Older Adults

Osteoporosis
Foundation for Osteoporosis Research & Education

National Osteoporosis Foundation

Osteoporosis and Related Bone Diseases - National Resource Center

Parkinson's Disease
Awakenings - European Parkinson's Disease Association

Exercises for the Parkinson Patient

Michael J Fox Foundation

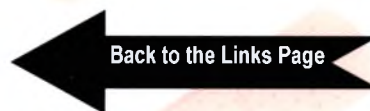
National Parkinson Foundation, Inc.

Parkinson's Action Network

Parkinson's Information

Parkinson Patient at Home

The Parkinson's Web



Project Certain Health Links
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Books, Authors and Reference



Click the Name on the Left



Encyclopedia Britannica

Encyclopedia online as well as links to other articles and pictures.

Bartleby's Online

Bartleby is the preeminent Internet publisher of literature, reference and verse. Complete text of books as well as Roget's Thesaurus, Bartlett's quotations and much more.

Edgar Allen Poe Society

You will find poems and short stories by Poe on this web site. Also, there is a great deal of biographical material.

On-Line Books Page

This web page has over 11,000 listings of books that you can read on line. It is maintained by the University of Pennsylvania. You need to use the Back Button on the browser to work your way around the links on this site.

Wired for Books

This site is maintained by Ohio University. You can listen to several different literary pieces such as Mark Twain's "The Jumping Frog of Calaveras County", poems by Emily Dickinson or interviews with authors.

Amazon

This is the only online shopping that I have included in the links. I have used Amazon.com and have never experienced any problems.

Project Certain Books & Authors Links
From the Texas Long Term Care Institute
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Back to the Links Page

History, Culture and Remembrances

Click the Name on the Left

[50 - Best TV Commercials](#)

Advertising Age's 50 Best TV Commercials You can see which TV commercials that Advertising Age Magazine thinks are the best ads since the 1940s.

Do you remember them all? I Do! To see the commercials go to the bottom of the home page and click on the year buttons.

[Civil War Homepage](#)

This site was developed at the University of Tennessee. It contains a large collection of links to information on the Civil War.

[American Memory](#)

This is a historical Collection compiled by the Library of Congress for the National Digital Library. Has special collections, search engine and "Today in History"

[I Witness to History](#)

I Witness to History is a wonderful web site. It is a collection of interviews with residents of a nursing home in Kansas. The residents recall history through their private lives. Some of the accounts are just text and some are full graphical web pages. **This site is a must see!**

[The Pulitzer Prizes](#)


This site has information on all the Pulitzer Prizes that have been awarded since 1917. Click on the Archive area to find out what is available or click on a year on the time line at the top of the page.

[Ad*Access Project](#)

The Ad*Access Project, is funded by the Duke Endowment "Library 2000" Fund, it presents images and database information for over 7,000 advertisements printed in U.S. and Canadian newspapers and magazines between 1911 and 1955. Ad*Access concentrates on five main subject areas: Radio, Television, Beauty and Hygiene, Transportation, and World War II. Click on the Browse option and then you will have choices on ads in the database. **Just fun to look at.**

[History Matters](#)

History Matter - Many Pasts "Contains documents in text, image, and audio about the experiences of "ordinary" Americans throughout U.S. history. The current list of documents emphasizes the period between Reconstruction and the end of World War II, but Many Pasts is expanding and will soon cover all of American History." Scroll down the list to see if there are any written or audio files that interest you.

 Back to Links Page

Project Certain History, Culture and Remembrances Links
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What's the Weather

Austin Weather - Radar and Forecast

San Antonio Weather - Radar and Forecast

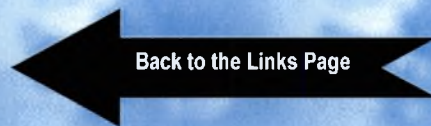
San Marcos Weather Conditions

South Central Texas Radar and Storm Warnings

The Weather Channel

*****Meteorology*****

A learning resource about fundamental atmospheric science provided by the University of Illinois



Project Certain Weather Links
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United States Government Sites



The White House



Supreme Court



**United States House of
Representatives**



United States Senate

Senator Phil Gramm



Senator Kay Bailey Hutchison

Senate Commission on Aging

Administration on Aging

CIA

FBI

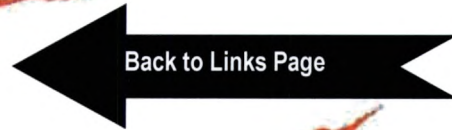
Health Care Financing
Administration

IRS

National Institute on Aging



Social Security Administration



Project Certain United States Government Links
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Military and Veteran Links

Click on the underlined names below.

[Air Force Link](#)



[The U.S. Army](#)

[U.S. Coast Guard](#)



[U.S. Marine Corps](#)



[The United States Navy](#)

[Department of Veteran Affairs](#)



[The American Legion](#)

[Disabled American Veterans](#)

[Paralyzed Veterans of America](#)

[Veterans of Foreign Wars](#)

[The WWII Veterans Web Site](#)

[Back to the Links Page](#)

Project Certain Military Links
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Flowers, Plants and Gardening Links



Aggie Horticulture

This is the information server for the Texas Horticulture Program at Texas A&M University. The site contains a great deal of information.

Austin Gardeners

A Web page for gardeners in Austin with links to local garden clubs, Austin Gardening FA2's, zone maps and much more.

Better Home and Gardens Magazine

There are numerous projects, plant guides and garden plans. The site is not solely for Texas gardeners, but contains a tremendous amount of information.

Neil Sperry Texas Gardening

This web page is a commercial site about Texas gardening. It includes a weekly article, frequently asked question, gardening hints, and calendar.

Sierra Plant Encyclopedia

A plant encyclopedia you can search by plant name or by garden conditions.

The Bonsai Primer

A web page that gives all the basic information about Bonsai gardening.

African Violets

Optimira 's Simply Beautiful African Violets" Everything you might want to know about growing African Violets. You may also purchase plants from this site.

Texas Wildflowers

The site contains an alphabetic listing of wildflowers found in Texas. Each flower has a photograph and short written description, plus a color-code showing where it grows in Texas.

"A Tidbit of Texas Wildflower"

A seventh grade science class constructed this web page. The site contains photos of Texas wildflowers with a written description by individual students.



Project Certain Plants & Gardening Links
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Magazines Online

Click on the Underlined Name

*Better Homes and
Gardens*

*Consumer Reports
Online*

ESPN the Magazine

Forbes Magazine

Fortune Magazine

Grand Times Magazine

House Beautiful

Ladies Home Journal

Life Magazine

Martha Stewart

Modern Maturity

Newsweek Magazine

People Magazine

Reader's Digest

Sports Illustrated

Texas Highways

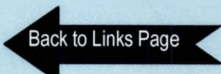
Texas Monthly

Time Magazine

That's News To Me

==>

This site provides many links to
online magazines and
newspapers lots of topics and
geographic areas.

 Back to Links Page

Project Certain Magazine Links
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Senior Sites and Organizations

Click the Name on the Left

Organizations

<u>American Association of Retired Persons</u>	AARP is a nonprofit, nonpartisan group dedicated to shaping and enriching the experience of aging for the members and for all Americans.
<u>Gerontological Society of America</u>	This site has numerous links for information about seniors. The society is a research and educational association concerned with the disciplines involved with gerontology.
<u>The Grandparenting Foundation</u>	This site deals with legal issues and other important concerns about being a grandparent.
<u>National Council on Aging</u>	This is a web site for organizations and professionals dedicated to promoting the dignity, self-determination, and well being of older persons. Many articles and recent new developments regarding seniors in America are available.
<u>National Hispanic Council on Aging</u>	The Voice of the Hispanic Elderly since 1983.

Government

<u>First Gov for Seniors</u>	A program initiated by Vice President Gore to offer the public access to government services and information over the Internet.
<u>Administration on Aging</u>	AoA is a Federal agency that has the single charge of serving the nation's 43 million seniors. They have a network of 670 Area Agencies on Aging, 57 Territorial and State Units on Aging, 270 tribes and native organizations and over 27,000 service providers.
<u>Elder Page</u>	Information for Older Persons and their families This is a very good reference page and is part of the AoA Website.
<u>Social Security Online</u>	The official web site of the Social Security Administration.

General Senior Internet Sites

<u>Age Light</u>	A web page and organization sponsored by Microsoft that deals with seniors and computers.
<u>Agenet</u>	A web site providing information about products and services that are important to enhancing the quality of life of older adults and their families.

<u>Age of Reason</u>	This web site has thousands of links that may interest the 50+ group. No fancy graphics, but lots of web pages to search through.
<u>Eldernet</u>	A seniors' guide to health, housing, legal, financial, retirement, lifestyles, news and entertainment information on the World Wide Web. Cute graphics and clean pages when you click on a section.
<u>ElderWeb</u>	This site is the oldest elder care source book on the Web. It is a research site for professionals and family members with thousands of on-site and off-site articles about elder care and long term care.
<u>Seniors.com</u>	Seniors.com is a huge website. The site contains current news, chat rooms, senior web pages and much more.
<u>The Senior Center</u>	This site has articles and free offers. (Remember one of the ways that free offers work is that the companies use your registration information - be selective and careful).
<u>About.com's Senior Living</u>	This site has many articles of interest to senior citizens. About.com has hundreds of pages dedicated to individual subjects to check out all of the categories go to the <u>site index</u>.

<u>Seniors-Site</u>	This is a site that has articles but it specializes in bulletin boards. The site wants to allow seniors to share their knowledge and wisdom.
<u>Senior World Online</u>	A web site for active seniors in the digital age. Part of the site is still under construction, but clean and easy to use.
<u>Third Age</u>	Third Age is a senior site that is filled with articles, free web classes, games and daily news.

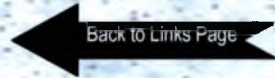
Specific Sites for Seniors

<u>Cyberparent Grandparents</u>	Cyberparent Grandparents Web has many links to articles and activities. Page can be confusing; the section on grandparents is located in the center of the page.
<u>iGrandparents.com</u>	A website dedicated to enriching the lives of grandparents and their grandchildren.
<u>Nolo.com - Law for All</u>	This site contains a tremendous amount of legal information. This page deals with elders. The New York Times said "The one legal site to take to a desert island."
<u>Senior Law Home Page</u>	A web page with articles and good links on the subject of elder law. The page is hosted by a New York City law firm.

Social Gerontology

Social Gerontology & The Aging Revolution

This is an educational website which deals with aging. Many interesting links and articles.



Project Certain Senior Links
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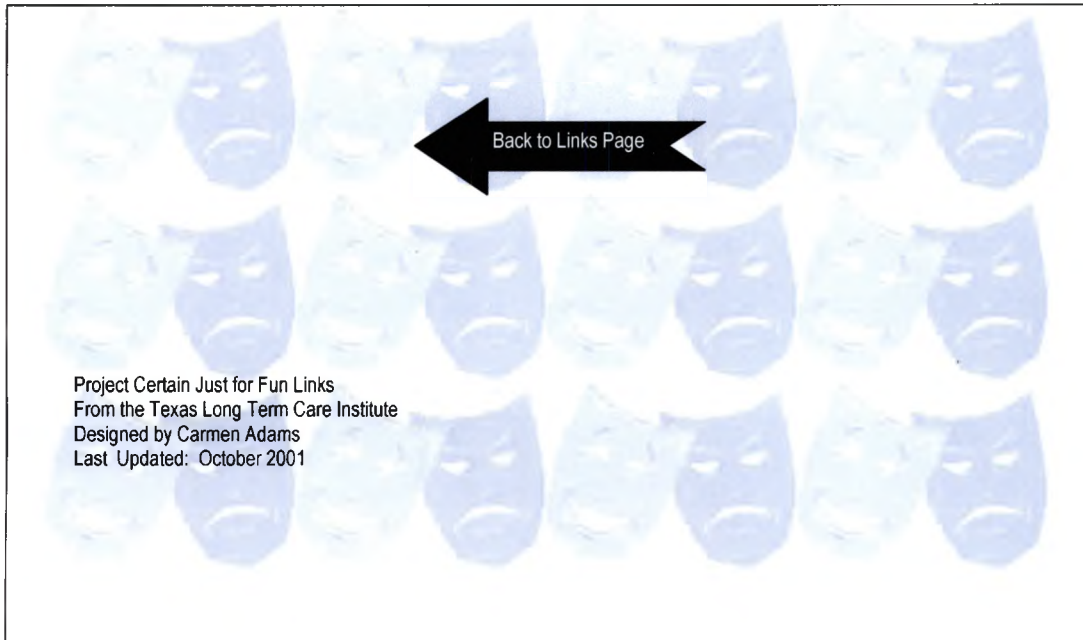
Links and Sites that are Just for Fun

Click on the Name on the Left Side

<u><i>Across Puzzle Gallery</i></u>	<i>This is an extensive crossword puzzle site. The needed software has been downloaded so all you have to do is pick a puzzle. You can check the words or letters you have entered and find the correct letter by going to Solution on the menu bar. Please check "Open this file from its current location" when starting a puzzle on this site. Have fun! (I was challenged by the some of the beginner's puzzles.)</i>
<u><i>Aha Jokes</i></u>	<i>Thousands of clean jokes, funny pictures, cartoons, funny audio, funny videos, and random humor.</i>
<u><i>Blue Mountain</i></u>	<i>Free e-mail cards. The site has 16 categories of cards with many cards available under each category. I have used Blue Mountain cards for quite awhile. They are always fun to send and receive.</i>

<u><i>Fun and Games</i></u>	<i>This site has several almanacs that contain daily items from birthdays to earthquakes on a particular day. May just entertain you.</i>
<u><i>International Movie Database</i></u>	<i>This is an amazing database if you like the movies. You can search for actors, movies, etc. Find some trivia and quiz your friends. This site is just for fun.</i>
<u><i>Jiqzone</i></u>	<i>Jigsaw puzzles you can solve online by using your computer mouse. The puzzles have from 6 to 240 pieces. The graphics are excellent and the smaller puzzles are easy and fun to do. When you get a piece in the right place, it snaps into place and stays connected while you finish the puzzle. You do not have to rotate any of the pieces.</i>
<u><i>Just Say Wow</i></u>	<i>This site has many pages of fun on numerous subjects. Fun to just read or you can send them via E-mail to your family and friends.</i>
<u><i>Old Time Radio</i></u>	<i>Links to many sites. You can listen to old radio commercials and parts of old time radio programs. Scroll down and listen to some.</i>

<p><u><i>Senior's Corner</i></u></p>	<p><i>This is a personal web site that has links, but the fun thing is all the music (midi music). Check out the dance hall, Big Band and Oldies midis and Animations with midi music. Fun to listen!</i></p>
<p><u><i>Texas Postcards</i></u></p>	<p><i>This site allows you to email postcards showing Texas things to your family and friends.</i></p>
<p><u><i>Virtual Flowers</i></u></p>	<p><i>From this site you can send a virtual (photograph) bouquet via e-mail. It is free to send a virtual bouquet. You can chose a saying and also write up to 150 word message if you want. You can also sent a real bouquet from this site, but that costs money.</i></p>
<p><u><i>Whoohoo</i></u></p>	<p><i>This is just a cute little site to visit. It has songs, stories, and good tales. You can email the stories to your friends. You need to scroll down to the menu when the home page comes up. If you want to see an item such as New Inspirations hold the mouse pointer over New Inspirations and then move the mouse to the right and chose an item, hold the mouse there and then click.</i></p>



Project Certain Just for Fun Links
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Tracing Your Family Tree

Click on the Name on the Left

[*Cyndi's List of
Genealogical Sites*](#)

120 Categories & 70,000 links

[*Family Search
Internet*](#)

Genealogy Services provided by the
Church of the Latter Day Saints

[*Family Search*](#)

Free Genealogy Message Boards

[*Genealogy.com*](#)

A leading resource for family
histories - make sure to check their
Learning Center.

[*Genealogy Gateway
to the Web*](#)

This is one of the largest sources of
genealogical information with over
50,000 records.

[*The US GenWeb
Project*](#)

This is a group of volunteers
working together to provide
Internet web sites for genealogical
research in every county and every
state of the United States. This
Project is **not** commercial and fully
committed to free access for
everyone.

Project Certain Genealogy Links
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Back to Links Page

Nature and Science Links

Click on the Name at the Left

J 2 Space

This is a web site dedicated to Astronomy Photographs.

NASA

NASA's home page links to many interesting subjects regarding space exploration.

Skymap Your Sky

This site allows you to see what is in the night sky from your location. It can be updated as often as you like. Interesting information if you like gazing at the night sky.

Historical Atlas

The Historical Atlas of the Twentieth Century is a good site to just click around. You will find lots of geographical information.

Topozone

This is not a flashy site, but you use the search engine to find a topographical map of any area in the United States.

How Stuff Works

A fun web site, which tells you how different things work. What makes a engine, cell phone, web page and many other things work is explained.

The Why Files

This site by the University of Wisconsin is designed for ordinary people to learn about science and technology.

Live Animal Cams

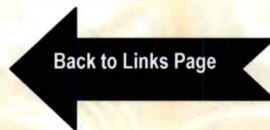
Live Animal Cams are pictures in real time of animals in the wild and captivity. You may have to show a little patience with this site to see some of the animals.

National Geographic

Wonderful photographs, maps and other interesting information is found on this site from the famous magazine.

Science from Yahoo

This web page has a large directory of web pages from museums and exhibits in the field of science.



Project Certain Nature Links
From the Texas Long Term Care Institute
Designed by Carmen Adams
Last Updated: October 2001

APPENDIX G

Project Certain Manual

(Continues on the following 53 pages)

Note: Some font sizes, colors, and page layouts have been modified to accommodate the formatting of this document.

Project Certain Instruction Manual

**This project is brought to you by
Carmen Adams
and
Texas Long Term Care Institute
of
Southwest Texas State University**

The purpose of this project is to introduce computers and the Internet to residents of long-term care facilities in Central Texas. We hope that you enjoy using the computers and that this technology gives you new adventures in your lives.

June 2000

Introduction

Project Certain stands for a project of Computers for the Elderly: A Rejuvenating Tool to Alleviate Institutional Norms.

If you look the word certain up in a thesaurus you will find that words that mean the same thing as certain are:

Assured Positive Satisfied Self-confident

These are some of the attitudes that we hope learning how to use a computer and the Internet will provide in your lives.

Modern technology can be intimidating and confusing at times!

Don't let that discourage you at all; even the best computer users have their computers misbehave. Remember the computer is just like a telephone. You can use it for your advantage and have no idea on how the darn thing works.

You will be able to get help from staff at your facility and me, Carmen Adams, and Rich Wyllie, an associate at the Texas Long Term Care Institute.

Rich and I will visit the facilities on a regular basis and as soon as you learn how to use e-mail we will be just a click away.

The computer is in your facility for a period of one year. During this time, the residents who choose to use the computers will be asked to answer some short surveys. These surveys will be used in research concerning senior citizens learning about the Internet. The activities on the computer will be monitored, but the identity of the individual using the computer will not be known.

If you have family members visit you and they use the computer with you, please ask them not to change any of the settings on the computer. The way it is set up may not be the optimal method, but it needs to stay the same during the research period.

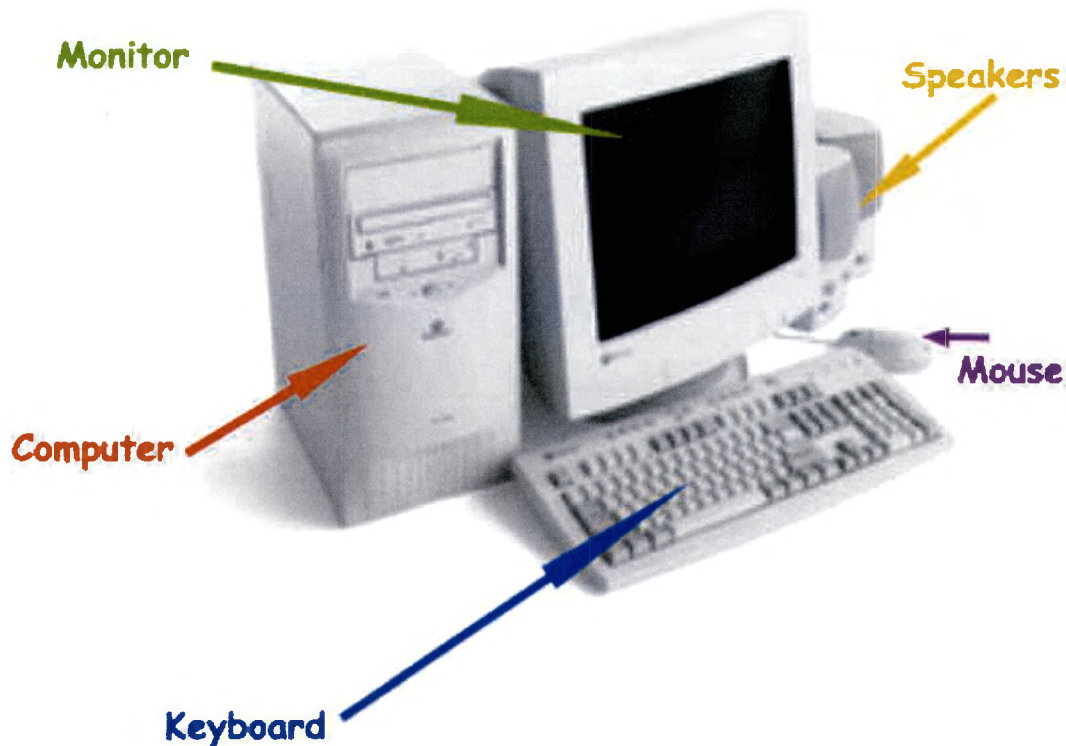
You will have access to a color printer. Please remember that we do not have unlimited resources, so please only print those things that you really want to save.

The computers have sound and you need to make sure that you are not disturbing other residents if you are using the computer with sound. The knob on the speakers controls the volume as well as a key on the keyboard.

Please offer to help other residents learn how to use the computers after you become a computer user. Remember one of the best ways to learn something is to teach someone else.

Most important of all is that you have fun and enjoy using the computers!

Basic Computer Components



Computer – The system unit is the main component of the computer. It makes all the fun things possible. It contains the following items:

CPU – Central Processing Unit – The brains of the computer

Hard Drive – The storage area for programs, files, etc.

Floppy Drive – Portable storage device

CD-Rom – A device which plays software CD's

Modem – The device that connects the computer to the phone and gives you Internet access.

(You do not have to understand how any of these things work. The floppy disk is the only part you may touch and it will be explained later.)

Monitor – This is like a TV screen. It is the place where you view the information from the computer.

Keyboard – This is the typewriter of the computer. You use the keys to tell the computer what to do.

Mouse – This is the pointing device. As you move the mouse a white arrow will move on the screen. This is the device you use to click which tells the computer to do different things.

Speakers – These are like stereo speakers and allow you to hear music and words in certain computer programs and on some Internet sites.



Printer – This produces the hard copy or paper copy of what is on your computer screen.

Using a Mouse

Pointing and Clicking



BACKGROUND:





Its inventor Douglas Engelbart named the computer mouse in 1963. He called it "The Mouse" because the device looked like a mouse with a round body and a long skinny tail. The mouse is an input device that lets you communicate with your computer. The mouse pad is just the foam pad the mouse sits on.

HOW TO USE:

I. Holding the Mouse:

- The first thing you need to remember is to keep the mouse flat and in contact with the mouse pad. If you pick it up off a flat surface it will not work.
- Rest the palm of your right hand on the mouse. Let your thumb rest on one side of the mouse. Your little finger and ring finger should rest on the other side of the mouse.

II. Pointing the Mouse




- Slowly slide the mouse around the mouse pad. You will see the mouse pointer  on the monitor screen.
- If you move the mouse to the left or right, the mouse pointer  will move to the left or right on the screen.
- If you move the mouse towards your body, the mouse pointer  moves down the screen. If you move the mouse away from your body the mouse pointer  moves up the screen.



III. Clicking the Mouse

- The mouse has two buttons.
- The left mouse button will be used most of the time. Rest your index finger on the left button.
- To click. Hold the mouse still and press down with your index finger and then release the button. You should be able to hear a "clicking" sound. *That is all there is to clicking a mouse.*

IV. Extra Information about using a mouse.

- What you learned to do above is called clicking a mouse.
You may want to learn to double click the mouse. This is a bit tricky at first, but you will get the hang of it. All the instructions are the same except that when you double click you depress and release the mouse button twice in "quick" succession.
The only problem is timing and you will figure it out as you practice double clicking.
- **Click-and-Drag** First, move the mouse pointer to select the item you want. Then depress the left mouse key, but do not release. While holding down the mouse button, move the item to the desired place and release the mouse button. You may use this action in some of the card games.

If the mouse pointer  has an hourglass  to the right of it, this means the computer is busy doing something. You need to wait till you get the mouse pointer  without the hourglass to go on.

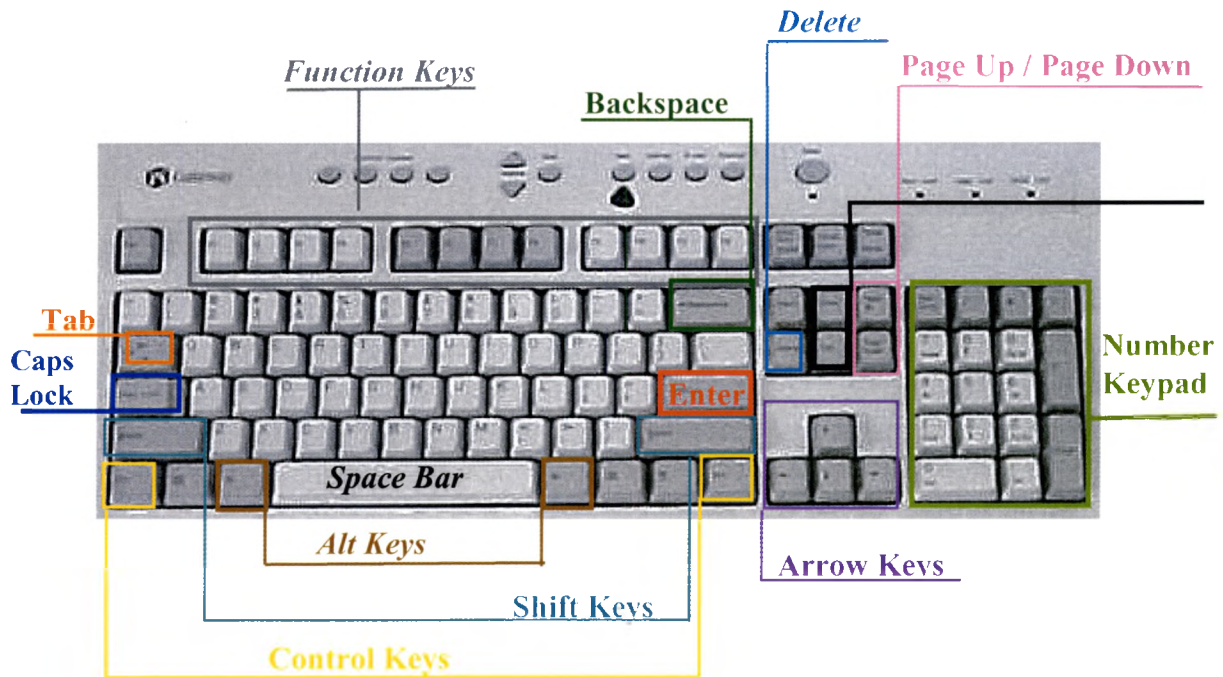
When on the Internet the mouse pointer  will change to a pointing hand  when you move the mouse pointer over an active link. This means if you click the mouse you will go to another place or another page.

A good way to practice using the mouse is to play the card games available on the taskbar. You will learn to click and also to drag items with the mouse while playing these games.

Do not give up!

Everyone has to practice using a mouse!

The Computer Keyboard



The computer keyboard may look intimidating with all those extra keys besides the letter keys like on a typewriter. It may look confusing, but you will learn how to use the keyboard and **many of the keys you will probably never use.**

It is helpful if you learned how to touch type sometime in your life. But my husband is a successful computer user and he only types using two fingers! Luckily, the computer will just sit there and wait if you need to hunt for the next key you want to use.

KEYS ON THE COMPUTER KEYBOARD

Letter Keys: These keys are just like a typewriter. The only thing you need to be careful of is holding down a particular key. If you hold a key too long it will just repeat the letter such as aaaaaaaaaa.

But don't worry if this happens you can fix it with either the backspace key or the delete key.

The other unusual feature of computers is that programs use word wrap. This means that you just type the words and the computer program automatically wraps the words to the next line when it uses up the space on one line. (On a typewriter you had to hit the return key.)

Backspace Key: This key erases the character to the immediate left of the cursor by moving the cursor to the left. Your cursor will probably be a blinking line when you use the backspace key. You will use this key to correct errors when typing e-mails, using WORD and other programs.

Delete Key: This key erases the character to the immediate right of the cursor by moving the cursor to the right. It works just like the backspace but goes forward from the cursor.

Note: With both the backspace and delete key you can hold them down and they will repeatedly erase characters in the direction they work. Be careful if you hold them down because they are fast little guys. A better way to erase more than one character is to repeatedly tap the backspace or delete key.

Space Bar: This bar puts a space between the words as you type.

Shift Key: If you hold down the shift key and type a letter key, the computer will type a uppercase (capital) letter. If you hold down the shift key and type a number key (located above the letter keys), the computer will insert the symbol indicated on the top of those keys.

Caps Lock: This key when depressed will have the computer type in all uppercase (capital) letters. There is a light on the top left side of the keyboard, which will light up when the caps lock key is in effect. To change back to normal letters, just depress the caps lock key again. The light will go out.

Note: The caps lock key does not change the number keys. To type the symbols on the top of the number keys you still have to use the shift key. Also if you use the shift key with caps lock on, the computer will type a lowercase letter.

Tab Key: The tab key will let you jump ahead a few spaces when your computer is working as a typewriter and down or over to next item on many Web pages and forms.

Arrow Keys: Arrow keys allow you to navigate around the computer screen without using the mouse. You have four keys: ↑ up arrow that moves to the top of the document on the screen, ↓ down arrow that move to the bottom of the screen, → right arrow moves the cursor to the right or beginning of a line in a text document and ← left arrow moves to the left or the end of a line in a text document. These keys do not erase any text they just change the placement of the cursor.

Enter Key: The enter key has two functions. When using the computer as a typewriter, it will move the cursor to the next line like a return key. When you are on the Internet or certain other programs the enter key instructs the computer to perform a

command. An example is when using a search engine on the Internet. You type in what you are looking for and then tap the enter key. The search engine will go look up the information you requested.

Home and End Keys: The home key will take you to the beginning of a line of text on the screen and the end will take you to the end of a line.

Page Up and Page Down: These two keys allow you to move up and down through the document on the computer screen in large steps. Any document is presented on the computer screen as a long, single piece of paper (like a scroll of paper) so this speeds up the process of moving up and down through the document.

Numeric Keypad: This is located on the far right side of the keyboard. It gives the user a normal 9 key numeric keyboard such as those found on adding machines and calculators. The **Num Lock** key must be activated to use the numeric keyboard and you can tell if it is on by looking at the area directly above the keypad. If the light is on under the Num Lock label, then you may use the keypad to type numbers. This is just an alternative way to enter numbers in a document instead of using the numeric keys above the letter keys.

Function Keys: The keys on the top row of the keyboard are named function keys. They are labeled with the letter F and the number 1 – 12. These keys can be used in certain programs, but in general you can ignore them. They were used a great deal before the Windows operating system became so commonplace.

Note: There is one combination of keys that is important. It will be discussed again in the section on turning the computer on and off.

Ctrl + Alt + Del *This combination of keys will close down a program and restart the computer if it becomes inoperative.*

Sometimes the computer will lock up and not accept any instructions from the person using the computer. If you use Ctrl + Alt + Del, it will allow you to begin again.

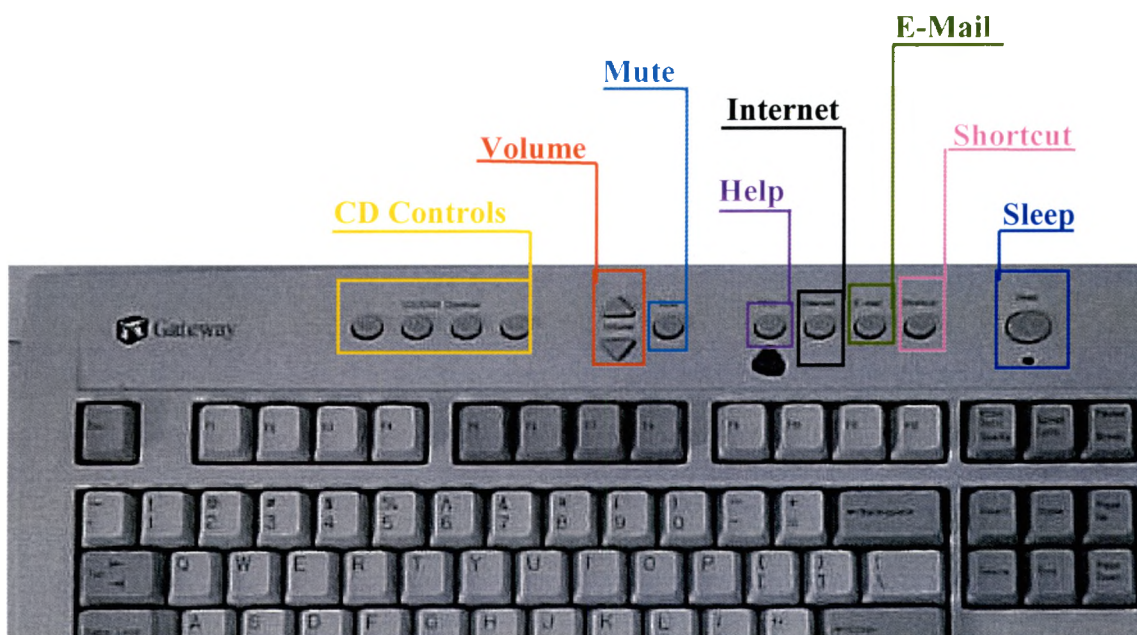
To use this combination you must hold down the Ctrl key and the Alt key with one hand and while they are held down depress the Del key with your other hand.

Just for your information

"Any Key" Many instructions tell you to use any key. There is not a particular "any key." This just means depress a key of your choice on the keyboard. It is best to use one of the letter keys rather than a key that has a specific purpose such as those described above.

"Period Key" This is the key, which types the period punctuation mark. It is located two keys to the right of the M on the lowest row of the keyboard. It is the key that is used in Internet addresses and referred to as dot. To type, "ADC dot com" you would type ADC.com I guess dot just sounded better than period.

Special Keys on the Gateway Keyboard



CD Controls They control a music CD playing on the computer. If you put a music CD in the CD ROM drive the computer will automatically play the CD. If it does not start playing (it may take a few minutes) press the button one in from the left, this should start playing the CD. The far left button will take you back to the previous selection on the CD. The far right button will take you to the next selection on the CD. The button that is one in on the right side will stop the CD from playing.

Volume This is a volume control for the speakers that come with the computer. You can also control the speakers by turning the knob on the speaker itself. If you push the top arrow button, then the volume is increased. If you push the bottom arrow button, then the volume is decreased.

Mute This will turn the speaker off temporarily.

Help If you depress this button you should be taken to the online help that goes with the program you are using. This button may not work with all programs.

Internet Pressing this button will automatically open the Microsoft Internet Explorer Browser. From here you can explore the Internet.

E-Mail This will take you to Microsoft Outlook. This is an e-mail program, which **may** have a common E-mail address for everyone using the machine some time in the future. This is **not your personal** E-mail account. **You will probably not use this button.**

Shortcut This button will not be used.

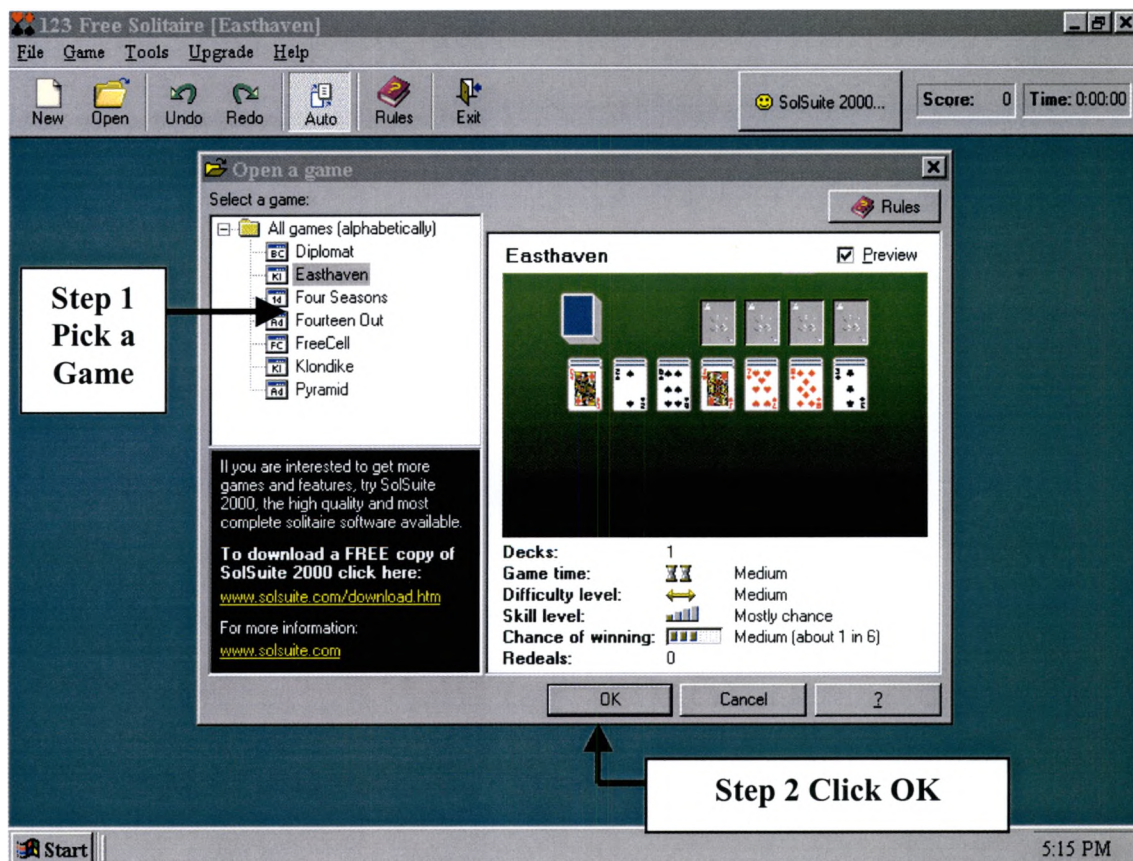
Sleep This button will start or stop the sleep mode or standby mode. **We will not use this method of shutting down the computer.**

Card Games

The card games that are available from the *Project Certain* taskbar are in a freeware program called 123 Free Solitaire.

I picked this software program because it has several Solitaire games.

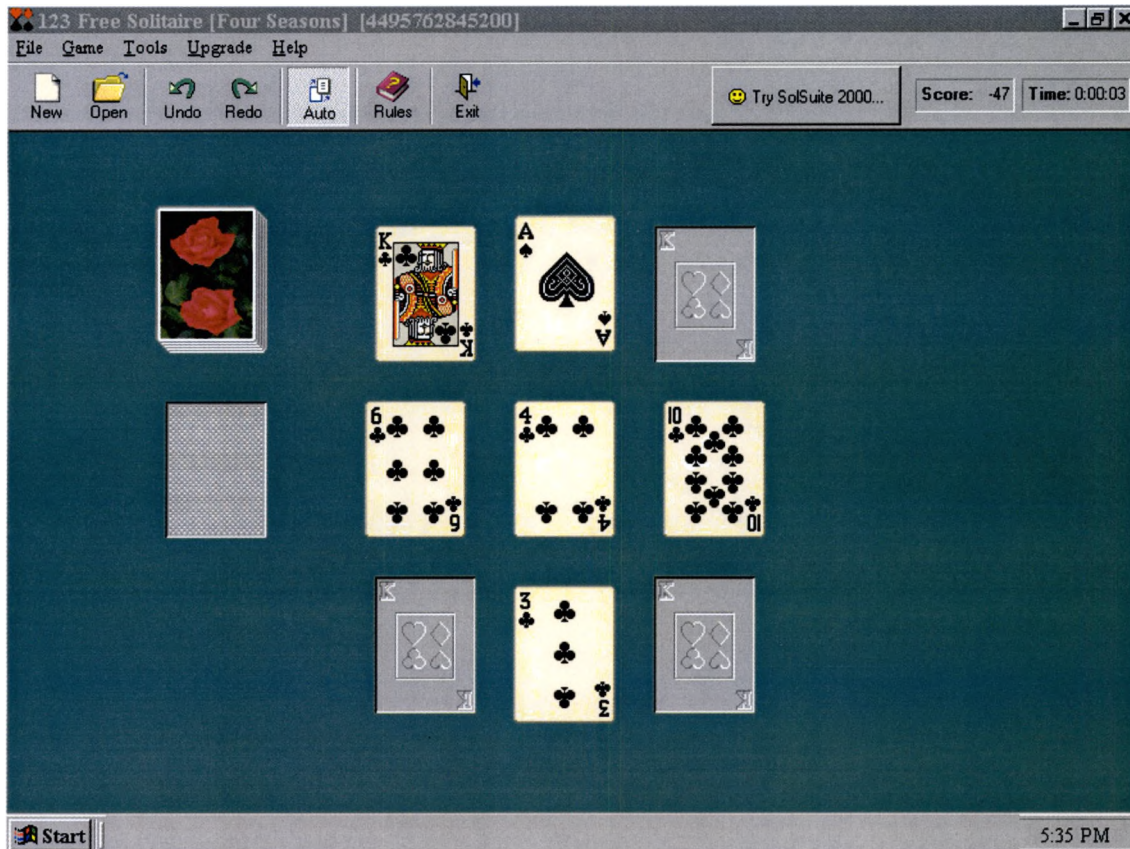
When you click on the button for Card Games the following screen will come up on the computer.



Step 1: Click on the name of the game you want to play.

Step 2: Click on the OK button.

The card game screen will come up. An example using the "Four Seasons" game is shown below.



Step 3: Play the card game.

Step 4: If you win the game, you will see some fun graphics.

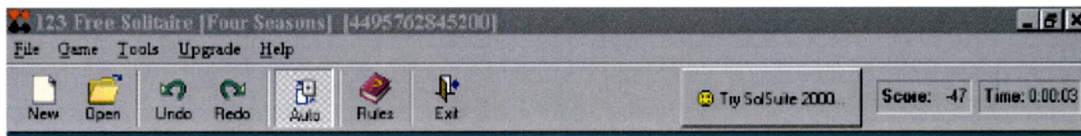
Then you can click on the New icon for another game of the same type or the Open icon for a different game.

If you lose and want to play the same game again, click on the New icon.

If you lose and want to play a different game, click on the Open icon.

If you lose and just want to get out of these card games, click on the Exit icon.

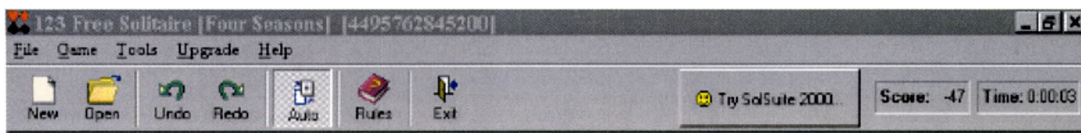
The picture below will help you with your options in using the Windows toolbar that were explained on the previous page.



If you click on the New icon, a new game will be started.

If you click on the Open icon, you go back to the first screen.

These two options do **not** work, since this is a free version of the software program.



I play with this auto play key on. It moves the cards to the foundation piles while you are playing the game automatically.

If you click on the Rules icon after you have opened a card game the rules will be displayed.

If you click on the Exit icon, you will leave the Solitaire program.

The boxes in the upper right corner give your score and the time you took to play the game.

Note: The only strange thing about this program is that if the first screen with the game choices is displayed on the monitor, you have to click the Cancel button and then click the Exit icon to quit.

If you would like some help learning how to play the different games, please ask someone on the *Project Certain* staff or one of the other residents who uses the card games.

ENJOY !!

TYPING IN WORD

Click on  Word Icon on the bottom of the screen.

Type the first line of your letter or document.

Save your document:

Move the cursor arrow to **File** and **Click** once.
(File is at the top left corner of the screen.)

Move the cursor arrow down to **Save** and **Click** once.

A new Window will open. Move the cursor arrow to the **Save** button and **Click** once.
(You can change the name of the document if you want, just type in a new name. You do not have to worry about the extension.)

Type the rest of your document.

If you are typing a very long document or you are going to stop working on the document for a while and when you are finished typing, always **Save** the document using the instructions above.

Print the document:

Move the cursor arrow to **File** and **Click** once.
(File is at the top left corner of the screen.)

Move the cursor arrow down to **Print** and **Click** once.

A new Window will open. Move the cursor arrow to the **OK** button and **Click** once.

To Copy the Letter to an E-Mail:

Move the cursor arrow to **Edit** and **Click** once.
(Edit is at the top left corner of the screen, the second word on the Menu bar.)

Move the cursor arrow down to **Select All** and **Click** once. (All the text will be highlighted.)

Move the cursor arrow to **Edit** and **Click** once.

Move the cursor arrow down to **Copy** and **Click** once.

Move the cursor arrow to the **X** button in the upper left corner of the screen and **Click** once.
(The WORD program will be closed.)

Open Hotmail (Use instructions on the side of the computer.)

Click on **Compose** button in the Hotmail program.

Click on **Insert Address** button in the Hotmail program and Select the correct e-mail address by **Clicking** the **To** box in front of the person you are sending the message to.

Move the cursor arrow to the upper left corner of the Message Text box and **Click** once.
(A small flashing vertical line will appear in the corner of the Message Text box.)

Move the cursor arrow to **Edit** and **Click** once.
(*Edit is at the top left corner, the second word on the Menu bar.*)

Move the cursor arrow down to **Paste** and **Click** once.
(*The message you typed in WORD will be transferred to Hotmail.*)

Move the cursor arrow to **Send** and **Click** once.

Finish using Hotmail as you usually do.
Remember to sign out when you are through with Hotmail.

To Open a document:

Check the 4 files listed at the bottom of the File menu.
(If the document you are looking for is listed, move the cursor arrow to the name and **Click** once.)

If the document is not in the list

Move the cursor arrow to **File** and **Click** once.
(File is at the top left corner of the screen.)

To Edit a document:

Locate the blinking black line. If this is not where you want to change the document, use the 4 arrow keys to move to the place in the document you want to work on.



Instructions for Using Hotmail

Project Certain


E-mail is fast and easy to use.

It is not a replacement for letters or telephone calls, but it is a supplement to other means of communicating with friends, family, and business contacts.


Project Certain will use the Microsoft E-mail program called Hotmail. This is a free e-mail service that can be used from any computer connected to the Internet. If you go to the public library or to a family member's home that have a computer connected to the Internet, you may use your Hotmail account. Just go to <http://www.hotmail.com>

The following instructions are for Hotmail, but most all e-mail programs work approximately the same way. So if you learn to use Hotmail, you will be able to use any e-mail program of your choice.

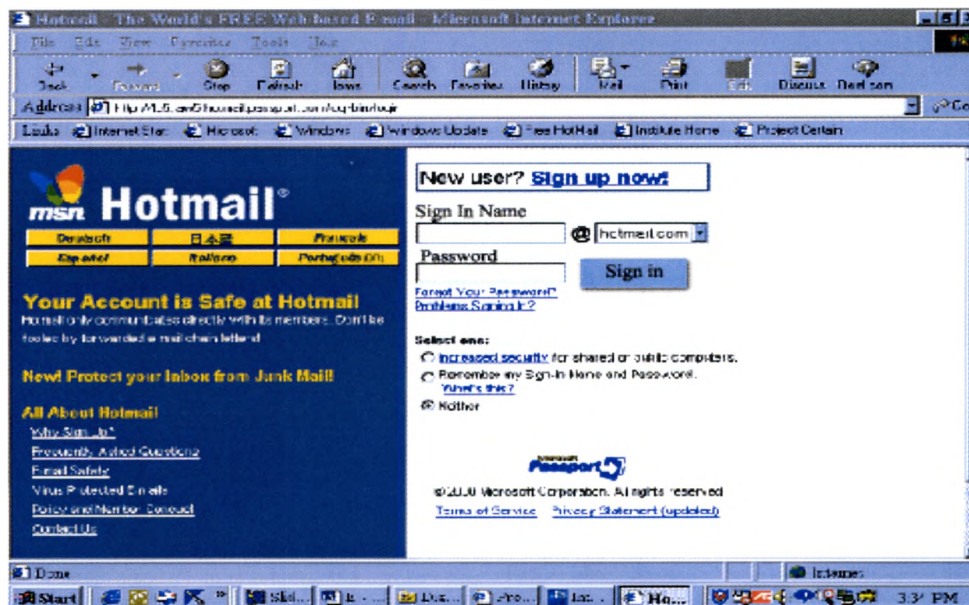
Signing In Using Hotmail with the *Project Certain* Computer

Step 1: Click once on the Explorer Icon  on the bottom toolbar. (Select Explorer Icon by moving the pointer arrow to the Explorer button and click once)

The *Project Certain* home page will appear on the screen after the modem has connected the computer to the Internet.

Step 2: Click once on the blue E-Mail button  on the bottom-left side of the *Project Certain* home page. (Select E-Mail by moving the pointer arrow to the E-Mail button and click once)

The Hotmail Home Page will come up on the screen as pictured below:



Step 3: Sign in to Hotmail on the page pictured below by:



1. Type your username in the box that is labeled Sign In Name. (1 in the picture above)

If there is not a blinking cursor line in the Sign In Box, you will have to position the pointer arrow inside the box and click once before you begin to type in your username.

2. You need to move to the Password box.
This can be done by –

Pressing the Tab Key twice

Or

Positioning the pointer arrow inside the Password box and clicking once.

3. Type in your password in the box that is labeled Password (3 in the picture above)

4. Finish Signing In by:

Pressing the Enter Key

Or

Positioning the pointer arrow on the Sign In button and clicking once.

(4 in the picture above)

Depending on whether you have new

E-mails or have read all your E-mails

different pages will come up in

Hotmail.

Hotmail when you DO NOT have NEW mail

1. If you do not have any new mail, the following page will come-up after you have signed into Hotmail.



The choices you have at this point are:

If you DO NOT want to sent or read any e-mails, you should sign out of Hotmail.

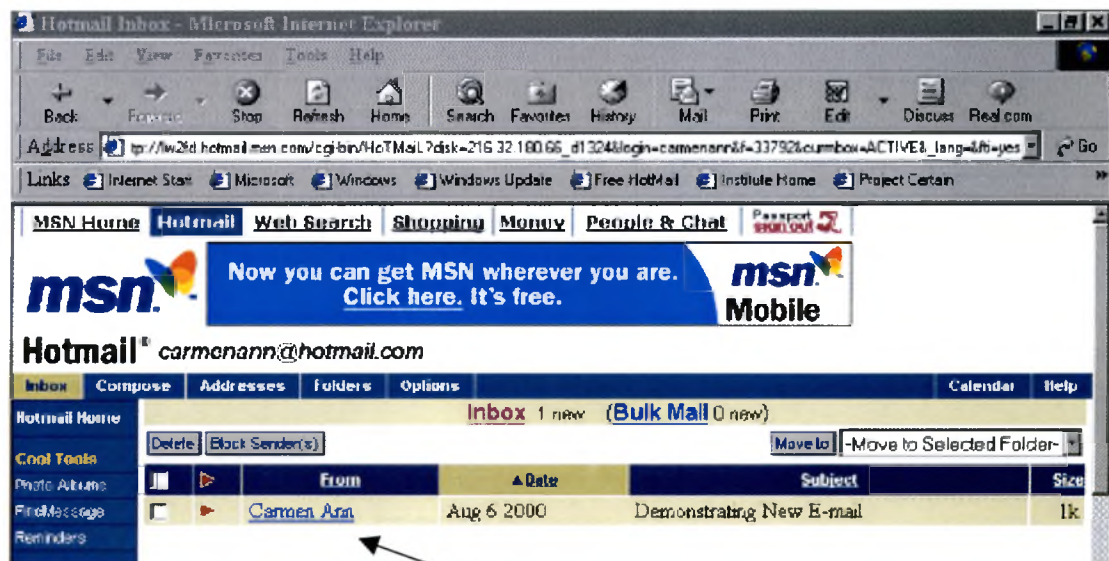
To do this move the pointer arrow up to the **Passport sign out** (A small box saying "Sign Out of Passport Sites" will come up on the screen.) and click once. This will close your Hotmail account. (**Passport sign out** is marked with by an asterisk (*) on the picture above.)

If you want to read old e-mails, move the pointer arrow to click on Inbox marked by a 1 or click on Folders marked by a 2 on the picture above depending on where the e-mails are saved.


If you want to send an e-mail, click on Compose marked by a 2 on the picture above. (Move the pointer arrow to Compose and click)


Hotmail when you DO have NEW mail

2. If you Do have new e-mails, the Inbox Page will come up after you have signed into Hotmail. An example is shown below:



To open and read a message:

Move the pointer arrow to the underlined text in the From Column (the pointer arrow will turn into a hand ) and click once.

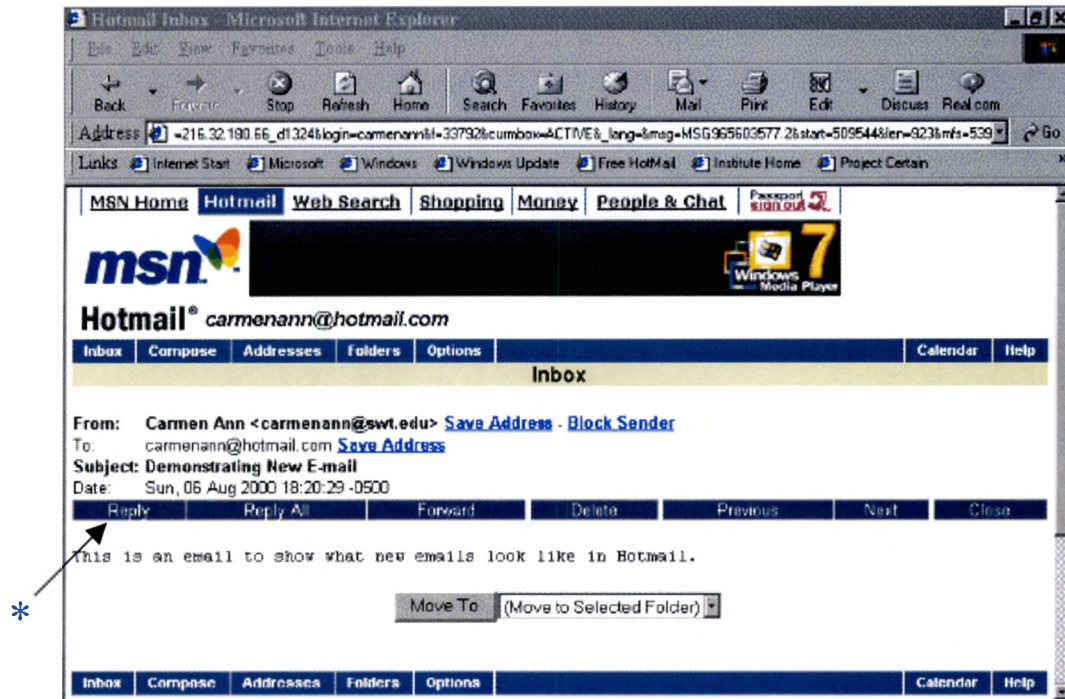
Note: There will be a red arrow () to the left of any message that you haven't opened yet.

To delete an e-mail message:

1. Select the check box next to the e-mail message you want to delete. (Select the box by moving the pointer arrow to the box and click once.)
2. Click the **Delete** Button above the message list. (Select Delete by moving the pointer arrow to the Delete button and click once)

The Next Section Will Deal with Sending E-Mails To Reply to An E-Mail Message

- Open the E-Mail message you want to reply to.
(An example of an opened E-Mail message comes next on the page.)

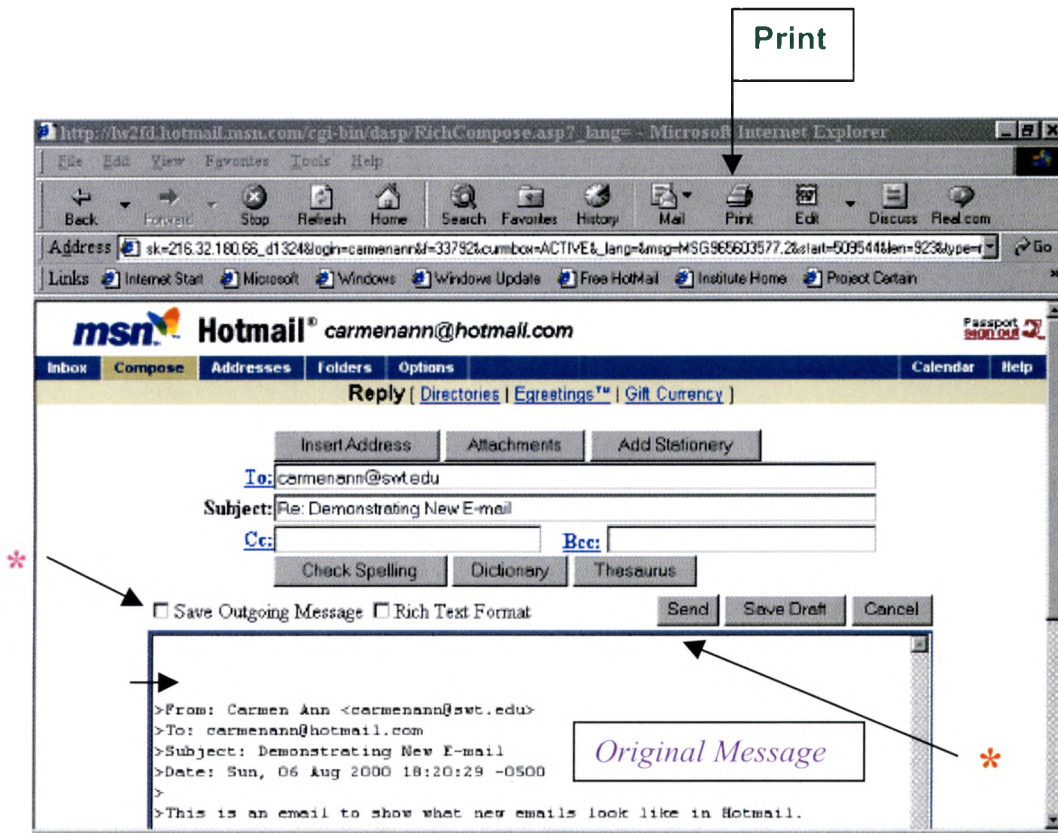


- Click on the Reply Button on the message command bar. The message will be pre-addressed to the person who sent you the E-mail. (Select Rely by moving the pointer arrow to the Reply button and click once.) *

The reply page will open in Hotmail with the address already inserted in the To: box.

The subject will be Re: "Subject of Original E-Mail".

(The next page will show what the reply page will look like with the example E-Mail)



- **Type in your message.** If there is not a blinking cursor line in the Text Area, you will have to position the pointer arrow inside the box at the top left-hand corner and click once before you begin to type in your message. **

Click the check box next to "Save Outgoing Message" if you want to maintain a copy of the E-Mail you are sending. (Select the box by moving the pointer arrow to the box and click once) *

You can Check Spelling by clicking on the Check Spelling Button.

- **Print A Copy of Your E-Mail** (Click on the button labeled Print, with a icon of a printer on it, up on the Windows toolbar) Print
- **Click Send.** (Select Send by moving the pointer arrow to the Send button and click once) *

The page confirming the E-Mail was sent will be displayed after you click on Send. Click on the Ok button. You will be returned to the original message. Click on the Inbox button to return to your Inbox.

To Compose An E-Mail Message:

Refer to page # 3 in the instructions to see how to pick the Compose Button.

Two important parts of composing an E-Mail are the address and the subject line.

An E-Mail Address

An e-mail address is very specific. If only one character (letter, number or symbol) is incorrectly typed, the e-mail will not be deliverable.

The following shows the parts of an e-mail address:

username@domain.extension

username - This identifies the person you are writing to. A username can be a person's actual name or a nickname they have chosen.

@ - This symbol separates the username from the rest of the address. When reading an e-mail address, "@" is read as "at".

Domain – This is the company or organization, which is providing the e-mail service. The domain name is followed by a period. When reading an e-mail address, "." is read as "dot".

Extension – This indicates the type of organization that is providing the e-mail service. Some common extensions are: com (commercial or company), edu (educational institution), gov (government agency), and net (organization usually non profit).

A real e-mail address:

carmenann@hotmail.com

The Subject Line

The subject line is an important part of an e-mail. This tells the recipient what the e-mail is concerning. After seeing a person's name, the subject is the next thing a person receiving an e-mail will see.


State your subject clearly and in as few words as possible.

The subject line is especially important if the person receiving the e-mail gets a lot of e-mails. They may not recognize your name, but they may be interested in the subject line you write.


You can click on the [Insert Address](#) button to choose an address from your Address Book, rather than typing in the e-mail address each time.

Select the [To: check box](#) to send an E-Mail to a particular person.

To Sign Out of Hotmail

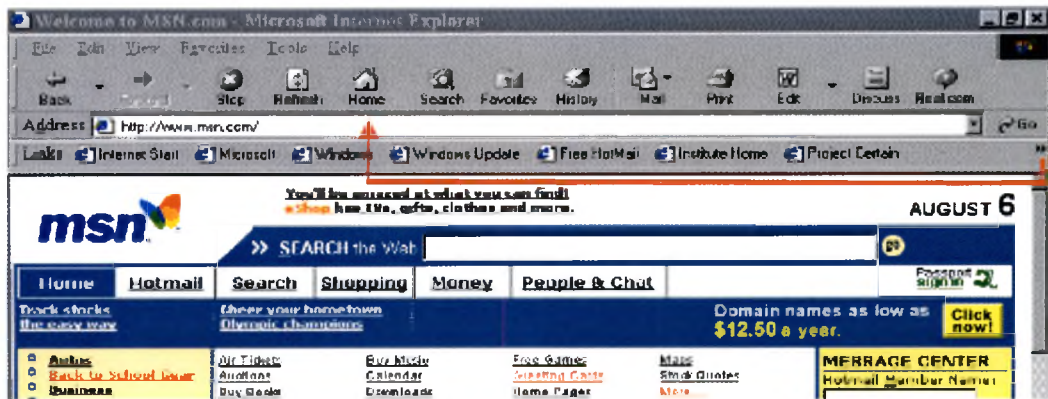
Click on the  in the upper right-hand corner of the Hotmail screen.

It is very important to sign out of Hotmail each time you use it.

The  is in the upper right-hand corner of all Hotmail screens.

A page will come up saying that you have been signed out of Hotmail and the MSN home page will automatically appear.

Click on the Home Button on the Window Tool Bar at the top of the screen to return to the *Project Certain* home page.



Home

Simplified Instructions with Page References

Steps	Pages
Click on the Internet Explorer Icon on the bottom toolbar	1
Click on E-Mail button on Project Certain home page	
Sign in to Hotmail (Username and Password)	2
Press the Enter key	
Click on Inbox button	3
Click on underlined text in the From Column to read e-mail	4
Click on Reply button to answer the e-mail	5
Type in your message	6
Click on Send button	
Click on Inbox button to read or reply to another e-mail	
When finished Click on Passport Sign out Icon	8

If you have any questions, please ask a member of your facility staff or a Project Certain instructor.

No question is a silly question!

Remember computers, e-mail, and the Internet have been known to do strange things for no apparent reason.

Glossary of Computer and Internet Terms

Active X

This is a Microsoft technology used on the Internet. It allows you to view Microsoft Word documents in a Web browser, view animated graphics and display interactive maps. Some Web pages require that this technology is in effect to view them as the author wanted.

Application Program

A program or software created to do specific tasks. An example would be the word processing (typing) program WORD.

Bandwidth

The bandwidth is simply the maximum speed at which information can be sent between computers using the Internet.

Banner

A banner is the part of a Web page that spans the width of the page and is normally about an inch tall. A banner contains an advertisement. The banners are links to the advertiser's Web page.

Baud

(Pronounced "bawd") Baud is the unit of measure used when talking about bandwidth. It tells how many events happen in a second. Example 56 kbps mean a modem transmits at 56 kilobytes per second.

Bit

This is short for binary digit. A bit is either a one (1) or zero (0). A bit is the smallest unit of information understood by a computer.

Bookmark

This is a link that a user can make to a particular Web page. It allows you to click on this bookmark and go back to a favorite Web page in the future without typing in the address of the Web page.

Browser

A browser is a software program allowing you to view and explore the World Wide Web over the Internet. Your computer uses Microsoft Internet Explorer as its browser.

Bug

A bug is an error in a software program or in the hardware of a computer. Bugs cause the software to do unexpected things. Brand new programs often contain bugs. The name came from when a moth stopped an early computer from running. *This was a question on the popular TV program Millionaire.*

Byte

(Pronounced, “bite”) A byte is a group of eight bits that make up a single character such as a letter, number, or symbol. *Just for your information or to amaze your friends:*

Bit	Byte	Kilobyte	Megabyte	Gigabyte
8	1	-	-	-
8,192	1,024	1	-	-
8,399,608	1,048,576	1,024	1	-
8,589,934,592	1,073,741,824	1,048,576	1,024	1

CD-ROM (Compact Disc Read-Only Memory)

A compact disc stores data that is read on a computer by laser optics. It holds more than 400 times as much data as a floppy disk. Your computer has a CD-ROM, but all the software programs you will use to start are loaded on the hard drive.

Chat

Chat is a “conversation” that takes place in “real” time by writing while using computers and the Internet. Users can talk to each other by typing their messages using the keyboard on their computer.

Click

A click means to depress the left mouse button once.

Clipboard

The clipboard is an area of memory in the computer that holds information that is being copied from one location to another.

Cookie

A file that is written to your computer's hard disk and used to identify your computer and your preferences to a remote computer when you access some Web pages.

Copy

Copying is to duplicate files, text, and images and save it to place elsewhere in the same document or in another document.

CPU (Central Processing Unit)

The central processing unit of a computer is the hardware that does the actual computing. It interprets and executes instructions given by the computer user and computer programs.

Cursor

A flashing line on the screen that shows exactly where you are working.

"If you always swear at your computer because it will not do what you want then people may accuse you of being a cursor." This is a joke.

Cut

This is when the computer user removes a section of a document.

Cut and Paste

It is like what you did in school. You cut a section of a document and then you paste it in another location.

Cyber

Cyber is a prefix that shows something has to do with computers or the Internet. If you put a computer in a café you have a cyber café.

Cyberspace

Cyberspace is the virtual universe of information sent by technological devices such as computers, telephones, satellites, etc.

Desktop Computer

A computer that sits on a desk is called a desktop computer. This is the type of computer Project Certain and you are using except that your computer is housed in a tower that sits on the floor.

Desktop Publishing

This is when you use your computer to produce publications that you can use to market your organization or products.

Dialog Box

A dialog box is usually a small box shown on your computer screen by a program to inform you that something is going to happen or has just happened. They are also used to give warnings to computer user.

Dial Up Connection

A dial up connection is a connection between two computers using a telephone line and a modem. This is the method by which your computer is connected to the Internet.

Domain Name

A domain name is a unique name that identifies each computer on the Internet. AlltheWeb.com is a domain name. After the period is a suffix which helps identify what type of organization is using the domain name.

com = commercial

edu = educational

gov = government


mil = military

org = organization (usually a nonprofit, but not always)

Download

To download means to copy something from one computer to another using the Internet.

Drag

You drag something with the computer mouse. This means that you place the mouse pointer  on an object then hold down the left mouse button and drag or move the mouse to another location. The object will go where the mouse goes. This is how you play many of the card games on your computer.

Electronic Commerce or E-commerce

E-commerce is business that takes place using the Internet. If you order a book from Amazon.com you and the company are participating in electronic commerce.

E-mail (Electronic Mail)

An E-mail is a message sent between people using their computers and the Internet. The message usually gets to its destination in a matter of minutes no matter where it is going. This speed is one of the things that people like about E-mail. E-mail may be the reason you decided to learn to use a computer. In contrast to E-mail, mail that is sent through the U.S. Postal Service is called “Snail Mail” because it takes so long to arrive.

Encryption

The process of coding information sent between computers so that “prying eyes” cannot understand it is called encryption.

FAQ

FAQ is short for Frequently Asked Questions. You will find many of the answers to your questions on different Internet sites if you look at the FAQ section. Not all Internet sites have a FAQ section.

File

Data is stored in files on a computer. You can create files and software programs contain files.

File Extension

In Windows the operating system on your computer, files are named using a standard, which has a name for the file, a period (point) and a file extension. The file extension tells you and the computer what type of file you are dealing with. Three examples of files extension are: doc a Word document, txt a text document, and exe an application or software program.

Firewall

A firewall is software that is installed on computers to prevent unauthorized use of a computer network. The only time you should be aware of a firewall is if you send an E-mail to a person who works for a company with a firewall. Then you may receive an E-mail telling you that the person opened the E-mail.

Flaming or Flame Mail

If you or another person sends an intentionally inflammatory e-mail or posts inappropriate information on a listserv or bulletin board, this is flaming.

Floppy Disk

A small plastic case that holds a magnetic disk used to store data is called a floppy disk. Your computer uses a 3.5-inch floppy. If you want to save a document, you will use a floppy disk. You save the document and take the floppy with you. Later, you can insert the floppy in the computer or another computer and then use the document you saved.

Frame

The place you will see the word “frame” is on Web pages. It means that the Web page is divided into a number of independent boxes or frames. You can scroll through one frame and the other frames will not move or change.

Freeware

Freeware is copyrighted software programs available at no charge or cost. You will find freeware programs available on the Internet. Freeware is not the same thing as Shareware. A good source of freeware is tucows.com (Two Cows dot Com).

FYI

FYI means for your information and you may see people write this in e-mails.

GIF File

GIF files are the most common type of file in which to save an image or picture. These files are often used on the Internet.

Graphic

A picture, image, or non-text item in a document is called a graphic. Graphics are one of the things that make the Internet and Web pages so interesting to view.

Hacker

A person who deliberately logs on to another person's computer without permission is a hacker. Hackers are also the people who write most of the virus programs that infect computers via e-mail. When personal computers

were new, hackers just wanted to see if they could get past the security devices companies and other people had put on their computers. Today, hackers are more likely to try and steal information or damage other people's computer systems.

Hard drive

A hard drive is located inside the computer and is the main storage device for a desktop or personal computer. The hard drive is not available to you on the Project Certain computer. You will save your information on a floppy except for your e-mail account, which is on the hard drive.

Hardware

Hardware is the "hard" or physical components of a computer system such as the keyboard or monitor.

Hit

A hit happens when a user accesses a Web page. People usually mean that they have found what they were looking for.

Home Page

A home page is the page through which most users enter a Web site on the Internet. It is the first page you normally see. A home page may serve as an index and tells you what you can find on the Web site.

HTML

HTML stands for Hyper Text Markup Language. It is the language used to make Web pages. Don't worry you can read Web pages without knowing HTML and we will make home pages without knowing HTML.

HTTP

HTTP means Hyper Text Transmission Protocol it is the standard rules for computers using the Internet to communicate with each other. The only reason you need to know about HTTP is that http:// is at the beginning of Web page addresses. You will see this when you use the Internet.

Hyperlink

A specially encoded section of text or an image in a Web page that will take you to another place on the Web when you click on it with your mouse. The

mouse pointer will change to a pointing hand when it moves over a hyperlink on a Web page.

Hypertext

Hypertext is a hyperlink that is in text or written words rather than images.

Icon

An icon is a small picture intended to pictorially depict a task the computer can do. When you click on the icon with the mouse the computer will do that task. Also, the word icon is used to describe very small clipart image.

Ink-jet printer

An ink-jet printer is a computer printer that makes the images on paper by spraying ink droplets. This is the type of Epson printer that you are using.

Internet

The Internet is a network of computer networks. It is the total of connected computer networks around the world that are linked together so that computer users may exchange information.

IP Address

IP stands for Internet Protocol. This is a unique number that represents a single computer in a network. All computers on the Internet have a unique IP address. You may see these numbers when you are loading Web pages on your computer. Most people have decided to use words to name their computer address rather than using the IP address, but they computer still has an IP address that you do not see.

ISP

ISP stands for Internet Service Provider. This is a company, which provides access to the Internet for individual people or small companies. Your computer connects to the ISP computer that then connects to the Internet.

JPEG

(Pronounced jay-peg) A JPEG stands for joint photographic experts group. This is another type of image or graphics file that is used on the Web.

Keyboard

The keyboard is the primary means of communicating instructions to a computer. It is arranged like a typewriter keyboard but has many extra keys.

Link

Link is short for hyperlink. See hyperlink.

Listserv

A listserv is a program that allows an individual computer user to subscribe to a mailing list. If you send an E-mail to the listserv, it sends the E-mail to all members on the listserv. Listservs are normally devoted to a particular area of interest or subject.

Mailbox

A mailbox is a file where your incoming E-mail messages are stored on the computer of your ISP (Internet Service Provider)

Mailing List

A mailing list allows a person to send the same E-mail to different people without having to type all the individual E-mail addresses. You could make a mailing list of all your relatives or friends. Then you could type a single E-mail, sending it to them all at once.

Memory

Memory on a computer is the actual chips that hold the information that the personal computer needs to use.

Menu

A menu is a list of options within Windows that a computer user may want to perform. You will learn how to use menus to save and close documents, plus much more.

Menu Bar

In Windows programs like you are using, the menu bar is located at the top of the window on the computer screen. Each menu has a heading such as File, Edit, View, etc.

You click on these words with the mouse and then chose which option you want to do in the list that comes up on the screen.

Modem

The word modem is a combination of two words Modulation and Demodulation. A modem converts data between Analog and Digital. Your modem is inside your computer and it allows you to connect to the Internet and use E-mail via telephone lines.

Monitor

The monitor is the screen on which you view text and images when using your computer.

Mouse

A mouse is an input device for communicating with a computer. You can give your computer instructions of what to do using the mouse.

Multimedia

A multimedia presentation combines video, sound, graphics, and text on your computer. The encyclopedia on your computer and many Web pages use multimedia presentations to enhance your enjoyment when viewing their content.

Netiquette

This word is a combination of network and etiquette. It is an unwritten set of rules of behavior associated with using the Internet and sending E-mails. One example of netiquette is that you should not type in all caps in an E-mail. Typing in all capital or uppercase letters means that you are yelling.

Network

A network is merely a group of computers that are connected by wires and cables. Once the computers are connected to a network they can exchange or share information.

Newbie

Newbie is a term for someone that is new to using the Internet. You don't stay a Newbie long. Most people who start to use the Internet soon start using it quite often.

Offline

Offline is when your computer is not currently connected to the Internet. It is possible to save a Web page and view it offline.

Online

Online is when your computer is actually connected to the Internet. You need to be online to send an E-mail.

Operating System

The operating system is the control software that runs all the activities of your computer.

Your computer is using the Windows operating system.

Output Device

An output device shows what a computer is doing or has done. Your monitor screen is an output device and so is your printer.

Page

A page is a single document on the Internet. A Web site many have many pages that are linked together.

PC

PC are the initials of personal computer. A PC is a computer designed to be used by a single person at a time.

Peripheral

A peripheral is a hardware device that is not directly part of the computer but is connected to it. A printer, monitor, and mouse are all examples of peripherals.

Printer

A hardware device connected to your personal computer than makes printed documents on paper.

Processor

See CPU

Program

A program is a set of instructions telling the computer what to do. They are also known as software.

RAM

Random Access Memory or RAM is a storage area in the computer that keeps data for immediate use. When your computer locks up and you have to turn it off without saving your work, you lose whatever was in RAM. So you may have to start over working on the document.

Real Time

Real time is the actual time it takes to do a task. Real time interaction takes place without delays due to processing time.

Save

This is the method by which you can keep documents and files you have created on the computer. You will save your information to the floppy disk. It is important to save your work often so that you will not have to redo anything if the computer crashes.

Scroll Bars and Scrolling

Scroll bars can appear on the right side or bottom of a Window on your computer screen. A scroll bar is used when there is more information in the document than will fit on one screen. The small square in the scroll bar will allow you to scroll through the rest of the page. Just place your mouse pointer over the square, hold down the left click button on the mouse and slide the square up or down and the page will move.

Search Engine

A search engine is a service used to locate Web sites concerning a particular subject on the Internet. You have a list of my favorite search engines on the home page; just click the Search button.

Server

A server is a computer and its software that “serve” other computers on a network. If you make your own Web page, it will be put on the Institute’s server so that you and others may see it on the Internet.

Shareware

Shareware is software that is available for a free trial after which you owe the author of the software program a payment if you decide to keep using the program.

Site

A site is a group of Web pages that represent an individual, company, or organization.

Software

See Program

SPAM

SPAM is basically junk mail you receive in your E-mail account. It is often selling something that you have no interest in and did not request information about. I just delete all the junk mail I receive. I only read E-mails that are coming from people I know. This is a good way to avoid virus problems.

Surf

Surfing the net is the slang expression for browsing the Internet. It is like flicking through the channels on a TV using the remote control. Surfing is looking around the Internet linking from Web page to Web page.

Toolbar

The toolbars can be located at the top or the bottom of a particular Windows screen. The toolbar uses icons to illustrate particular tasks that you might want to ask the computer to do. The toolbar contains the same information found in the menus, but it is only a single click away to perform the task.

Tower

A tower is a computer case designed to stand upright on the floor rather than sit flat on a desk. Your computer is housed in a computer tower, but is a desktop computer. *Now how is that for double talk?*

Upload or Uploading

Uploading is the process of transferring a file from your computer to another computer using a modem.

URL

URL stands for Uniform Resource Locator. A URL is the specific address of a Web page. A URL usually has several parts: protocol, domain name, and filename. An example would be <http://www.QYZ.org/News.htm> in this imaginary example <http://> is the protocol, www.QYZ.org is the domain name, and [News.htm](http://www.QYZ.org/News.htm) is the filename.

User Friendly

This is a commonly used term in the computer industry. It means that something is easy to learn and use. You may not always agree that a program is easy to use even if it is called user friendly.

Virus

A virus is a program that is created to “infect” files on personal computers. Viruses can be harmless like putting an annoying message on your screen. But many viruses will actually destroy the files and information on your computer. Putting files on a computer that come from another computer by disk or over the Internet is how viruses spread and opening attachments in E-mail. Your computer has an anti-virus program installed on it.

Web Browser

See Browser

Webmaster

A Webmaster is the person who is responsible for maintaining a Web site. Many times the Webmaster also designed and constructed the site.

Windows

Windows is a program using graphical user interfaces. There is something on the screen to help you use the software. In Windows, tasks are done by using a mouse to click on an icon on the toolbar or by selecting an item in a menu. Years ago before graphical interfaces, when you turned on your computer there was only a blank screen with a flashing prompt. Not very user friendly!

WWW

WWW is short for World Wide Web. This is the system that allows computer users to communication over the Internet.

WYSIWYG

WYSIWYG stands for What You See Is What You Get. This means that what you see on the screen is what you will get when you print on paper. In a program like Word, this is usually true. But it is important to remember when trying to print a Web page that many times you will not get a printed document that looks like the Web page.

Using Hotmail

Click on 
(Bottom Toolbar)

Wait for the modem to connect to the
Internet and display the *Project Certain*
home page.

Click on 
(Left side of home page)

Signing in to Hotmail

Type in Username
Depress Tab Key Twice
Type in Password
Depress Enter Key

Reading an E-mail

Click on the underlined
name in the *From* column.

Replying to E-mail

Click on the *Reply* button.

Click in *Subject Line* text box.

Type in a short subject.

(Click in the box in front of
Save Message.)

Click in the top left corner of
the large Text box.

Type in your message.

(Click on the *Print* button.)

Click on the *Send* button.

Click on the *OK* button.

Continuing in Hotmail

Click on *Inbox* button.

Signing Out of Hotmail

Click  on the top
line of the screen.

Note: The two pages are combined in a single card, which is laminated and fits on the right side of the monitor.

APPENDIX H

IRB Consent Form

PROJECT CERTAIN - Consent Form

You are invited to participate in a study of the introduction of computers in long-term care facilities. I am a graduate student at Southwest Texas State University at San Marcos, Department of Health Service and Research. This research is to be included in my Master's thesis. I hope to learn if giving access to computers and the Internet is helpful in improving long term care residents' quality of life and if use of the computers will continue after the initial training session. You will be one of the volunteers at four different long-term care facilities in the Central Texas area (the number of participants will not be known until the end of the study).

If you decide to participate, my associates or I will ask or provide to you the following:

1. ask you to fill out some initial questionnaires
2. provide you with training on the use of computer and the Internet
3. allow you access to the computer over a three to six months period of time
4. ask you to fill out an evaluation form, a computer usage questionnaire, and the original questionnaires will be repeated at the end of trail period.

It is hoped that your use of the computer and the Internet will provide you with an activity that will enhance your daily life at your long-term care facility.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission.

Your decision whether or not to participate will not prejudice your future relations with Southwest Texas State University or the Institute for Quality Improvement in Long Term Health Care. If you decide to participate, you are free to discontinue participation at any time without prejudice.

If you have any questions, please ask us. If you have any additional questions later, please telephone me, Carmen Ann Adams, at 512-245-8234 or my thesis chair, Dr. Deanie French, at 512-245-3556. We may both be contacted by mail at: Department of Health Service and Research, 601 University, San Marcos, Texas 78666. We will be happy to answer any of your questions.

You will be offered a copy of this form to keep.

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate. You may withdraw at any time without prejudice after signing this form, should you choose to discontinue participation in this study. **

Signature of Participant

Date

Signature of Investigator

Date

** You may keep this explanation about the nature of your participation and the handling of the information you supply.

VITA

Carmen Ann Adams was born in Birmingham, Michigan, in 1947. Following graduation from Emma Willard School for Girls in Troy, New York, in 1965, she attended the University of Michigan in Ann Arbor and received the degree of Bachelor of Arts in Elementary Education. In 1981, she completed a certificate program from the Executive Secretarial School in Dallas, Texas. After working with her husband in his career in the field of auto racing, she returned to college for a second degree beginning in 1989 at Austin Community College in Austin, Texas, where she maintained a 4.0 grade point average for 42 hours of coursework. She transferred to Southwest Texas State University and received a second Bachelor of Arts with a double major in Mathematics and Sociology maintaining a 3.83 and 4.00 grade point respectively. In 1997, she entered the Graduate School at Southwest Texas State University in San Marcos, Texas, maintaining a 4.0 grade point on all coursework. Related work experience includes: 1993-1997 Mathematics tutor at Austin Community College, 1996-1998 Mathematics Adjunct Faculty at Austin Community College, 1998-2000 Graduate Assistant in Health Services Research Department and the Texas Long Term Care Institute at Southwest Texas State University, and 2000 to present Research and Information Coordinator at the Texas Long Term Care Institute, a staff position at Southwest Texas State University.

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This thesis was typed by Carmen Ann Adams