

# Chapter 7 – Technology and Older Adults

Opinions and surveys vary regarding the degree to which seniors want to learn about computers and the Internet. However, computer use by seniors is growing, and seniors are accessing the Internet in growing numbers. According to the Go60.com website, evidence of seniors going online is demonstrated by the fact that more services targeting seniors have established websites, including sites focusing on investment, retirement planning, and Social Security and Medicare.

Technology now plays a major role in assisting libraries in providing access to information. Numerous technologies have evolved in the past decade which facilitate access. Offering access to assistive technology, training patrons in computer use, making computers available, and designing elder-friendly websites are ways libraries can use technology to enrich seniors' lives.

Libraries can implement two types of technology that can improve access to information to enhance the lives of older adults. Computers and the Internet offer new ways to communicate, increase writing skills, and provide opportunities for lifelong learning. Assistive technology is equipment that allows people to increase, maintain, or improve independence. Devices libraries might consider purchasing are either those designed to help users access the text and information in books, magazines, and other printed materials, or those designed to assist users in using computers. A number of assistive technology devices are appropriate for libraries to help senior patrons with disabilities or impairments access information.

## **Closed Circuit Televisions**

A closed circuit television (CCTV) may be the single most beneficial assistive device in which a library can invest. This low-tech device is extremely user-friendly, while being versatile. CCTV's allow persons with minimal vision to read standard text and view photographs and figures. Portable CCTV's are also available. Staff who visit nursing homes or assisted living facilities might consider purchasing one of these lightweight devices. Portable CCTV's do require a hook-up to a television.

CCTV's are actually high quality optical cameras. Items placed on the viewing platform are magnified on the monitor's screen. Controls adjust the brightness, contrast, and degree of magnification of the image that is projected. In as much as vision varies from person to person, the ability to adjust these settings will allow the patron to find his or her own individual preference.

In addition to reading standard text, a CCTV may be used for personal correspondence. CCTV's are helpful when reading "daily living" tasks, such as printed information given with prescriptions, directions for usage of everyday household products,

warranty agreements, and bank statements. CCTV's also permit the user to view small collectibles such as postage stamps, coins, thimbles, teacups, or other items that require close inspection.

Some CCTV models connect to a computer monitor. Higher-end models often feature a "split screen option," which allows users to read printed information placed on the CCTV platform, while viewing or inputting information into the PC at the same time. This can be helpful for people using word processing programs if they need to refer to notes while composing documents. For example, a senior using a word processor to chronicle his or her life story can place reference journals and newspaper clippings on the platform, enlarge the text to the size needed, and have it displayed on the monitor's screen. The word processing program can also be displayed on the same screen. CCTV's give users the ability to have the information they need in front of them and in a format they are able to access.

Many seniors with low vision will be ready to purchase a device for their homes once they have experienced the ease of use and success in reading and other tasks. CCTV's are priced at under \$2,000 for a black and white unit and under \$3,000 for a good color monitor. While the color monitor offers versatility and programming possibilities, even the black and white model offers access to printed materials. Missouri's Assistive Technology office, discussed in Chapter 8, may be able to offer the library advice on purchasing CCTV's as well as other technological devices. See the resource section at the end of this chapter for a list of vendors who sell CCTV's.

## **Reading Machines**

If the magnification capabilities of the CCTV's are insufficient for patron needs, another possibility exists. Reading machines allow people who are blind or visually impaired to have typewritten documents, books, magazines, etc., read to them through a synthesized voice on a computer. Reading machines utilize a scanner, a computer, and optical character recognition software. Material is placed upon a scanner, scanned, and then an optical recognition program translates the scanned material into words that are read back to the user using a synthesized voice. Some of the more popular reading machines include the Kurzweil Reading Machine and the Arkenstone's Open Book Ruby and Arkenstone's VERA.

These reading machines essentially operate in the same manner and are approximately the same price. Consult with the staff of the Missouri Assistive Technology office to learn what brand of reading machine is popular in your area. This will increase the likelihood of locating peer users who may volunteer to help train new patrons.

Providing reading machines will allow seniors with visual impairments to read typed correspondence, utility bills, and other daily communications. Being able to read one's own correspondence is key to maintaining personal independence.

## Personal Computers

The number of older adults learning or wanting to learn to use computers is growing. Computers allow seniors to play games, figure their taxes, preserve life stories, converse with friends and family, explore their roots, research medical issues, and communicate with their congressional representatives. Many older adults want to experience the same technological advancements as their children, grandchildren, and great-grandchildren and wish to be able to understand what the media is talking about when they discuss “cyberspace.” Others with declining vision will utilize assistive technology and computers with the goal of being able to access print media.

A 2000 survey conducted by SeniorNet indicated 93% of the seniors online use the Internet to keep in touch with family and friends, but a growing number are using it to make purchases or take care of business. (For further details of these statistics see [http://www.seniornet.org/research/rsch\\_000517.html](http://www.seniornet.org/research/rsch_000517.html).) Slightly different statistics were found in a survey conducted by Packard-Bell as a routine follow-up to new PC purchases. The following breakdown is a summation of the responses given by seniors when asked “Why do you use a PC?”

- 72% used their PC for electronic mail with family and friends.
- 59% used their PC to research a particular issue or subject.
- 53% used their PC to access news.
- 52% used their PC to try adventure games and CD-ROM puzzles.
- 47% used their PC to research travel or vacation destinations.
- 43% used their PC to obtain weather information.
- 25% used their PC to perform volunteer work for various organizations.

Still other surveys indicated seniors use their PCs to write memoirs, create greeting cards, monitor investments, and track genealogy. In short, older adults are using computers for many of the same reasons as the general population.

Like computer usage, Internet usage by older adults is also growing. Seniors are attracted to the Internet for the same reasons as people of all ages. However, for seniors, the Internet offers a dynamic, intriguing outlet against loneliness, isolation, depression, and being homebound. For some seniors, the World Wide Web can be a lifeline. The Internet and the web allow older adults to feel less socially isolated by giving them the opportunity to correspond with family and friends through e-mail, participate in online chat rooms, conduct research, and explore many other interests at their own leisure. For seniors, the web can be a mechanism of socializing and maintaining contact with the outside world. Unlike any other social or educational institution, the Internet is never closed. Twenty-four hour access may be comforting to

older adults who may experience insomnia or sleeping disorders, letting them know companionship or mental stimulation is just a mouse click away.

Standard cautions about Internet safety should be part of any Internet training session for seniors. In addition, senior Internet training should include warnings about the abundance of misinformation on the web and tips on how to evaluate websites to obtain the most useful, timely and accurate health, legal, financial, and other information.

One of the best features about the Internet is that it allows seniors to learn how to navigate through it at their own pace. This is extremely useful to beginners or those attempting to overcome some sort of impairment.

## **Computer Instruction for Seniors**

Many public libraries offer classes to seniors on how to use computers. While the theory of teaching an older adult the essentials of computer technology does not differ from teaching a younger library patron, the methodology should be adjusted. In his article “How to Help Someone Use a Computer,” Phil Agre offers many practical reminders and tips to employ when teaching computer usage to seniors.

- Many computer instructors have forgotten what it’s like to be a beginner. Therefore, a good assumption to make when teaching about computers is that if something is not obvious to the class, then it’s not obvious.
- Remind the class computers are a means to an end. Keep them focused on their goals.
- Most people’s knowledge of the computer is grounded in what they can do and see. Hands-on learning will help them acquire a better understanding of what they are doing.
- By the time someone asks for help, he or she has probably tried several different things, and the computer may be in a strange state. Help the person get back on track and explain, if possible, where he or she went astray.
- Encourage the class to take notes. One of the primary goals shouldn’t be to solve people’s computer problems, but make them more capable of solving problems on their own.
- Allow the class to use the keyboard and do all the typing. This will help them learn from the interaction.
- Don’t stand or tower over students when working with them. Squat down and work with them at their sitting level.

- Keep computer language and syntax as simple as possible. Be sure the students understand the instructions.
- When seniors start to blame themselves, step in and blame the computer in an authoritative tone.
- Never do something for students they are capable of doing on their own.

Adapted from Agre, Phil. "How to Help Someone Use a Computer." *SeniorNet Newsline*. (Winter 1998) [Online]. Available: <http://www.seniornet.org/php/default.php?PageID=5506&Version=0&Font=0>.

Always remember to speak as clearly as possible. It is also helpful to provide the students with a simplified set of instructions, a set of Frequently Asked Questions, and a trouble-shooting guide. For all handouts, use a sans serif font that is at least 14-point type. Maintain a notebook at computer workstations that contains these handouts and an annotated list of helpful and frequently used website addresses.

If offering a class on e-mail, encourage the seniors to bring computer addresses of family and friends with them to the first class to allow them to send test messages during class. Also, solicit a group of staff who can receive and respond to e-mail as it is sent. As soon as the seniors receive their first e-mail response, they will be hooked and want to learn more.

## **Assistive Technology for Computer Users**

At a minimum, public libraries should provide the following specialized hardware on at least one public computer.

- Nineteen to twenty-one inch monitor. In most cases, library staff can adjust the display settings for large icons and 14-point to 16-point font. In addition, software that enlarges the print display will require monitors this size.
- Expanded keyboard (with larger keys) and a trackball. These items allow users with limited dexterity to input data with less stress on wrists or fingers. Less physical stress allows users to concentrate on learning the tasks at hand.
- Retrofitted standard keyboard keys with large print key tops. These "peel and stick" key tops are priced under \$20 and make viewing the keys easier on eyes. They stand up to heavy usage.

These items are relatively inexpensive, easy to install, and available through several vendors, including your local computer store. Consult with the staff of the Missouri Assistive Technology office for more information.

Some seniors have diminished vision. This, however, should not stop them from accessing personal computers. Adaptive software and technology are designed to

help people with visual or physical disabilities access information displayed on a computer screen. This technology encompasses screen magnification software, screen readers, and other devices that transform print into synthetic speech or Braille.

## **Screen Magnification Software**

Vision loss and compensation devices need to overcome losses that vary from individual to individual. Software screen magnifiers, which display information on a computer monitor in a variety of colors, magnifications, and fonts, offer the most options to alleviate vision loss. Most screen magnification software is compatible with virtually all computer manufacturers and operating systems, including Microsoft Windows, Macintosh, and DOS. In addition, screen magnification software can be used with most computer applications, including word processing, database, and spreadsheet programs. Screen magnification software should be used with monitors which are at least 19 inches.

Screen magnification software can cost between \$150 to \$800. Some of the most commonly used software includes the following:

- IBM Screen Magnifier
- InLARGE
- MAGic
- ZoomText Xtra

These products allow the computer user who has very limited vision to see what is displayed on the computer screen. Each works on the same principle with essentially the same output. When choosing one of these products, consult with the Missouri Assistive Technology office to determine which program is most popular in your immediate area. This will increase the likelihood of locating peer users who may volunteer to help train new patrons.

Libraries using Microsoft Windows 98 or later releases can utilize the Microsoft accessibility features. Microsoft offers tools that allow the cursor to be enlarged, contrast to be changed, portions of the screen to be magnified, and the font display to be enlarged. The caveat for using the Microsoft product is that, although an accessibility wizard can be employed, staff will have to readjust the display for each patron who uses the individual PC. For more information on accessibility features, consult the Windows operating system manual or visit Microsoft's website at *www.microsoft.com/enable*.

Screen magnification lenses are low tech, less expensive alternatives for libraries with limited budgets. These devices attach to the monitor screen to enlarge the print.

## **Synthetic Voice Output**

Speech output helps users with low vision, or who are blind. There are two components of speech output: the hardware, which is the voice synthesizer, and the software, which is the screen reading program. The screen reading program looks at print text and translates the text into speech. The speech is then read aloud to the user. The speech output is clear, but there is a learning curve needed by the user to get used to the intonations of the synthesized voice.

Learning to use the screen readers is not difficult but may require patience and a dedicated amount of time. Proficient screen reader users are able to cruise the Internet, read their e-mail, and process other documents.

Some of the more popular speech synthesizers include the following:

- DecTalk
- SynPhonix
- KeyNote Gold
- GW Micro

Some of the more popular screen readers include the following:

- JAWS
- Window Eyes
- MasterTouch

Users of speech synthesizers and screen readers have their personal preferences and use those with which they are familiar. Consult with Missouri Assistive Technology to determine which program is most popular in your immediate area.

## **Braille Translators and Embossers**

There is yet another technology which allows blind patrons to access computers by relaying information in Braille. Braille is a tactile code that enables people who are blind to read and write. Rather than read print with their eyes, they read with their fingertips. It is possible for them to read information displayed on the Internet in Braille or have it printed in Braille. For older adults who are blind and are proficient in the use of Braille, this will be their preferred format.

With a few commands, the Braille translating software looks at standard text and converts it into Braille. The user may print it out using a Braille embosser or may read it immediately using a refreshable Braille display. A refreshable Braille display consists of an array of pins that can be raised to represent the Braille equivalent of a line of text.

If there are many Braille users in your community, consider purchasing the translating software and Braille embosser. The Wolfner Library for the Blind and Physically Handicapped will be able to advise you as to the number of patrons in your area currently receiving Braille books from the library.

There are two brands of Braille translators; however, both are maintained by Duxbury Systems, Inc.:

- MegaDots
- Duxbury Braille Translator

Although both software packages translate text into Braille with the input of a few key commands, the Duxbury Braille Translator is able to translate information found on the web directly into Braille.

There are several brands of Braille embossers. They fall within a price range of \$2,000-\$4,000. The price difference is directly related to their noise level and to the speed at which they emboss. These include the following:

- Braille Blazer
- Index Basic-D and Index Basic-S
- Romeo, Juliet, ET

Consult with the Missouri Assistive Technology office when choosing one of these products. Additionally, if considering the purchase of a Braille embosser, test the device for noise level in the planned use area. Some embossers may require a sound baffle.

## **Cyber-Seniors**

The Internet is an intriguing resource for information providers and users. Seniors have the ability to cruise the World Wide Web seeking interesting websites for information, education, or entertainment. Some may use adaptive technology to assist them; others need no such assistance. Most seniors, however, will find it easier to access websites that were created using good design principles.

Seniors using the Internet will expect your library's website to be accessible. The website is an extension of the physical library and should represent the library's mission to extend services to seniors. Many websites, organizations, and individuals offer advice and suggestions for evaluating the quality and content of webpages.

The SPRY Foundation, which aims to help all adults access quality information and plan for successful aging, is currently focusing on two areas of technology which it perceives will facilitate this process: the World Wide Web and cable television. They have developed a 29 page guide, entitled *Older Adults and the World Wide Web: A Guide*

for *Website Creators*, which is available free of charge upon registration with SPRY at [www.spry.org/WebGuide/webguideform.htm](http://www.spry.org/WebGuide/webguideform.htm). SPRY also offers a simple checklist for websites to determine if they can be used by seniors.

Keep in mind the following design and layout considerations.

### **Design**

- Does the page design/background interfere with the information?
- Are colors easy to see and distinguish?
- Is there a text-only or large print alternative?
- Is the text a good color, design, and font?
- Do applets or JAVA interfere with the information?
- Do graphics have ALT-tags describing them?

### **Layout**

- Do the pages load quickly?
- Are the pages on the site the same style throughout?
- Are the buttons large and clear enough?
- Are the pages and information clearly labeled?
- Is the page easy to navigate?
- How are links arranged? Selection? Architecture? Content?
- Is there an internal search capability?
- Is the page accessible to people with disabilities? Low vision?
- Is there a feedback option or mechanism to exchange communication with webpage designers?
- Is it clear if the site function is to market products and services or is a non-business information provider?

Source: SPRY Foundation: <http://www.spry.org/WebGuide/>.

In addition, avoid using blues, greens, and violets when designing webpages. Older eyes are not able to easily assimilate violet light, which makes it easier to see reds, oranges, and yellows.

## Web Training

A number of websites provide online training for seniors. For instance, AARP hosts “Expedition Internet” as part of their computer and technology website at [www.aarp.org/expedition/](http://www.aarp.org/expedition/). “Expedition Internet” takes users on a series of five voyages toward discovering how to navigate the Internet, including the following:

- Web and browser basics.
- Introduction to e-mail.
- Finding information.
- Multimedia on the web.
- Personal webpage design.

“Expedition Internet” also provides users with an orientation, making sure users are outfitted for their voyage. An itinerary is given with a menu for navigating the site.

### AARP’s Expedition Internet Webpage



SeniorNet hosts a beneficial website providing seniors with computer instruction and guidance. SeniorNet is a nonprofit organization of computer-using adults, age 50 and older. Its mission is to provide older adults education for and access to computer technology to enhance their lives and enable them to share their knowledge and wisdom. SeniorNet has a free “Search the Internet” course available on its website. It consists

of four lessons. Two additional lessons are available for a fee. SeniorNet's web address is *www.seniornet.org*.

Learn the Net, at *www.learnthenet.com/english/index.html*, has excellent do-it-yourself resources such as tutorials on e-mail, newsgroups, web publishing, Internet research, etc.

Life on the Internet, at *www.screen.com/start/guide*, is a beginner's guide with over 300 links to help begin exploring the Internet, including pointers on the latest versions of Internet software.

Internet Masters, at *www.outreach.missouri.edu/imaster/*, is committed to training volunteers to navigate the web. The volunteers then apply their training by sharing it with others in their community. The volunteers are great training sources for libraries with limited staff.

SquareOne Technology, at *www.squareonetech.com*, has web tutorials, an Internet glossary, and links to shareware and other Internet educational sites. This all-purpose Internet tutorial site provides many useful resources for the beginning or advanced Internet user.

In general, libraries that have conducted computer and Internet training for seniors have reported they are extremely successful. In many cases, seniors who have had little exposure to computers will become computer and Internet "junkies," once they have had the opportunity to learn about computers and Internet resources at the library. Consider planning a program on how to buy a computer for seniors who want to invest in their own technology.

Promote Missouri Assistive Technology's TAP-I program to seniors with visual or physical limitations. TAP-I, or Telecommunication Access Program for Internet, provides basic Internet access to eligible Missourians who already own a computer and have an Internet service provider. The program will provide, at no cost, software or hardware to provide basic Internet access for an individual based on his or her physical needs. Some examples of the type of equipment provided by TAP-I are screen reader software to read aloud the information on the computer screen, software to magnify the information on the computer screen, and alternative keyboards for those who are unable to use a standard keyboard. The program will not purchase computers, scanners, embossers, or any other adaptive equipment that is not necessary for basic internet access. For an application or more information, call Missouri Assistive Technology at (800) 647-8557.

Phil Shapiro, an educational computing consultant and writer, attests the field of information technology and use by the elderly has barely begun to be explored. He sees computers as therapeutic tools to help seniors develop a sense of accomplishment, satisfaction, and a feeling of well-being. He contends the "human mind can sense its own growth, and feels emboldened when that growth occurs on a regular

basis.” Offering seniors access to computers, the Internet and training to use them, is an area in which libraries can become community leaders.

## **Helpful Web Resources**

### **AgeLight Institute**

*[www.agelight.org](http://www.agelight.org)*

This organization fosters intergenerational learning to “bridge the Digital and Generational Divides,” enhancing the older adults’ community, creativity, and employability. The site provides a training directory that lists training sites for active adults.

### **Computers Made Easy for Senior Citizens**

*[www.csuchico.edu/~csu/seniors/computing.html](http://www.csuchico.edu/~csu/seniors/computing.html)*

This is a nonprofit website designed to help seniors understand how computers work and to locate resources for improving computer skills. The site offers links to other online Internet tutorials and instructional sites, as well as information about organizations, research techniques, and a bibliography.

### **Missouri Statewide Reference Center**

*[missouriref.org/](http://missouriref.org/)*

Hosted by the Kansas City Public Library and funded by a federal Library Services and Technology Act grant through the Missouri State Library, this site contains a useful collection of links that address senior needs and interests. It’s a great place to get seniors who are interested in beginning research and exploration on the web started. Consider bookmarking the site or providing a link on your library’s website.

### **National Aging Information Center (NAIC)**

Internet Information Notes: The Internet and Older Adults

*[www.aoa.dhhs.gov/NAIC/notes/internet&adults.html](http://www.aoa.dhhs.gov/NAIC/notes/internet&adults.html)*

The site is a service of the Administration on Aging and links to numerous resources that instruct visitors on the topics of “standards” and “resources.” These can be used to develop “user-friendly sites.” It also has links to statistics on access and use, which may be helpful when planning for senior computer programming.

## **Adaptive Equipment Vendors**

The list below is a sampling of the many distributors of assistive technology. Contact the Missouri Assistive Technology office to acquire additional information about products, resources, and distributors.

Missouri Assistive Technology  
4731 South Cochise, Suite 114  
Independence, MO 64055-6975  
Voice: (800) 647-8557 (in-state only) or (816) 373-5193  
TTY: (800) 647-8558 (in-state only) or (816) 373-9315  
FAX: (816) 373-9314  
E-mail: [matpmo@swbell.net](mailto:matpmo@swbell.net)  
<http://www.dohr.state.mo.us/matp/>

A-I Squared  
PO Box 669  
Manchester Center, VT 05255-0669  
(802) 362-3612 / (802) 362-1670 (FAX)  
<http://www.aisquared.com>

Screen magnification software

ALVA Access Group, Inc.  
5801 Christie Avenue, Suite 475  
Emeryville, CA 94608  
(510) 923-6280 / (510) 923-6286 (TDD) / (510) 923-6270 (FAX)  
[http://www.aagi.com/aagi/aagi\\_home.html](http://www.aagi.com/aagi/aagi_home.html)

Screen magnification software

Enabling Technologies  
1601 Northeast Braille Place  
Jensen Beach, FL 34957  
(561) 225-3687 / (561) 225-3299 (FAX)  
<http://www.braillex.com>

Braille embossers

Freedom Scientific  
11800 31st Court North  
St. Petersburg, FL 33716-1805  
(813) 803-8000 / (800) 336-5658 / (813) 803-8001 (FAX)  
<http://www.freedomsci.com>

Reading machines, screen magnification software, screen readers, Braille embossers

GW Micro, Inc  
725 Airport North Office Park  
Fort Wayne, IN 46825  
(219) 489-3671 / (219) 489-2608 (FAX)  
<http://www.gwmicro.com>

Speech synthesizers, screen readers

Humanware  
6245 King Road  
Loomis, CA 95650  
(800) 722-3393 / (916) 652-7296 (FAX)  
<http://www.humanware.com>

CCTV's, speech synthesizers, screen readers

International Business Machines Corporation  
Special Needs  
11400 Burnet Road  
Austin, TX 78758  
(512) 838-4893 / (800) 426-4832  
<http://www-3.ibm.com/able/>

Reading software, screen magnification software

Kurzweil Educational Systems  
52 Third Avenue  
Burlington, MA 01803  
(800) 894-5374 / (781) 203-5033  
<http://www.kurzweiledu.com>

Reading machines

LS & S Group  
P.O. Box 673  
Northbrook, IL 60065  
(800) 468-4789 / (847) 498-1482 (FAX)  
<http://www.lssgroup.com>

CCTV's, expanded keyboards, retrofitted keyboard keys, speech synthesizers,  
Braille translators, Braille embossers

Maxi-Aids  
42 Executive Boulevard  
P.O. Box 3209  
Farmingdale, NY 11735  
(800) 522-6294 / (516) 752-0689 (FAX)  
<http://www.maxiaids.com>

CCTV's, expanded keyboards, retrofitted keyboard keys, speech synthesizers, Braille translators

Optelec  
6 Lyberty Way  
Westford, MA 01886  
(978) 392-0707, ext. 100 / (800) 828-1056  
<http://www.optelec.com>

CCTV's, screen magnification lenses, keyboard labels

## Resources

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