

# Integrating Assistive Technology into the Adult Education Classroom

by DON FINN, PH.D.

Regardless of learning setting, adult educators frequently encounter students with learning challenges or blocks. Think of yourself as a learner; do you hate math or are you challenged when applying grammar rules to your written work? In the same way, we encounter adults with learning challenges. We all take in and process information differently and sometimes need to find tools to help increase our comprehension. This article will explore different types of assistive technology that can be used to benefit all students.

## What is Assistive Technology?

PLUK (Parents, Let's Unite for Kids) is a private, nonprofit organization based in Montana that provides information and services for children with disabilities and their parents and guardians. Their web-based Family Guide to Assistive Technology offers a practical definition:

Assistive technology devices are mechanical aids, which substitute for or enhance the function of some physical or mental ability that is impaired... [and are] used to help an individual perform some task of daily living ([www.pluk.org/AT1.html#2](http://www.pluk.org/AT1.html#2)).

These technologies are classified as either "high tech" or "low tech," and although they provide aid for users with mobility and non-mobility issues, this article will focus on non-mobility technologies.

## Computer-based technologies and their applications

The integration of computers and computer technologies into adult education classes has become more common in recent years. One factor contributing to this is the increase in programs and Internet sites that are appropriate for adult learners; however, some learn-

ers may encounter fears and difficulties with computers. The most common of these include computer phobia, limited keyboarding skills, and trouble comprehending information that is presented in a text-heavy environment. Computer phobia and limited keyboarding skills can be addressed through hands-on introductory computer courses or activities involving basic computing functions; these activities can be especially effective in lowering learners' anxiety levels. A number of tutorial programs designed to help with keyboard familiarity and to increase keyboarding speed are available. These multimedia programs involve drill and practice activities that integrate voice and visual features.

Students with keyboarding challenges may also use speech-to-text software packages. These products enable users to speak into a microphone connected to the computer; the software converts the spoken words into text that appears on the screen. Using voice commands, the user can distinguish where to begin paragraphs, end sentences, and apply other grammatical and stylistic elements to the document. The document can then be sent to a word processing program like Microsoft Word or printing and further revision. Originally designed for users with low vision, blindness, or mobility issues, (such as arthritis or paralysis,) these software packages are also used by those with learning disabilities; most commonly, dyslexia.

Text-to-speech software, commonly called screen reading programs, were originally intended to assist individuals with blindness or low vision to understand electronic text presented via computer. These programs highlight words on the screen as the computer reads them. In addition to helping the intended users, screen readers have been effectively used by students diagnosed with Attention Deficit Hyperactivity Disorder (ADHD)

by helping them to focus on the text using their senses of sight and hearing. English language learners are another group benefiting from screen readers because reading and speaking skills are reinforced as the program highlights and pronounces words. Occasionally, programs may still encounter problems pronouncing words, but over the years, pronunciation and voice quality have improved tremendously.

Computer operating systems and programs have a variety of customizable accessibility options. These features include adjustable text sizes, color options for links and backgrounds, and volume and video controls. Another important feature is the ability to install optional mouse and keyboard input devices. More information about accessibility features for Microsoft Windows and Microsoft Office programs can be found online at: [www.microsoft.com/enable/](http://www.microsoft.com/enable/). Information about accessibility features on Apple computers and Apple OS and other programs is located at: [www.apple.com/accessibility/](http://www.apple.com/accessibility/).

## Electronic Devices

Many electronic devices are available to help learners better understand and apply the written word. One such device is the Quictionary Reading Pen (QRP), a hand held device that was featured in the Spring 2002 edition of *Progress*. The Pen allows the user to highlight or roll over printed text one word at a time. The word is displayed on the built-in led screen and a computerized voice speaks the word through a small built-in speaker or a headphone. In addition to helping students pronounce words, the pen offers other useful features including displaying a word's syllables, spelling the word aloud, and providing definitions from its built-in dictionary.

Electronic dictionaries and language devices are available for a variety of pur-

poses and can be used effectively in adult education settings. The Franklin Corporation offers a line of these devices including dictionaries containing more than 300,000 definitions and 500,000 synonyms and antonyms. Other devices allow users to hear pronunciations in English and other languages, including Spanish, French, and German. Information about these devices, ranging in price from \$29.00 to nearly \$200.00, can be located online at: [www.franklin.com](http://www.franklin.com).

Portable digital recorders allow learners to record voice messages, such as reminders of tasks or due dates, or longer messages like lectures or discussions. The recording is stored digitally and may be saved or transferred to a computer for later retrieval or conversion to text using voice recognition software. These devices can be purchased from department or office supply stores at prices ranging from \$20.00 to more than \$400.00, depending on features and the amount of hours of recorded material that they can store.

## Low Tech Devices

Low tech assistive devices are usually inexpensive, general in function, widely available, and often overlooked as being assistive. Highlighters and colored pencils are useful for identifying parts of speech, clarifying instructions, or distinguishing different ideas or concepts in educational materials. Dry highlighters or highlighting tape offers an attractive alternative for use in textbooks because the highlighting can be removed using a standard eraser. Colored self-sticking tabs or flags are useful in allowing learners to distinguish among items in an assignment.

Often, learners experience fatigue, moving text, reversing letters, or other problems while reading. These issues are commonly associated with dyslexia or other perceptual vision problems. Although research on the effectiveness of colored overlays varies, the use of overlays, generally colored light blue, pink, or gray, may be helpful for students who experience difficulty reading printed text

because the overlays cut down on glare and the effects of bright backgrounds. A low cost alternative to overlays is to print handouts on white paper having a brightness rating of 90% or less, or on light gray or pale blue paper. It is not advisable to print classroom materials on fluorescent or brightly colored paper because this often enhances the dancing letter effect.

Regardless of the types of technology available to the instructor or program, the most important principle to keep in mind is that each student should be counseled individually to determine how to best overcome any challenges he or she may be facing. ■

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oral skills may be bored or unwilling to engage in learning.

**4** Has the cultural background been considered? Culture impacts virtually every aspect of teaching and learning. Adults, unlike children, come with fully formed cultural values and beliefs. Often, if CLD learners' expectations of education do not match their experience, they will be very unhappy. Learners from authoritarian educational systems where everything is memorized, for example, may be very uncomfortable or uncomprehending when the teacher asks for reflection and discussion.

**5** Have health, physical functioning and mental health been checked? CLD learners may not have had regular vision and hearing check ups or even regular health care. Moreover,

cultural attitudes towards talking about health or physical challenges may prevent learners from telling a teacher about problems such as illness or severe hearing loss that actually interfere with learning. Because many of our learners have suffered trauma, a wide range of mental health problems may be making life and learning hard for them.

**6** Are the problems "pedagogically-induced"? Many learning difficulties are known to develop when factors 1-5 are ignored, or when teachers do not employ the best teaching practices. Unclear directions, failure to use multisensory teaching, or not assuring that learners really master skills can confuse and frustrate learners, who then give up or just get stuck.

Careful attention to these factors will

guarantee better learning for nearly every student. Wise programs and teachers will find ways to address them in intake and instructional procedures. ■

\*\* These requirements CAN be met for Spanish-speaking adults, though Spanish-speaking diagnosticians experienced in testing adults, especially those who are very low literate, are rare.

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