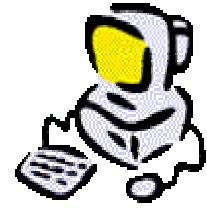




Florida's Focus on
Adults with Learning Disabilities



A Guide to Assistive Technology (AT) For Adults with Learning Disabilities

A Project of Florida Human Resources Development, Inc.
Funded through an Adult Education State Leadership Grant from the Florida
Department of Education, Office of Workforce Education

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PRACTITIONERS' POINTS**

PREVIEW GUIDE

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INTRODUCTION



Life is a struggle for many adults with learning disabilities. Some become confused or anxious when given directions because they have difficulty keeping numbers in their proper sequence and remembering a list of spoken directions. Other adults with learning disabilities become frustrated because they can't remember their phone numbers or spell their home addresses when trying to complete a simple application. Still others lack the essential reading comprehension skills for daily living that makes it necessary to rely on family members to interpret information. Many adults experience persistent feelings of frustration and loneliness that come with believing they are "stupid" and just can't learn.

These difficulties are not the result of low intelligence. These adults have just not found the means to accommodate their needs. Such is the purpose of this guide - to provide information on Assistive Technology for adults with learning disabilities, practitioners, literacy programs, and other service providers that will help "level the playing field" and allow those with learning disabilities to function on a more equal basis with their non-disabled peers. In order to get a complete understanding of just what **assistive technology** is and what it can do, we need to look at its definition as defined in federal policy.



Assistive Technology Definition and Law **What is Assistive Technology?**

Assistive Technology is defined by the **Technology-Related Assistance for Individuals with Disabilities Act of 1988 (Tech Act), Public Law 100-407**, (<http://www.resna.org/taproject/library/laws/techact94.htm>) and the **Individuals with Disabilities Education Act of 1990, Public Law 101-476 (IDEA)**, (<http://www.idanatl.org/factsheets/Assistive.html>), as "any item, piece of equipment, or product system, whether acquired commercially off-the-shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities."

In regard to learning disabilities, Dr. Marshall Raskind, Director of The Trafford Center for Technology and Learning Disabilities at the Frostig Center in Pasadena, California, (<http://www.frostig.org/technology/tctld.htm>) further defines **assistive technology** as "any technology that enables an adult with a learning disability to compensate for specific deficits. In some instances, the technology may assist, augment, or supplement task performance in a given area of disability, whereas in others it may be used to circumvent or 'bypass' specific deficits entirely." (Raskind, Marshall H., *Literacy for Adults with Learning Disabilities Through Assistive Technology*, 1998)



The above legislation also defines an **assistive technology service** as "any service that directly assists an individual with a (learning) disability in the selection, acquisition, or use of an assistive technology device." In terms of planning and funding, these services are just as important as the assistive technology device itself. (<http://www.ucc.uconn.edu/~Techact/What.html>).

Since every individual with learning disabilities has a unique profile of strengths, weaknesses, interests, and experiences, it is important to determine how the disability hinders performance in the specific setting, to assess the person's capabilities, and then to identify an appropriate accommodation. (Riviere, Adrienne. *Assistive Technology: Meeting the Needs of Adults with Learning Disabilities*, National ALLD Center, 1996)

The Americans with Disabilities Act of 1990 (ADA), Public Law 101-336, (<http://www.usdoj.gov/crt/ada/adahom1.htm>) extended protection against discrimination to all individuals with disabilities, requiring both the public and private sector to provide **reasonable accommodations** to qualified individuals with a documented disability. This law is interpreted to apply to the acquisition and modification of equipment and devices, such as adaptive hardware and software for computers.

The **Vocational Rehabilitation Act of 1973, Public Law 930-112** (<http://ericec.org/sect504.html>) required that electronic office equipment purchased through federal procurement meet disability access guidelines. The Tech Act's 1994 amendments provide funding to help establish programs to promote the provision of technology-related assistance.

The National Literacy Act of 1991, Public Law 102-73, (<http://novel.nifl.gov/public-law.html>) encourages the use of literacy technology in literacy programs.



ASSISTIVE TECHNOLOGY PRODUCTS *High/LowTechnology Options*



Since the early 1990's, several publications have shown that assistive technology is a viable strategy for addressing the literacy needs of adults with learning disabilities. In 1993, the House Committee on Education and Labor and the Senate Committee on Labor and Human Resources requested **The Office for Technology Assessment (OTA)** to conduct a study to determine: 1) Why technology could make a difference in adult literacy, 2) How it is currently used, and 3) What should be done to seize its potential for future use. "*Adult Literacy and New Technologies: Tools for a Lifetime*," (http://www.wws.princeton.edu/~ota/ns20/alpha_f.html) is a 281-page report that discusses the OTA's findings and indicates that "...the potential of technology for both learners and programs is not being exploited, and significant barriers inhibit wider or more sophisticated uses of technology." The report continues to say, "Technology has the potential to eliminate some barriers to participation and address some of the unique needs of adult learners but the current uses of technology in adult literacy programs have barely scratched the surface." (Chapter 1)

In 1997, Raskind and Higgins conducted a study with post-secondary students that had reading disabilities to determine the effectiveness of using optical character recognition (OCR/speech synthesis) programs. They found that students with more severe reading disabilities benefited from using optical character recognition when compared to reading the passages on their own, without technology. However, those with mild reading disabilities found the OCR system interfered with their reading comprehension. This research, along with others appears to indicate that the more severe the reading disability, the more likely the technology will benefit the student by enhancing reading rate, comprehension, and length of reading time. (Raskind, M.H. & Higgins, E.I. (1998) *Assistive Technology for Postsecondary Students with Learning Disabilities. Learning Disability Quarterly*, 18, 141-158.)





Assistive technology for adults with learning disabilities can range from common “low tech” devices, such as hand-held talking spell checkers/dictionaries, tape recorders, and talking calculators, to more sophisticated “high tech” options such as talking word processors, screen reading software, and word prediction programs.

This section provides a brief description of some technologies that are available to help people compensate for their learning difficulties in the areas of: Writing, Reading, Math, Studying/Organizing Information, and Listening. Product information and web addresses are provided. Please note that this is not an exhaustive listing of products that can assist people with learning disabilities but rather a selection from several technology categories. It is recommended, whenever possible, to consult with a qualified professional prior to purchasing the items. Take advantage of downloading some of the free trial software that may be available from the website, or request a demo disk from the vendor. Also, note that some products may be listed under more than one heading since they perform several functions.

I. PROBLEM: WRITTEN LANGUAGE DIFFICULTIES

➤ **HIGH TECH OPTIONS**



Individuals with written language difficulties may have problems with grammar, punctuation, spelling, organization, and coherence. Computer-based programs can simplify the pre-writing and revision process using the following technologies:

- A. PORTABLE KEY BOARDS**
- B. SPELLING CHECKERS, DICTIONARIES**
- C. TALKING WORD PROCESSOR SOFTWARE**
- D. WORD PREDICTION SOFTWARE**
- E. SPEECH RECOGNITION SOFTWARE**
- F. BRAINSTORMING /OUTLINING PROGRAMS**
- G. SPEECH SYNTHESIZER**



A. PORTABLE/ALTERNATE KEYBOARDS

Portable keyboards are lightweight and easy to transport. They can be used, in place of computers, to take notes, complete writing assignments, or practice keyboarding. These devices are helpful for individuals who have good keyboarding skills. Individuals who experience difficulty in keyboarding/typing may find **alternate keyboards** helpful.

Product: **AlphaSmart 3000 (Compatible with Mac or PC)**

Vendor: **AlphaSmart, Inc.**

Website: <http://www.alphasmart.com/>

- Portable, lightweight word processor
- Allows you to enter and add text, then send it to any computer for formatting or directly to a printer
- Files are already saved when the keyboard is turned on

Product: **DreamWriter Portable Writing Aids (Compatible with Mac or PC)**

Vendor: **DreamWriter**

Website: <http://www.dreamwriter.co.uk/>

- Simple, affordable, lightweight portable computers that allow you to enter text directly, format, edit, and then send directly to a printer
- Contains spell checkers, thesauri, and keyboarding tutors
- Perfect for note-taking
- Optional transfer to desktop computers for further text enhancement

Product: **Intellikeys (Alternate Keyboard-Compatible with Mac or PC)**

Vendor: **Intellitools**

Website: <http://www.intellitools.com/>

- Programmable alternate keyboard that plugs into any Macintosh or Windows computer
- Enables students with physical, visual, or cognitive disabilities to easily type, enter numbers, navigate on-screen displays, and execute menu commands
- Available in a Classic and a USB version (The USB version model is Windows 2000 compatible)



B. SPELLING CHECKERS, DICTIONARIES, THESAURUSES **(Stand-Alone)**



Spell checkers are part of most word-processing programs and also available as stand-alone desktop and pocket-size devices. Spell checkers do not alert for inappropriately used words. Some devices will verify and correct the spelling on a small screen. If the word is spelled correctly, it will not be flagged. Others offer a complete dictionary and thesaurus. Other devices actually “speak” the words.

Product: **Franklin Learning Resources Product Line**

Vendor: **Franklin Electronic Publishers**

Website: <http://www.franklin.com/>

- Features a variety of hand-held electronic dictionaries and thesauri based on either the American Heritage or Merriam-Webster Dictionary in English and in many foreign languages
- Convenient access to over 100,000 words, 30,000 definitions, 500,000 thesaurus entries word lists, phonetic spell checkers

Product: **Quicktionary Reading Pen**
Vendor: **Wizcom Technologies, Inc.**
Website: <http://www.wizcomtech.com/>

- **Quicktionary II** is a hand-held, pen shaped scanner that translates words in seconds. The user glides the pen over a word or line of text, and the translation and definition appears in the display window.
- Its small size makes it completely portable. It is designed for users with reading or learning disabilities, such as dyslexia.
- Provides a definition of the scanned word or line of text. The product's miniaturized text-to-speech technology enables reading both the words and definition aloud. Individual words are enlarged on the display and may be spelled out, or broken into syllables.

Product: **Webster's Spelling Corrector Plus**
Vendor: **Franklin Electronic Publishers**
Website: <http://www.franklin.com/>

- Portable electronic spelling corrector
- Phonetic spell correction for over 110,000 words
- Provides short definitions for words that sound alike but are spelled differently, and use of *key to list word matches
- Features 30,000 definitions and spelling corrections for 100,000 words
- Designed to handle phonetic errors such as "nahlej" for "knowledge"

Product: **Franklin LM6000b Speaking Language Master**
Vendor: **Franklin Electronic Publishers**
Website: <http://www.franklin.com/>

- English speaking dictionary
- 130,000 words, 300,000 definitions, 500,000 thesaurus entries
- ClariSpeech for words and definitions, phonetic spell correction, grammar guide, 12 word games, learning exercises

Product: **Speaking Homework Wiz™**
Vendor: **Franklin Electronic Publishers**
Website: <http://www.franklin.com/>

- Shows how to write an assigned word, providing an instant penmanship lesson on any letter or word, in manuscript or cursive style
- Also includes four built-in word games, a User List for homework assignments, and automatic shut-off to save battery life.
- Answers the question, "How can I look it up if I don't know how to spell it? In addition it pronounces all words and definitions.
- Requires 4 AAA batteries.

Product: **KeySpell**

Vendor: **Words Worldwide, Ltd.**

Website: <http://www.keyspell.com/>

- Spell-checker which works as a stand alone product, with speech recognition programs, and alongside Microsoft® Word™, it provides aid for early learners and those with literacy difficulties, helping them to understand how words are spelled, how they sound and the context in which they should be used.
- For problems caused by dyslexia, words like 'elephant' for example, can still be found when misspelled with a consonant ('lefamt').
- 250,000 word vocabulary

Product: **Type and Talk (Mac/Windows)**

Vendor: textHELP Systems Ltd

Website: <http://www.texthelp.com/>

- Flexible educational word-processing program that makes writing easier
- Speech reads each letter, word, sentence, or paragraph with color highlighting providing audio-visual feedback
- Helps develop recognition of new words and vocabulary
- Additional features include spellchecker, homophone support, word prediction, thesaurus, and word wizard



C. TALKING WORD PROCESSOR SOFTWARE



Talking word processors enable the user to hear text spoken aloud on a computer screen. Hearing a computerized or "synthetic" voice enables them to review written text that may assist in detecting writing errors e.g., in grammar and omitted words.

Product: **Write Outloud (Mac/Windows)**

Vendor: Don Johnston, Inc.

Website: <http://www.donjohnston.com/>

- Simple, powerful, beginning writing tool for people who need speech integrated with writing
- Program reads each word aloud as the student types the information. Can also read any electronic text.

Product: **Type and Talk (Mac/Windows)**

Vendor: **textHELP Systems Ltd.**

Website: <http://www.texthelp.com/>

- Flexible educational word-processing program that makes writing easier
- Speech reads each letter, word, sentence, or paragraph with color highlighting providing audio-visual feedback
- Helps develop recognition of new words and vocabulary
- Additional features include spellchecker, homophone support, word prediction, thesaurus, and word wizard

Product: **WordSmith (For Windows)**

Vendor: **textHELP Systems Ltd.**

Website: <http://www.texthelp.com/>

- Additional toolbar supporting students with LD, for use with Word 97/2000XP
- Features scanning, speech, spelling, homophone support, word prediction, thesaurus, word wizard, a pronunciation tutor and BrowseAloud (an add-in for Internet Explorer allowing web pages to be read with highlighting in page)
- Appears in the 2000 Florida Educational Software Catalog and nominated for inclusion by the Florida Department of Education

Product: **Read and Write (v.6) (For Windows)**

Vendor: **textHELP Systems Ltd.**

Website: <http://www.texthelp.com/>

- An application toolbar that works with any Windows-based application
- Can be used with word processors, databases, email, and the Internet.
- Features speech, spell checking, homophone support, word prediction, dictionary, simple calculator, word wizard, and Teacher's Toolkit.
- Highlights and reads the words, sentences, and paragraphs in your document providing audio-visual reinforcement, and develops recognition of new words and vocabulary.

Product: **Read and Write (v.6) GOLD (For Windows)**

Vendor: **textHELP Systems Ltd.**

Website: <http://www.texthelp.com>

- Upgraded version with RealSpeak voice providing the most human-sounding voice available today
- Scans any document into Word or other major word processing program. Has option to scan any text document into Internet Explorer.
- Other features include word prediction, dictionary, speech maker, fact finder, speech input, simple and scientific calculator, word wizard, pronunciation tutor, and Teacher's Toolkit.
- Adds spoken voice and visual highlighting to electronic text.
- ULTimate Reader provides highly flexible reading tracking and reading support.
- Excellent tool for those with learning disabilities, low reading competencies, English as a Second Language, blindness, low vision, and some mobility challenges



D. WORD PREDICTION SOFTWARE



Word prediction software programs work together with word processors to “predict” the word a user wants to enter into the computer. The user types the first letter of the word and the program offers a list of words beginning with that letter. If the desired word does not appear, the user types in another letter until it does appear. Predictions are based on syntax and spelling, as well as word frequency. Word prediction software may help individuals who have difficulty with keyboarding, spelling, or grammar, or coming up with the appropriate word to use in the sentence.

Product: **Type and Talk (Mac/Windows)**

Vendor: **textHELP Systems Ltd.**

Website: <http://www.texthelp.com/>

- Flexible educational word-processing program that makes writing easier
- Speech reads each letter, word, sentence, or paragraph with color highlighting providing audio-visual feedback.
- Helps develop recognition of new words and vocabulary
- Additional features include spellchecker, homophone support, word prediction, thesaurus, and word wizard.

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- Upgraded version with RealSpeak voice providing the most human-sounding voice available today
- Scans any document into Word or other major word processing program. Also has option to scan any text document into Internet Explorer.
- Other features include word prediction, dictionary, speech maker, fact finder, speech input, simple and scientific calculator, word wizard, pronunciation tutor, and Teacher's Toolkit.

Product: **Co-Writer (Mac/Windows)**

Vendor: **Don Johnston, Inc.**

Website: <http://www.donjohnston.com/>

- Intelligent word prediction software that works with any writing software on the Macintosh
- Very useful as a starting point for individuals experiencing writing problems

Product: **Aurora 3 (Windows)**

Vendor: **Aurora Systems Inc.**

Website: <http://www.aurora-systems.com/pf/learning.html>

- Complete software system features word prediction, type and talk, speech, verbal feedback, and composition and spelling assistance
- Helps people with LD improve their ability to write and spell
- Helps slow typists or those who tire easily
- Helps people with speech impairments by making conversation as well as public speaking quick and easy



E.

SPEECH RECOGNITION SOFTWARE

Speech recognition systems allow a person to operate a computer by speaking to it. In combination with a word processor, the user dictates to the system (through a microphone), and the spoken words are converted to text on the computer screen. The more the system is used, the more accurate it becomes in recognizing the user's spoken language. Speech recognition systems may be helpful to individuals who have better oral language than written language skills.

Product: **Kurzweil Voice**

Vendor: **Kurzweil Applied Technology**

Website: <http://www.voicerecognition.com/kurzweil/voicedes.html>

- A general purpose dictation product which enables users to create written documents by speaking one word at a time to their personal computer
- This product is particularly popular with people who have a disability in the use of their hands.

Product: **Dragon Dictate Naturally Speaking**

Vendor: **Dragon Systems**

Website: <http://www.dragonsys.com/>

- Turns speech into text
- Users can dictate into virtually any windows-based application at speeds up to 160 words per minute and achieve higher levels of accuracy than ever.

Product: **IBM Voice Type ViaVoice (MAC or PC)**

Vendor: **International Business Machines Corp., Special Needs Systems**

Website: <http://www-3.ibm.com/software/speech/>

- Simply talk to your computer and your computer types for you. IBM ViaVoice provides a complete set of product offerings on the Mac OS X platform, as ViaVoice.
- Both beginners at speech recognition on the Mac and experienced voice recognition users can use ViaVoice on Apple's Mac OS X operating system.
- The ViaVoice for Windows offers features designed to make setup, dictation, and voice navigation easy and accurate.



F. BRAINSTORMING/OUTLINING PROGRAMS



Brainstorming and outlining programs enable the user to create a diagram of their ideas before writing an outline. The user first types in a main idea. Geometric shapes represent related ideas. Pictures may be inserted into the diagram as well. After the diagram is completed, it can be automatically changed into an outline. Some individuals who have difficulty in expressing their ideas in writing may find this free-form graphic approach more helpful than text-based outlining.

Outlining programs help the user who has difficulty getting what they want done on paper. They create outlines by using Roman numerals for major headings and letters and numbers for subtopics.

Product: Inspiration

Vendor: Inspiration Software, Inc.

Website: <http://www.inspiration.com/>

- Inspiration strengthens critical thinking, comprehension, and writing across the curriculum, in [language arts](#), [science](#), [social studies](#), and anytime your students need to structure research or other thought processes.
- This software can be used for brainstorming, webbing, diagramming, planning, critical thinking, concept mapping, organizing, and outlining.



G. SPEECH SYNTHESIZER



Together with screen review software, speech synthesizers enable the user to hear text on a computer screen spoken aloud in a synthetic or computerized voice. Hearing text may allow the user to detect writing errors. Listening to text may also help users determine whether their writing makes sense and reflects what they really want to say. Speech synthesis may be helpful to individuals who are better listeners than learners.

Product: Keynote Gold Products

Vendor: Pulse Data International, Ltd.

Website: http://www.pulsedata.co.nz/Resources/software_downloads.asp

- Keynote GOLD speech synthesizers are high quality, designed for pronunciation accuracy, clarity, and intelligibility at fast speeds.
- Text-to-speech conversion specifically designed to cope with the inconsistencies of the English language.
- Three models are available: **Keynote GOLD SA** - external stand-alone, **Keynote GOLD VoiceCard** - PCMCIA Type II card for notebook computers, and **Keynote Companion** - Personal Organizer, also functions as an external synthesizer.

Product: DECTalk Software ® Products

Vendor: Fonix Corporation

Website: <http://www.fonix.com/products/dectalk/products.php>

- DECTalk® text-to-speech technology transforms ordinary text into natural-sounding, highly intelligible speech.
- It provides a high level of speech quality and accuracy, producing clear, correct pronunciation of single characters, words, phrases, and proper names, and offers personalized voices.
- DECTalk includes [DECTalk Software for Windows 95/98/NT/2000, Windows CE, and Linux](#)
- DECTalk is also available embedded in the [DECTalk Express](#), a self-contained portable unit that connects to a serial connector on a PC. Board-only versions of these are available for OEM applications.

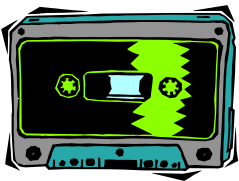
I. PROBLEM: WRITTEN LANGUAGE DIFFICULTIES



➤ LOW TECH OPTIONS

Not all assistive technology tools are “high tech” solutions requiring computers. There are many “low tech” tools that are less expensive and more readily available to help struggling writers. These include highlighters, highlighting tape, pencil grips, slant boards, and specialized paper such as carbonless copy paper, raised line paper, and raised line graph paper, the latter available through Florida Instructional Materials Center for the Visually Impaired (FIMCVI) in Tampa, FL at <http://www.fimcvi.org/> or Pocket Full of Therapy at <http://www.pfot.com/toc.htm>.

II. PROBLEM: READING DIFFICULTIES



Individuals with disabilities may have difficulty with understanding what they read. This stems from an inability to decode or comprehend written information due to an information processing disorder. Some of the most effective approaches take a multi-sensory approach that uses other sensory modes, such as hearing and sight, to assist individuals who have visual or auditory processing deficits. Many of these devices were originally developed for individuals with visual impairments. They include entering text with a scanner, reading back text as words are highlighted, using tapes, magnifying text and font, and providing materials through audiotape, videotape, and videodisc, CD-ROMs, and the Internet. Some of the most frequently used technologies for reading include:

- A. OPTICAL CHARACTER RECOGNITION**
- B. SCREEN READING SOFTWARE**
- C. RECORDED BOOKS**
- D. VARIABLE SPEECH CONTROL TAPE RECORDERS**
- E. SCREEN MAGNIFICATION**



A. OPTICAL CHARACTER RECOGNITION



Along with a scanner, the OCR enables the user to input “hard copy” text directly into a computer, which can then be read back-out loud - by means of the speech synthesizer. These systems are particularly helpful to individuals who experience difficulty in reading printed words and can better understand what they hear than what they read.

Product: **WYNN Reading System**

Vendor: **Freedom Scientific LSG**

Website: <http://www.freedomscientific.com/>

- Uses a PC computer, its own reading and OCR software, and a scanner to provide reading, writing, and study tool.
- Available as WYNN Wizard (scan and read) and WYNN Reader (read only)
- Includes text-to-speech software

Product: **Kurzweil 3000**

Vendor: **Kurzweil Educational Systems**

Website: <http://kurzweiledu.com/>

- A scanning, reading and writing solution for people with learning disabilities or reading difficulties
- There are two versions - one for the Windows® environment and one for the Macintosh
- Also available in a read only format (no scanning)

Product: **Omnipage Pro 12 and Textbridge Pro 11**

Vendor: **ScanSoft, Inc.**

Website: <http://www.scansoft.com/omnipage/>

- When loaded on a computer, **Omnipage Pro 12** works with a scanner to translate letters and numerals of a book page or document.
- Mac and PC versions are available.
- Turns information into electronic documents.
- Turns PDF files into editable documents - with retained layout.
- Turns printed pages into electronic documents.
- Has spreadsheet and table recognition and is Windows XP compatible.

Product: **Quicktionary Reading Pen II**
Vendor: **Wizcom Technologies, Inc.**
Website: <http://www.wizcomtech.com/>

- **Quicktionary II** is a hand-held, pen shaped scanner that translates words in seconds. The user glides the pen over a word or line of text, and the translation and definition appears in the display window.
- Its small size makes it completely portable. It is designed for users with reading or learning disabilities, such as dyslexia.
- Provides a definition of the scanned word or line of text. The product's miniaturized text-to-speech technology enables reading both the words and definition aloud. Individual words are enlarged on the display and may be spelled out, or broken into syllables.



B. SCREEN READING SOFTWARE



Screen reading software enables the user to hear text on a computer screen spoken aloud through a synthesizer device installed inside or outside the computer. It helps with reading tracking, and support is especially helpful to individuals who are better listeners than readers.

Product: **CAST eReader (Mac and Windows)**
Vendor: **Center for Applied Special Technology (CAST)**
Website: <http://www.cast.org/>

- Digital text reader, which adds spoken voice and visual highlighting to electronic text
- ULTimate Reader provides highly flexible reading tracking and reading support
- Excellent tool for those with learning disabilities, low reading competencies, English as a Second Language, blindness, low vision, and some mobility challenges

Product: **JAWS (For Windows)**
Vendor: **Freedom Scientific**
Website: <http://www.freedomscientific.com/>

- Highly regarded screen reading technology that allows blind and low vision computer users to navigate and operate in the Windows environment using most of today's applications
- Screen reading program enables user to navigate the Internet, read tables and forms, use spreadsheets and word processors
- Assists adults with reading problems by working through their auditory channel

Product: **OutSPOKEN 3.0 Solo (For Mac/Windows)**

Vendor: **ALVA Access Group, Inc.**

Website: <http://www.aagi.com/>

- Announces virtually everything on the screen with a powerful, easy-to-learn navigation tool which eliminates the use of the mouse
- Automatically reads message boxes and warning dialogs
- Reads by line, word, character, column, window, or by document, and selected or highlighted text
- outSPOKEN Solo 3.0 is a speech-only package; Ensemble 3.0 is intended for users with a Braille display.

Product: **Aurora 3 (Windows)**

Vendor: **Aurora Systems Inc.**

Website: <http://www.aurora-systems.com/pf/learning.html>

- Complete software system features word prediction, type and talk, speech, verbal feedback, and composition and spelling assistance
- Helps people with LD improve their ability to write and spell
- Helps slow typists or those who tire easily
- Helps people with speech impairments by making conversation as well as public speaking quick and easy

Product: **Microsoft Reader for Windows**

Vendor: **Microsoft**

Website: <http://www.microsoft.com/reader/default.asp>

- Reads and enhances text with ability to include highlighting, notes and bookmarking and drawing. Works great with ebooks as well.



C.

RECORDED & E-BOOKS



Tape recorders can be used to play back audiotaped text. People with reading difficulties can work around their problems by listening to pre-recorded text rather than reading the hard copy. Text on tape and/or computer disk is available from a number of resources. E-books provide access to digitized books on the Internet.

Vendor: **Library of Congress National Library Service (NLS) for the Blind and Physically Handicapped, Washington, DC**

Website: <http://www.lcweb.loc.gov/nls/>

Product: **Book Manager - Books on Disk/Books on Tape also available**

Vendor: **Recordings for the Blind and Dyslexic, Inc. (RFB&D)
Princeton, NJ**

Website: <http://www.rfbd.org/>

Vendor: American Printing House for the Blind, Louisville, KY
Website: <http://www.aph.org/>

Website: <http://www.ebooks.com/> a digital bookstore

- Download published e-books on the web



D. VARIABLE SPEECH CONTROL TAPE RECORDERS



Variable speech control tape recorders (VSC) enable the listener to play back audiotaped text, either two- or four-track format, at rates that are faster or slower than originally recorded, without a loss of intelligibility. This would be useful for individuals who are better able to understand spoken language (audio-taped text), when it is spoken more slowly, or for others, when the rate of speech is increased.

Product: **Handi-Cassette II (Desktop or Handheld)**

Vendor: American Printing House for the Blind, Louisville, KY

Website: <http://www.aph.org/>

http://www.aph.org/catalogs/pdf/adult2002/adult03_07_11.pdf

- Small, portable walk-about unit with digital pitch control that does not distort the pitch as you adjust the speed of the tape
- Play and record on 2- and 4-track tapes at 1 7/8 inches per second or 15/16 ips (Talking Book speed)



E. SCREEN MAGNIFICATION



Screen magnification hardware and software can enlarge and enhance the text and graphics for those individuals who have difficulty visually processing standard print.

Product: **ZoomText 8.0**

Vendor: **AI Squared**

Website: <http://www.aisquared.com/>

- Advanced Screen Magnification for vision impaired computer users
- Magnifies all Windows apps, from 2x to 16x
- Color inverting for improved contrast
- Intelligent tracking keep points of interest in view

Product: **CloseView**

Vendor: **MacIntosh**

Website: <http://www.apple.com/disability/easyaccess.html>

- CloseView is a screen enlarger. It magnifies all screen images (including text, graphics, menu bar, and the mouse cursor) up to 16 times the normal size.
- CloseView can inverse the Macintosh display (so that text appears white on a black background instead of vice-versa). These features are used most often by individuals with visual impairments.

Product: MAGic 8.0

Vendor: Freedom Scientific

Website: <http://www.freedomscientific.com/>

- Provides 2x - 16x the magnification for Windows
- Use magnification and speech together or independently
- Use "Say All" to read documents with the words being highlighted as they are spoken
- Magnification automatically tracks your cursor and mouse to keep your point of focus
- Speech module is optional

Product: Prisma Color Video Magnifier

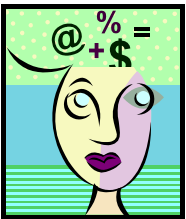
Vendor: Ash Technologies Ltd.

Website: <http://www.ashtech.ie/site1/prisma.htm>

- "Value-priced" CCTV camera featuring reading, writing, and color viewing magnification
- Magnification is between 4x - 35x on a 14" monitor and 6x - 50x on a 20" monitor
- Connects to most TV or PC Monitors
- Lightweight, portable, and collapsible (weighs under 3 pounds)

III. PROBLEM: MATH DIFFICULTIES

➤ HIGH/LOW TECH OPTIONS



The technology for remediating and accommodating persons with math disabilities has not developed as rapidly as the technology for reading and writing. The limited technology available can be helpful to those who have difficulty in writing numbers down in the correct order. Using any of the following can compensate for deficits in math: Color-coding for maintaining columns, basic hand-held calculators, hand-held talking calculators, on-screen computer calculator programs, large screen displays for calculators and adding machines with paper print-out, large screen displays, big number buttons and large keypads.

Product: Big Calc

Vendor: Don Johnston, Inc.

Website: <http://www.donjohnston.com/>

- Designed with extra-large numbers, high quality speech and versatile layouts for auditory and visual reinforcement
- User-friendly program that encourages students to focus on problem-solving

Product: Full line of Talking Calculators
Vendor: LS&S Group
Website: <http://www.lssgroup.com/>

- 8- and 10-digit talking calculators

Product: Orion TI34 Scientific Talking Calculator
Vendor: ORBIT Research Products
Website: <http://www.orbitresearch.com/Products.htm>

- Only Scientific Talking Calculator approved for the Official GED Tests
- Each key is spoken when pressed.
- Lightweight and portable

IV. PROBLEM: STUDYING & ORGANIZATION INFORMATION

Personal data managers are helpful to people with organizational or memory difficulties. They are available as software packages or electronic handheld devices and are an easy way to store and retrieve information. Free-form databases are software programs that enable the user to type notes into the computer and displayed on the computer monitor. Specific notes are retrieved by typing in a small bit of information contained in the note.

Product: Palm Handheld™ (Organizer)
Vendor: Palm, Inc.
Website: <http://www.palm.com/>



- One of the most popular hand-held computers out today
- Keeps users organized with less effort. Can keep events, appointments, names and phone numbers all in one place so you'll always know where to find them.
- Small and lightweight, so you can take information with you anywhere

Product: InfoSelect (Free-form Database)
Vendor: Micro logic Corporation
Website: <http://www.miclog.com/>

- Info Select is a personal information manager that helps manage all daily information and organize all Internet data.
- InfoSELECT's outlining approach helps the user get organized quickly and easily. Just drag and drop the data into the categories created.
- Helps to gain full control over the level of detail displayed



V. PROBLEM: LISTENING DIFFICULTIES



Personal FM listening systems place a speaker's voice directly into a listener's ear by means of a small transmitter and a receiver unit. These are wireless units that make the speaker's voice more prominent, and helpful to an individual who has difficulty focusing on what the speaker is saying. The volume is controlled by a dial in the speaker unit.

Product: Easy Listener™

Vendor: Phonic Ear

Website: <http://www.phonicear.com/>

[http://www.phonicear.ca/pdfs/Phonic Ear Easy Listener Personal Spec Sheet.pdf](http://www.phonicear.ca/pdfs/Phonic_Ear_Easy_Listener_Personal_Spec_Sheet.pdf)

- Wireless FM microphone and personal receiver for use by people with auditory deficit problems or minimal to mild hearing loss
- Very easy to operate and compatible with all Phonic Ear™ transmitters and receivers
- Provides individual with amplification in large classroom settings



Prior to making accommodations, it is important for the teacher, literacy provider, or employer to be specific about 1) the functional limitations of the learning disability and 2) what it is in the learning or work situation that will be better accomplished with the help of assistive technology. It is also very important that 3) the **strengths** of the individual be weighed as well. Finally, 4) it will be very helpful to seek the assistance of an assistive technology support person or service to help assess what kind of technology would be appropriate given the environment and comfort level of the learner. Resources available to assist consumers include private vendors, publications, resources and services. Following is a list of several other well-established sources of information and services.

ASSISTIVE TECHNOLOGY COMPANIES

Note: The companies listed below are in addition to the vendors already mentioned in the previous AT Products Section.



Vendor: Assistive Technology Incorporated

Website: <http://www.assistivetech.com/>

- Serves the disability and special education markets providing software and hardware solutions for people with special needs and for the professionals who work with them. ATI's products include Gemini and Freestyle™ AAC device/computers, the LINK™, the "smart" keyboard, and EvaluWare™ software.

Vendor: Infogrip

Website: http://www.infogrip.com/category_view.asp?option=keyboard

- Develops and markets products that give people with health impairments more productive ways to interact with computers
- Product catalog has a full range of portable word processors, switches, and keypads

Vendor: Metroplex Voice Computing

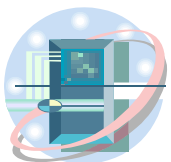
Website: <http://www.mathtalk.com/>

- Leader in speech recognition math
- Company provides training, customized programming, and workshops and seminars on speech recognition, including a voice-activated, on-screen math computing software system. "Mathtalk," designed to not need the keyboard or mouse

Vendor: Premier Assistive Technology, Inc

Website: <http://www.premier-programming.com/>

- Products address reading and information transfer needs for individuals with visual and mobility challenges. Products include: Scan & Read Lite®, Scan & Read Pro®, Text-to-Audio®, Talking Word Processor®, Text Cloner®, Text Cloner Pro®, Talking Calculator®, Scan and View®, *Complete Reading System*®, Universal Reader®, OFF Limits® The Talking Web Browser®, and PDF Magic®.
- Scan to Read, Text Cloner, and DocRead are free software.
- Complete Reading System is a program that has full voicing, reads menu items, existing test files from other applications, or scans and reads new materials with their OCR software.



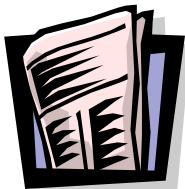
Vendor: Telesensory Corporation
Website: <http://www.telesensory.com/>



- Produces video magnifiers (CCTVs) that are devices utilizing closed circuit television technology to enlarge written materials and small objects. This enables a person with low vision to both read and write in a highly effective manner. The display can be monochrome or full color, and the products are available in a variety of screen sizes and magnification levels.
- Many products are available in the Aladdin family of video magnifiers, including highly portable "consumer models."
- The Ovation is an easy to use, portable scanning and reading machine. No computer is necessary. The user can accurately scan and store text of any kind and convert it to adjustable audio output.

Vendor: Words+
Website: <http://www.words-plus.com/>

- Words+ features two main software programs bundled with one of several different hardware platforms options depending on the needs of the user.
- TuffTalker™ and Freedom 2000™ are computer-based communication systems which can be used by non-literate, non-English speaking individuals, or by individuals who prefer to use picture symbols to communicate.
- MessageMates are extremely rugged hand-held communication devices that allow the user to speak a variety of recorded messages simply by pressing a key. They can be used by a wide variety of users from the profoundly impaired to the highest functioning communicators.
- EZ Keys is communication software with rapid text-to-speech voice output utilizing word prediction and abbreviation expansion. Allows you to control your mouse through a single switch, Morse code, joystick, switch scanning, direct selection and more.



ASSISTIVE TECHNOLOGY PUBLICATIONS

Title: *Assistive Technology: Meeting the Needs of Adults with LD*
Website: <http://www.ldonline.org/>

- Full text article of *Meeting the Needs of Adults with Learning Disabilities*, Adrienne Riviera, LDOnline, summer 1996
- Originally a publication from the National Adult Literacy and Learning Disabilities Center, a program of the National Institute for Literacy
- Includes definitions and specific assistive technology accommodations

Title: **Assistive Technology**

Website: <http://www.ldonline.org/>

- Full text article reprinted with permission of *LDOnline* on taking the mystery out of assistive technology from "*Learning Disabilities and Assistive Technology: An Emerging Way to Touch the Future*"
- Includes assistive technology products, vendors, and product price ranges

Title: ***Closing the Gap, Inc.***

Website: <http://www.closingthegap.com/>



- Organization that focuses on computer technology and people with special needs through it's bi-monthly newspaper, annual international conference, and extensive website
- "*Closing the Gap*" is published six times a year and highlights hardware and software products appropriate for people with special needs, explains how this technology is being implemented in education, rehabilitation, and vocational settings around the world.

Title: ***The Need for Assistive Technology in Educational Technology***

Website: <http://www.aace.org/pubs/etr/issue2/cavanaugh.cfm>

- Terrence Cavanaugh, professor at University of North Florida discusses the need for developing an assistive technology course possibly delivered through distance learning.
- Published by Educational Technology Review, Vol. 10, 2002

Title: ***Assistive Technology for Students with Mild Disabilities***

Website: http://eric.syr.edu/Eric/adv_search.shtml

- Type in keyword: *Assistive Technology*. Look for Michael Behrmann's article: EDO-EC-93-12, January 1995 among others on this website
- Michael Behrmann discusses how assistive technology (low/high tech) can be applied in classroom instruction

Title: ***Empowering Rural Students with Disabilities Through Assistive Technology: Assistive Technology for Students with Learning Disabilities, 2001***

Website: <http://www.sedl.org/rural/seeds/assistivetech/atld.html>



- Published by the Southwest Educational Development Laboratory (SEDL), this article acknowledges that "*despite adequate cognitive ability, LD students' difficulties with basic skills, such as reading and writing, can prevent full participation in the classroom and later in critical adult life activities.*" However, computer technology can provide the answer for many of these students.

Title: *The Need for Assistive Technology in Educational Technology*

Website: <http://www.aace.org/pubs/etr/issue2/cavanaugh.cfm>

- In this paper by Terence Cavanaugh from the University of North Florida, definitions, services, levels of technology, and application of assistive technology concepts are discussed as they relate to education.

Title: *Computers and Software for People with Learning Disabilities*

Website: <http://www.ldresources.com/resources/>

- Describes computers and software products for people with learning disabilities. Both high and low-tech devices are listed.
- Includes essays, articles, and resource sites

Title: *Low Tech Tools for People with Learning Disabilities*

Website: http://www.ldresources.com/resources/low_tech_tools.html



- Describes a variety of low-tech tools that can make the lives of people with learning disabilities easier. Includes information on micro-cassette recorders, talking clocks, highlighter tape, post-it tape flags, and much more

Title: *Assistive Technology - More Than a Reading Tool, a Life*

Website: http://www.ldresources.com/articles/life_tool.html

- The result of a head injury, Ken Elkind had difficulty reading and writing throughout his childhood. Ken writes about his personal experiences using multi-sensory learning and gaining access to assistive technology that impacted both his school and career life.

Title: *Helpful Freeware and Shareware for Windows*

Website: http://www.ldresources.com/resources/windows_shareware.html



- Free Text to speech software such ReadPlease 2002 downloaded from <http://www.readplease.com/> and vocabulary support software like WordWeb downloaded from <http://wordweb.info/free/> are just a few of the freeware websites explored in this article by Skip Stahl.

ASSISTIVE TECHNOLOGY SERVICES & RESOURCES**Resource: ABLEDATA****Website:** <http://www.abledata.com/>

- Federally funded project designed to provide information on assistive technology and rehabilitation
- Sponsored by the National Institute on Disability and Rehabilitative Research (NIDR), which is part of the office of Special Education and Rehabilitative Services (OSERS)
- Database contains information on more than 27,000 assistive technology products including a detailed description of each product, price, and company information

Resource: Adult Literacy and New Technologies: Tools for a Lifetime**Website:** <http://www.wws.princeton.edu/cgi-bin/byteserv.prl/~ota/disk1/1993/9303/9303.PDF>

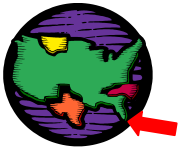
- A national study undertaken to assess the current and potential impact of technologies for literacy. It examines America's literacy problem, shows how standards and requirements for literacy have increased over time, and documents the large number of Americans in need.
- The 281-page study shows that the potential of technology for both learners and programs is not being exploited, and significant barriers inhibit wider use of technology.

Resource: Adult Literacy and Technology Network**Website:** <http://www.altn.org/techtraining/>

- The Technology Training Special Collection provides access to a variety of resources electronically. At this site you can explore resources dealing with using technology in teaching and learning, developing technology-based resources and training users on the *LINCS* system.

Resource: Alliance for Technology Access (ATA)**Website:** <http://www.ataccess.org/>

- The ATA is a national coalition of community-based resource centers that provide guided problem-solving technical assistance for persons with disabilities.
- The mission of ATA is to connect children and adults with disabilities to technological tools. It now reaches over 3,000 people with disabilities and their families a year and provides an extensive resource library.

Resource: ATEN: Assistive Technology Educational Network**Website:** <http://www.nefec.org/aten/aten.asp>

- Through its 5 regional centers located around the state, ATEN provides services to students (from K-adult), family members, teachers, and other professionals within the state of Florida.
- Services include providing information and resources related to assistive technology, offering a variety of workshops that provide hands-on exploration of assistive devices, and collaborating with educational AT specialists to gain their expertise on assistive devices.

Resource: Center for Applied Special Technology (CAST)**Website:** <http://www.cast.org/>

- CAST is an educational, non-for-profit organization that uses innovative technology to expand all opportunities for all people, including those with disabilities. CAST develops AT and serves as a consultant for various hardware and software manufacturers.
- Instruction and training services are provided to teachers and other professionals at workshops and presentations nationwide.

Resource: Center for Sight and Hearing**Website:** http://www.mcpc.org/pdf/2_22_02ATHandbook.pdf

Handbook that provides information on services and products for people experiencing a vision and/or hearing loss. Sponsored by the Midwest ccess Center.

Website: <http://www.cac.org/>

- A non-profit organization serving children and adults with disabilities
- Developed to help parents and professionals who have easy access to, and an increased awareness, understanding, and implementation of assistive technology for individuals with disabilities

Resource: Descriptive Video Service**Website:** <http://main.wgbh.org/wgbh/access/>

- A national service that makes visual media accessible to people with disabilities

Resource: Education Development Center**Website:** <http://www2.edc.org/NCIP/vr/toc.html>

- Produces *Speaking to Write*, a speech recognition software forum sponsored by the Education Development Center, Inc. (EDC, together with the Communication Enhancer Center, Inc. at Children's Hospital, Boston.) This three-year project was launched to explore the use of speech recognition software for writing by secondary students with disabilities.

Resource: Florida Alliance for Assistive Services and Technology (FAAST)

Website: <http://www.faast.org/>



- FAAST is a private not for profit corporation. 51% of the Board membership is composed of persons with a disability or a family member of a person with a disability. FAAST works with consumers, family members, caregivers, providers, and agencies to ensure that individuals continue to benefit from assistive technology as they move between home, school, work, and community.

Resource: Florida Instructional Materials Center for the Visually Impaired (FIMC)

Website: <http://www.fimcvi.org/>



- FIMCVI is a state-wide resource designed to assist schools in obtaining specialized materials for students with visual impairments.
- FIMCVI serves students with visual impairments enrolled in Florida's public and private schools and teachers in those schools, both exceptional student educators and regular educators, who work with visually impaired students.
- There is no charge for any services offered by FIMCVI. Materials are produced by the Center staff, prepared by certified volunteer transcribers, and/or purchased by the Center. These materials are then loaned to schools within Florida.
- Consultation and training are also provide to instructional personnel throughout the State at no charge.

Resource: Rehabilitation Engineering and Assistive Technology Society of NA

Website: <http://www.resna.org/reshome.htm>

- **RESNA** is an interdisciplinary association of people with a common interest in technology and disability whose purpose is to improve the potential of people with disabilities to achieve their goals through the use of technology.
- They serve that purpose by promoting research, education, advocacy, development, the provision of technology, and by supporting the people engaged in these activities.

Resource: Rehabtool.com

Website: <http://www.rehabtool.com/>

- Offers a variety of high-tech assistive and adaptive technology, primarily augmentative and alternative communication devices, computer access equipment, multilingual speech synthesis, and voice recognition software
- Visitors may conduct a personal product search or subscribe to their newsletter.



Resource: Schwab Learning Organization

Website: <http://www.schwablearning.org/>

- Describes high/low assistive technology used to accommodate individuals with learning disabilities

Resource: Technology and Media Division (TAM)

Website: <http://www.tamcec.org/>

- TAM is the official division of The Council for Exceptional Children (CEC) that works to promote the availability and effective use of technology and media for individuals with disabilities who are gifted.

Resource: Trafford Center for Technology and Learning Disabilities (CTLTD) at the Frostig Center

Website: <http://www.frostig.org/technology/tctld.htm>



- The CTLTD at The Frostig Center was founded in 1992 and is the nation's first technology center devoted exclusively to persons with learning disabilities. This program assesses and trains individuals for their assistive technology needs, trains professionals to use the technology, and conducts research to evaluate assistive technologies and their benefits to persons with learning disabilities.

Note:

Please contact RKenyon721@aol.com if any of the hyperlinks are broken.

Updated May 28, 2003