Assistive Technology and Learning Disabilities

The Individual with Disability Education Act (IDEA) 2004 is the federal law that guides how schools provide special education and related services to children with disabilities. IDEA defines a learning disability as

". . . a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia."

Learning disabilities do not include, "...learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage." 34 Code of Federal Regulations §300.8(c)(10)

One student with learning disabilities may not have the same kind of learning problems as another. One student may have difficulty understanding what he/she just read. Another student with learning disabilities may have problems with math and writing. Still another student may have trouble in all three areas.

Researchers think that learning disabilities are caused by differences in how a person's brain works and how it processes information. Students with learning disabilities are not "dumb" or "lazy." In fact, they usually have average or above average intelligence. Parents and teachers may find it hard to understand a student who shows a large discrepancy between skills. A student may have reading skills above grade level, but have great difficulty with ready comprehension. The student's brain just processes information differently.

There is no "cure" for learning disabilities. Students can be high achievers and can be taught ways to compensate for a learning disability. Assistive technology can be a means for students with learning disabilities to be successful learners.

Some students have overlapping difficulties and others may have a single, isolated problem. Students with learning disabilities may also have mobility or sensory impairments. Often people with Attention Deficit Disorder/Attention Deficit Hyperactive Disorder (ADD/ADHD) also have learning disabilities.

What can assistive technology do?

With personal effort, support from others and appropriate tools (such as assistive technology), students with learning disabilities can be more successful in school, at home, and at work. When considering assistive technology in any situation, the focus should be on what the device or software does for a person, not on the device or technology itself. Assistive technology is only a support to "get the job done" more independently. It can reduce a student's reliance on parents, siblings, friends and teachers, helping the transition into adulthood, fostering self-esteem and reducing anxiety.

Assistive technology can support both compensatory and remedial approaches for a student. A compensatory approach might be when a student listens to a digital version of the book for English class to answer questions about it, with the goal of bypassing a reading problem, not of learning how to read. If the student listens to the book or has a computer reading a scanned or digital version of the book while following along with the text and trying to learn unfamiliar words, this would be a remedial approach, designed to improve areas of deficiency. Both approaches have value. Using only the remedial approach (sometimes with little benefit) can lead to burnout. Discouraged students benefit more from more immediate solutions to particular problems. For example, it may be best to give up the goal of learning to spell, in favor of using a "spell check," so that a student can focus on getting thoughts on paper and not mechanical details that can become overwhelming barriers to self-expression.

Christopher Lee, Director of Georgia's Assistive Technology Project "Tools for Life," knows first-hand about learning disabilities. In his junior year in college he discovered computers. "I loved the keyboard; it took away that dreaded piece of dead wood—the pencil," he says. "The keyboard was tactile; I could feel it, I could connect letters with physical action." Letters on a computer monitor appear much clearer to him than when he writes them on paper. Spelling checkers cleaned up his frequent misspellings, and grammar checkers flagged muddled word distinctions. "The computer made a huge difference in my ability to learn," he says.

Christopher Lee also describes the essential issues surrounding math problems. "Math difficulties can be a challenge to remediate and/or accommodate. Many students with disabilities have histories of academic failure that contribute to the development of learned helplessness in math. Students may practice computing division facts but do not understand what division means. This lack of understanding fosters the student's dependency on the teacher and promotes the belief that external help is needed to solve problems correctly. People with LD who have math problems usually have visual perception difficulties that affect their ability to see likenesses and differences in shape and form. Because math symbols represent a way to express numerical language concepts, language skills become very important to math achievement. Many students with learning disabilities have reading difficulties that interfere with their ability to solve word problems. The fear of failure and low self-esteem cause students to become so tense that their ability to solve problems and to learn or apply math concepts is impaired. Confused thinking, disorganization, avoidance behavior and math phobia are common results."

Georgia's "Tools for Life" has excellent LD resources on their website http://www.gatfl.org/LearningDisabilitiesGuide.aspx.

What assistive technology tools are available?

Described below are the most common devices and software used by students with learning disabilities. Many of these programs have free trial or downloads from the Internet.

Generally, computers, tablets and handheld devices can be very useful for students with disabilities because they cut out distractions, decrease the stress of stimuli and leave more of a student's brain for thinking. Use of a keyboard may be a good alternative for the student who has a hard time with the coordination needed to produce good handwriting. Rather than agonize over improving handwriting in a losing battle, students can bypass this barrier and get right into the work itself.

Example:

MyStudyBar is a free collection of tools that help overcome common problems students experience with studying, reading and writing. The tool consists of a set of portable open source and freeware applications, assembled into one convenient package. It is effective, easy to download, and simple to use. http://eduapps.org/?page_id=7

Built-In Accessibility Options:

Apple and Microsoft include accessibility features in their products as standard features. These include magnification for people with visual impairments, on-screen keyboards, sticky keys for one-handed typing, filter keys for motor control problems, speech to text, and lots more.

Find information about specific accessibility options for the iPhone, iPad, iPod, and OS X at http://www.apple.com/accessibility/

Find information about specific accessibility options for Microsoft products at http://www.microsoft.com/enable/

When not preoccupied with the mechanical aspects of writing, students with learning disabilities are free to focus on the meaning of their written communication. They are better able to express themselves in a way that more accurately reflects their intelligence. Computers, tablets and handheld devices help a student write freely with the confidence that he/she will be easily and quickly able to make changes later. Being able to turn in a neater and better-organized document builds self-esteem in a way that may be especially important for students with learning disabilities.

Built-in word processor features are valuable tools for anyone, but can be critical to students with learning disabilities. Using spell and grammar checking can help the student stay focused on communication rather than getting bogged down in the process of trying unsuccessfully to identify and correct errors. Abbreviation expansion (macros) can be used to let the student create his/her own abbreviations for frequently used words, phrases or standard pieces of text. This saves keystrokes and the time needed to produce a document, which can be critical in keeping a student motivated to finish the task. Large print displays, alternative colors on the computer screen, and voice output can help people who have trouble interpreting visual material. Many word processing programs can provide alternative visual formats (e.g., color-coded text) to help compensate for difficulty in organizing or sequencing thoughts and ideas.

Outlining programs (included as part of many word processing programs) automatically create Roman numerals for major headings, and letters and numbers for minor headings. If the student decides to move text around, the program reorganizes the outline appropriately. This means that students are free to "dump" their ideas on the computer screen without worrying about order, levels of importance or categories, because the text can be easily moved (and automatically reorganized) at a later time. These programs may be of value to individuals who have great ideas in their heads, but have trouble getting them down on paper.

Tablets and handheld devices cost less than a computer, are durable and lightweight. Batteries are lightweight and often last longer than laptops. They can be a good alternative for students who can type well enough to use an on-screen keyboard, but for whom handwriting is not fast, neat, or functional. Some apps are typing tutorial programs or organizational programs. Other software or apps include spell checkers and word prediction, note takers, flash card makers, scientific

calculators, graph software, word challenge games, and software to make spreadsheets, construct data bases, draw or paint,.

With software and apps available in varying complexities to suit the specific needs of the student, tablets and handheld devices are very user-friendly, motivating, and require much less of a learning curve for an emergent reader and writer.

Spell Checkers and Dictionaries

Spell checkers are also available as stand-alone desktop and pocketsize tools. Stand-alone spell checkers require users to enter the word (the way they think it is spelled) on a small keyboard. Some devices simply confirm and correct the spelling on a small screen; others offer a complete dictionary and thesaurus. Other devices actually "speak" the words with a speech synthesizer, so the word can be heard as well as seen. These devices are particularly valuable because they change phonetic spelling into correctly spelled words with more accuracy spell checking software.

Examples:

- **Dictionary-Type resources -** http://dictionary.reference.com/
- **Dictionary and Thesaurus** – http://wordweb.info/
- **Franklin Electronic Publishers** spelling and reference tools - http://www.franklin.com/
- **Free Dictionaries and Thesaurus online** - http://www.cleverkeys.com/ck.html?p=home&os=
- **Game Goo** http://www.earobics.com/gamegoo/gooey.html game-based study tool
- **Google Dictionary Plugin (Chrome) -** https://chrome.google.com/webstore/detail/google-dictionary-by-goog/mgijmajocgfcbeboacabfgobmjgjcoja?utm_source=ha-en-na-us-extensions-categories-google
- **Merriam-Websters Dictionary and Thesaurus** - online spelling and thesaurus tool with voice output - http://www.merriam-webster.com/
- **Spelling City** http://www.spellingcity.com/ game-based study tool

- **Visual Thesaurus** – www.visualthesaurus.com

Text Reading and Writing (Text to Voice)

Highlighter transparency sheets are a low-tech solution that can be of great benefit to some students. Some software programs can read text on a screen (document, Web page or e-mail) aloud. If the material isn't already in electronic format, hard copy text can be scanned and converted to a text file. The computer can then read the words back using synthetic speech while simultaneously highlighting the words on screen.

Reading software can be especially helpful to those who are better listeners than readers. Reading systems can highlight a word, sentence, or paragraph using contrasting colors to add emphasis to what is being read aloud. Experiencing words with sight and hearing helps promote learning, and following the highlighted words in sequence across the page is particularly valuable to students with learning disabilities.

Reading software typically has dictionaries and a thesaurus that can be customized for particular subjects or books, so that definitions can be read aloud to the student. Some include study skills toolbars and ways to extract notes for review, summary and outlining.

Reading software can be used to help a student edit his or her typed work. Hearing the text may help the student catch writing errors such as problems with grammar, or words that have been left out, errors that might not have been noticed by visually reading it. Listening to text may also help users determine if their writing makes sense, and if it really means what they are trying to say. Hearing personal writing attempts read out loud usually inspires better editing for content as well as fluency.

Commonly Used Reading and Writing Software:

Many of these companies offer free trial downloads:
- **Adobe eBook Reader** - http://www.adobe.com/products/ebookreader/register.html
- **Balabolka** - http://www.cross-plus-a.com/balabolka.htm Free!
- **Brousealoud** - http://www.browsealoud.com/downloads.asp
- **CAST UDL Bookbuilder** - http://bookbuilder.cast.org/
- **ClaroRead** - http://www.clarosoftware.com/index.php?cPath=355
- **Dolphin Easy Reader** - http://www.yourdolphin.com/productdetail.asp?id=9 Free Demo CD
- **Don Johnston Read Outloud and Write Outloud** - http://www.donjohnston.com/product_demo/index.html
- **Kurzweil 3000** - http://www.kurzweiledu.com/kurzweil-3000-v13-windows.html
- **Microsoft Reader Software** - http://www.microsoft.com/reader/default.asp
- **Mozilla FireFox** - https://addons.mozilla.org/en-US/firefox/addon/text-to-voice/?src=userprofile Free!
- **Natural Reader** - http://www.naturalreaders.com/download.htm Free!
- **OpenBook** - http://www.freedomsci.com/fs_products/software_open.asp
- **Reading Resource** - http://www.readingresource.net/index.html
- **Reading Rockets** - http://www.readingrockets.org/
- **Readplease** - http://www.readplease.com/
- **Text Compactor** - http://textcompactor.com/
- **Text Help Read and Write Gold** - http://www.texthelp.com/North-America/our-products/readwrite
- **Word Q/Speak Q** - http://www.goqsoftware.com/products/
- **Word Talk -** http://www.wordtalk.org.uk/Download/
- **WYNN** - http://www.freedomscientific.com/LSG/products/wynn.asp

Electronic Books (E-Books)

Students with reading problems can work around their problems by listening to recorded text (books, journals, newspapers) rather than reading it from a printed page. Most public libraries and many bookstores sell books-on-CD or other media. Electronic books or "E-books" can often be read using reading software. E-books are books that are in digital format. The format typically is in a different format for a reader with a visual impairment. Sometimes the company offering e-books also provides the reading software. E-books are also available with a narrated recording of the book. Scanning hard copy print takes time. Sources for electronic text are increasing, and more web-based textbooks are becoming available. Some of these sources are listed below.

The Stockton-San Joaquin County Public Library has a large list of free e-book sites with a description of each at http://www.stockton.lib.ca.us/ebooks.htm#free.

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Other e-book sites:

- **AccessTextNetwork** – http://www.accesstext.org/
- **American Printing House for the Blind** - http://www.aph.org/
- **Blio -** http://www.blio.com/ Free
- **Bookshare -** http://www.bookshare.org/ (free for some students in K-12th grades)
- **Galaxy Library** (some free downloads) - http://www.galaxylibrary.com/
- **The Internet Public Library** - http://www.ipl.org/div/books/
- **Learning Ally-** http://www.learningally.org/
- **Library of Congress, National Library Service for the Blind and Physically Handicapped** - http://lcweb.loc.gov/nls
- **Librivox -** http://librivox.org/
- **Recording for the Blind and Dyslexic, Inc**. - http://www.rfbd.org/
- **Start-to-Finish Books** - http://www.donjohnston.com/products/start_to_finish/library/index.html
- **University of Adelaide** - http://etext.library.adelaide.edu.au/
- **University of Virginia -** http://www2.lib.virginia.edu/digitalcuration/etext.html Free

Screenreaders and Screen Magnifiers

These types of software are useful to people who are blind, visually impaired and or have learning differences. Most screenreaders can access all display content. Screenreaders speak information on menus, controls, icons, photos, graphics in addition to reading paragraph content out loud.

Microsoft Narrator is a limited screenreader found in Microsoft operating systems. The Voice Over option acts like a screenreader and is built into Mac products. Web browsers, word processors, icons and windows and email programs are just some of the applications used successfully by screen reader users.

Screenreaders can be used individually or with a screen magnifier. A screen magnifier enlarges the image on the screen up to 32 times. Most people prefer using a larger monitor when they use a screen magnifier.

Commonly Used Screenreaders and Screen Magnifiers:

- **Dolphin Supernova -** http://www.yourdolphin.co.uk/productdetail.asp?id=1
- **JAWS** - http://www.freedomsci.com/fs_products/software_jaws.asp
- **NonVisual Desktop Access for Windows** - http://www.nvda-project.org// Free
- **WindowEyes** - http://www.gwmicro.com/
- **Magic** (screen magnifier) http://www.freedomscientific.com/products/lv/magic-bl-product-page.asp
- **Readability -** http://www.readability.com/
- **Zoom Text** (screen magnifier) http://www.aisquared.com/products?gclid=COG8npSE9LACFQKEnQodCD1P8Q

Word Prediction

Word prediction programs work with word processors. They predict the word a person wants to enter into the computer. The person types the first letter of a word, and the program offers a list of words beginning with that letter. If the right word appears on the list, it can be chosen and automatically inserted into the sentence. If the right word doesn't appear, the student continues to type the next letter until it does appear. After the user chooses a word, the computer predicts the next word in the sentence. Again, it offers a list of possible words, even before the first letter is typed. Predictions are based upon the sentence content and spelling, as well as the number of times a word is used. Word prediction may be helpful to students who have trouble with spelling, grammar, or using a keyboard (by reducing the number of keystrokes needed). These programs may also help people who struggle to come up with the exact word they want to use in a sentence.

For spelling, word prediction programs can be liberating or limiting. For students who can write the first several letters of a word with relative accuracy, they are very helpful in predicting longer, more complicated words. If the word prediction program doesn't recognize phonetic similarities, it might be frustrating for a student who lacks strong sound-symbol skills. If a student doesn't like having his or her flow of writing interrupted, word prediction might not work very well. If a student has trouble with word recognition, word prediction should be used with synthesized speech. Some reading and writing software (above) include a word prediction feature.

Commonly Used Word Prediction Programs:

- **Co:Writer** - http://www.donjohnston.com/products/cowriter/index.html
- **Ginger -** http://www.gingersoftware.com/
- **Let Me Type -** http://www.clasohm.com/lmt/en/ Free
- **Typing Assistant -** http://www.sumitsoft.com/

Writing Mechanics

Alternative writing surfaces (white boards) or slant boards and alternative writing implements (magnetic letters, alphabet stamps) can make a difference. Raised line paper or pencil grips can also help with handwriting.

Example:

- **Onion Mountain** offers a collection of low and mid tech tools designed for teachers, classroom aides, and support professionals to use with students (grades K-12) who have special needs. Examples: keyboard lowercase labels, plastic writing guides, raised line paper, easy grip crayons, and pen and pencil grips. http://onionmountaintech.com/

Students who have difficulty writing notes while processing, understanding or remembering what they hear may find it helpful to record a teacher's instructions or classroom lecture. Smart Pens can be used to capture spoken information and link it to the written word. Some students find that they are able to take fewer notes when a lecture is recorded for later review. Smart Pens are used with special paper that allows the user to use the pen tip to touch any point in the notes to play the recorded audio from that point in the lecture. A variable speech control feature enables the listener to play recorded text faster or slower than it was originally recorded, without losing the actual sounds of the words. Some students understand spoken language better at a slower pace and others find that they can review material faster by speeding up the tape.

Examples:

- **Pulse Smart Pen -** http://www.livescribe.com/en-us/smartpen/index.html
- **Echo Smart Pen -** http://www.livescribe.com/en-us/smartpen/echo/

Some students find handwriting especially difficult and have illegible handwriting even after years of practice. When a student's handwriting skills are a barrier to achieving academic success, keyboarding skills are often taught.

Similar to the Smart Pens, Microsoft OneNote allows a student to record a class lecture while typing notes. After the class the student can click on any typed word in the notes to begin playing the recorded audio at that point.

Reminder: It's important to ask permission to record other people!

FlashCards/Study Aids

Flashcards are an easy and fun way to study, helping with comprehension and memory. Flashcards provide condensed information so the student can focus on the important facts and ideas. The content of books is placed into a format that is easy to read and understand. For new information to be consolidated into long-term memory, it needs to be reviewed fairly soon after it's learned. The most important information can be condensed into a small set of cards that can be reviewed rapidly, to help students store information in long term memory as well as memorize in less time.

Examples:

- AplusMath http://www.aplusmath.com/flashcards/ (pre-made)
- Funnel Brain http://www.funnelbrain.com/ (pre-made)
- ProProfs http://www.proprofs.com/flashcards/ (make your own)
- Scholastic http://teacher.scholastic.com/tools/flashcards.htm (pre-made or make your own)
- Study Stack http://www.studystack.com/flashcards (pre-made or make your own)

Concept Mapping/Software for Organizing Ideas

Using common office supplies like sticky notes, highlighter pens, or highlighter tape (which can be removed from textbooks) can help a student sort and prioritizing thoughts, ideas and concepts.

Some students have real trouble getting the great ideas "in their heads" down on paper. Brainstorming/concept mapping and outlining programs allow them to "dump" information in an unstructured way so it can be organized later, in a "free form" graphic approach. Basically, the student creates a diagram of his or her ideas before writing an outline. First, the user types a main idea into the computer. That idea is displayed on the computer screen as text or even as a picture/symbol. Then the user types in related ideas that appear in different shape such as circles, ovals or rectangles surrounding the main idea. Ideas can be linked with the main idea, or with each other, by drawing lines. Ideas are easily moved and placed into different groups. After the diagram is completed, it can be changed automatically to an outline.

For example, a student may have a vivid picture in his head about the Holocaust, but may need help. Concept mapping can help him put words on that "movie in his head."

This type of program works well for visual learners who need to see ideas mapped out – literally. It helps students who have trouble working in a purely text-based environment. It helps prevent students from getting bogged down in the details of an essay. By mapping out ideas graphically, students stay focused on the main ideas. Students who have trouble generating details to support main ideas are able to see the problem more easily.

Examples:

- **Inspiration and Kidspiration** - http://www.inspiration.com/
- **eGems Collector Pro** - http://www.egems.com/
- **DraftBuilder** - http://www.donjohnston.com/products/draft_builder/index.html
- **Bubblus** - http://bubbl.us/edit.php Free
- **Kidspiration** - http://www.inspiration.com/Freetrial
- **Inspiration** - http://www.inspiration.com/Freetrial
- **ReadWriteThink** - http://www.readwritethink.org/ Free
- **Learn Alberta** - http://www.learnalberta.ca/content/ssass/html/graphicorganizers.html
- **Thinkport** - http://www.thinkport.org/technology/template.tp
- **Great Source** - http://www.greatsource.com/iwrite/students/s_forms.html (look at list on left)
- **Scholastic** - http://teacher.scholastic.com/tools/

Speech Recognition

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. The user can speak either with pauses between words (discrete speech) or in a normal talking manner (continuous speech). The discrete product, although slower, may be the better choice for students with learning disabilities because errors can be identified as they occur. With continuous speech, making corrections after the fact requires good reading skills. Speech recognition technology requires that the user have moderately good reading comprehension to correct the program's text output. If the system incorrectly recognizes a word, the user can choose the correct word from a list of similar sounding words displayed on the screen. The more the system is used, the better it becomes at recognizing the user's spoken language. Speech recognition systems may be most helpful to students whose oral language abilities are stronger than their written language abilities. It entirely eliminates the act of spelling, as well as keyboarding or handwriting, allowing a student to focus entirely on sentence structure, rhetoric, and critical analysis.

Sophisticated systems allow a person to dictate from 40-70 words a minute. The systems eventually learn the phonetic characteristics of each person's voice. The more the system is used, the better it is able to understand the user. The success of these systems depends on the ability of the person to "train" the computer, to distinguish between a mistake in "hearing" by the computer or in "talking" by the user. The training process is intense and new users can become frustrated before getting to the point where voice input is successful. It takes patience and, for many students, consistent support from others, even several one-on-one sessions with an experienced instructor. Often a higher quality microphone works better than the one that comes with the software and it is important that the same microphone be used consistently.

Examples:

- **Dragon Naturally Speaking** - http://www.dragonsys.com
- **iListen by MacSpeech** - http://www.macspeech.com

- **Microsoft Vista & Windows 7** provides speech recognition software - http://windows.microsoft.com/en-us/windows7/Set-up-Speech-Recognition
- **ViaVoice by IBM** - http://www-4.ibm.com/software/speech

Multimedia Presentations and Creativity

These tools can combine written word, content, graphics animation and sound in an interesting, creative, visual, interactive format and presentation. Information can be presented in a variety of modalities and a simplified grammar structure, making comprehension easier for a person with limited receptive language abilities. Students can access the lessons simply with mouse, touch window, trackballs, and other simpler computer access solutions. Students can set up activities for other students, and the lessons are easily reproduced for other teachers, students, or for use at home.

Examples:

- **How to Make Books in Power Point 2007 -** http://www.setbc.org/download/LearningCentre/Access/making_accessible_books_powerpoint_2007.pdf
- **Create Your Own Microsoft Reader E-book** - http://www.microsoft.com/reader/developers/downloads/rmr.aspx

FM Listening Systems

Personal FM listening systems bring a speaker's voice directly into a listener's ear through a small transmitter unit (with a microphone), and an equally small receiver unit (with headphones or earphone). These wireless systems make the speaker's voice sound stronger, which benefits those who have difficulty focusing on what a speaker is saying. A dial on the receiver unit controls the volume.

Talking calculators

Talking calculators use a built-in speech synthesizer to speak number, symbol or operation keys as they are pressed. They also read answers from completed calculations. Hearing the numbers or symbols may help some people find input errors, such as pressing the wrong key. Also, hearing the answer aloud helps users double-check for errors that may have been made when copying numbers, such as transposing 91 for 19, or confusing a 6 with a 9.

Electronic math worksheets

These worksheets can help a student organize, align and navigate through basic math problems on a computer screen. Addition, subtraction, multiplication and division problems are entered by keyboard or mouse and automatically aligned to the correct vertical format. Numbers on the screen can be read aloud by a speech synthesizer. These software programs may be helpful for individuals who have difficulty organizing and aligning math problems with pencil and paper. Examples are given at http://www.gatfl.org/ldguide/math.htm.

Math software

Math difficulties range from mild to severe. Students experience different types of math difficulties, which require different classroom instruction, adaptations and sometimes even different methods. Some students have an excellent grasp of math concepts, but have difficulty in calculating.

Computers and software programs allow students who have trouble using traditional math tools to participate in math activities to construct and manipulate objects for counting, sorting, combining and completing related work sheets.

Examples:

- **A good summary of various math software products** for younger children: http://atto.buffalo.edu/registered/ATBasics/Curriculum/Math/curricular.php. Products from Riverdeep, IntelliTools and Nordic are described. While these programs provide good instruction for any student, they may be particularly important for students with learning disabilities who especially need repetitive visual and sound components.
- **Khan Academy** http://www.khanacademy.org/ Free! 100s of skills to practice.
- **"Your Math Buddy,"** developed by Sawmill Software is priced between $10 - $20.00 and found at http://www.sawmillsoftware.com/
- **SCATP** http://www.sc.edu/scatp/math.html
- **AplusMath** http://www.aplusmath.com/
- **Riverdeep** 30-day free trial http://web.riverdeep.net/portal/page?_pageid=820,1388022&_dad=portal&_schema=PORTAL

What are some good LD and AT resources?

Techmatrix - The National Center for Technology Innovation (NCTI) offers a Techmatrix, a "Review of Technology-Based Approaches for Reading Instruction: Tools for Researchers and Vendors." This matrix is intended to serve as a resource that matches technology tools with supporting literature on promising practices for the instruction of reading for students with disabilities. It is organized into the following areas: Mathematics, science, reading, writing, transitioning with technology, differentiating instruction through technology, multimedia, and technology implementation.
http://www.techmatrix.org/

The University of Washington's "Working Together: Computers and People with Learning Disabilities" provides a concise summary of the challenges and tools available to people with learning disabilities.
http://www.washington.edu/doit/Brochures/Technology/atpwld.html .

The University of Washington also offers a twelve-minute video demonstrating key points in this handout http://www.washington.edu/doit/Video/index.php?vid=29 .

LD OnLine provides a list of articles about LD and assistive technology.
http://www.ldonline.org/cse/?cx=018213866340234083221%3Ahh6qnz0cy2u&cof=FORID%3A10%3BNB%3A1&ie=UTF-8&q=assistive+technology

1800Wheelchairs provides a list of articles that addresses LD and assistive technology.

http://www.1800wheelchair.ca/news/post/learning-disability-resources.aspx

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