Learning Disabilities & Assistive Technology: A Consumer’s Perspective

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Georgia Assistive Technology Project, Tools for Life
Department of Labor/Georgia Vocational Rehabilitation Program/
Assistive Technology Unit
1-800-497-8665 (Georgia Only)
www.gatfl.org
Agenda

- Understanding Learning Disabilities
- Screening & Assessment
- The Self-Advocacy Connection
- Considering Assistive Technology
- Resources
Tools for Life

- Georgia’s Federal AT Act Program
  - Ga. Department of Labor/Vocational Rehabilitation
  - Developed the Georgia’s Plan for AT
  - Serves all ages & all disabilities Georgia
  - Assistive Technology Resource Centers
    - AT Loan Library (450 a month)
    - AT Evaluations & Training
    - AT Demos – Promote Choice
- ReBoot
  - Computer Reutilization (over 9,200!)
- Touch the Future & Transition Conference
  Atlanta GA – held in October 2008!!

www.gatfl.org - 12,000 visits a month
Statistics You can Digest

- 18-20% of People with LD are fully employed –
- 20-25% of People with LD are underemployed –
- 48 - 55% are unemployed or out of the work force entirely.
- Adults with LD work fewer hours -command lower wages, and earn less annually. Their median annual earnings ($10,400) are only 58.1% of the median earnings of those not having LD ($17,886)

As reported by Reder
Up to 60% of adolescents in treatment for substance abuse were found to have LD.

LD and substance abuse are the most common impediments to keeping welfare clients from becoming and remaining employed.

48% are unemployed or out of the work force entirely. (Steve Reder)

31% of adolescents with LD will be arrested 3-5 years out of high school. (Wagner 1991)

50% of females with LD will be mothers (many of them single) within 3-5 years of leaving high school. (Wagner 1991)
What Causes LD & ADHD?

- Heredity - often LD and/or ADHD run in the family.
- Problems during pregnancy and birth - LD and/or ADHD may be caused by illness or injury during or before birth. It may also be caused by drug and alcohol use during pregnancy, low birth weight, lack of oxygen and premature or prolonged labor.
- Incidents after birth - Head injuries, nutritional deprivation and exposure to toxic substances (i.e. lead) can contribute to LD and/or ADHD.

Learning disabilities are NOT caused by economic disadvantage or cultural differences.
Learning Disabilities are **NOT**:  

- Lack of Education  
- Psychological Disorders  
- Physical Disorders  
- Lack of Intelligence
What is a Learning Disability?

- A learning disability (LD) is a neurological disorder that affects the brain's ability to receive, process, store and respond to information.
- LD is not a single disorder. It is a term that refers to a group of disorders.
A learning disability is a neurological disorder. That is, it is the result of a nervous system that has been “wired” a little differently. The brain is clearly not damaged, defective, or retarded. But, in certain areas, it processes information in a different way than it is supposed to. There are other problems relating to brain function that might exist along with learning disabilities. We call these co-morbid problems.

(Larry B. Silver, M.D.)
Consider this...

Time Magazine, March 26, 2001
Blame it on the Written Word
By Unmesh Kher

- English has 1120 different spellings for ~44 phonemes
- Italian has 33 different spellings for 25 phonemes
- English is notoriously illogical
Do you know your Learning Style?

- Visual
- Auditory
- Kinesthetic/Tactile
http://appl003.lsu.edu/cas/learningjourney.nsf/StudentHome?OpenForm&ID=101023
A Holistic Approach
Why Assistive Technology?

- For a person without a disability, technology makes things easier....

- For a person with a disability, technology makes things possible.
Human Activity Technology (HAAT) Model

- **Human**: represents the *skills and abilities* of the person with a disability
- **Activity**: a set of *tasks* to be performed by the person with a disability
- **Context**: the setting or social, cultural and physical contexts that surround the *environment* in which the activity must be completed
- **Assistive Technology**: devices or strategies used to *bridge the gap* between the person’s abilities and the demands of the environment
Questions to Consider When Determining Accommodation Solutions

- What are the individual’s job duties?
- What job duties are problematic?
- Exactly what tasks do you have trouble with in the problematic area? (specific here)
- What are the neurological deficits? (medical model)
- How can this be compensated?
Promoting Strengths & Managing Weaknesses
FEAT: Technology Assessment for Learning Disabilities

- Helps educators select solutions with confidence
- Helps educators monitor progress
- Team Assessment
- Pilot Project
- Tools for Life - AT Screening Tool
Most Effective Technological Products

- Able to level out the playing field
- Work in cross-settings
- Portable
- Easy to maintain
- Affordable to replace and/or maintain
- Good and reliable technological support
- Assessable Training Format
Transparent Color Overlays

- Pull the print off the page.
- Individualized- work for some, not everyone
- Different colors either speeds up or slows down the processing
- Help with flow and timing
Low-Tech Adaptations

Reading Helper

- By Onion Mountain Tech
- Price: $2 each
- Features: Flexible reading guide with built-in color filter. This filter is easy to use and carry around and is valuable for tracking as well as color needs.

www.onionmountaintech.com
Magnifiers

- Several different types of magnifiers
- Helps pull words off the page
- Less strain on the eyes
- Magnifiers with light output can be helpful
Large Print

- Easy to read and write
- Many large print items can be purchased for a very low cost: checkbooks, rulers, board games, important forms, cookbooks, dictionaries
Four Track Tape Recorders

- Able to get a lot of information on one tape
- Portable units available
- Recording and FM/AM features
- Sound “beep” control between chapters
- Through RFB&D
Quicktionary Reading Pen

- Scan a word from text
- See the word displayed in large characters
- Hear the word read aloud
- Defines the word
- 200,000 word dictionary
- Left or right handed users
- Maximum length of scan: 32 characters
Portable Digital Audio Players

Victor Reader Wave and Victor Reader Stream
- By Humanware
- Price: Approx. $240 and $325 respectively
- Features: For storing and reading complex and highly structured DAISY formatted books, MP3’s
- supports all DAISY navigation levels, skips to a specific page and places multiple bookmarks
- www.humanware.com
Scan and Read Programs

Examples:

- Kurzweil 3000 ($1500)
- Read & Write Gold ($650)
- WYNN $1000)

- These programs contain multiple reading and writing supports.
- See Comparison Handout for features
- Very Expensive
Text Reading Programs

- Text Aloud  
  www.nextup.com
  - Cost: $30, free demo
  - Electronic text reader that will read e-text, web pages and convert e-text to MP3 recordings.

- Natural Reader  
  www.naturalreaders.com
  - Free basic version, $40-100 for advanced versions

- ReadPlease  
  www.readplease.com
  - Free basic version, does not read internet or covert to MP3
Text Reading Devices

Classmate Reader
By Humanware
Cost: $439
• Built-in Text to Speech
• Portable
• Reads and displays e-text with synchronized digital audio
• Many other study tools i.e. talking dictionary
E-Text Resources

- Bookshare
  - www.bookshare.org
  - Membership is free for students with documented disabilities, includes Victor Reader Software that will play the books on computer.

- Accessible Book Collection
  - www.accessiblebookcollection.org
Writing Tools

- Low-Tech Adaptations
- Portable Notetakers
- Digital Recorders
- Word Processing Tools
- Voice Recognition
- Organization Tools
Portable Learning Tools
Portable Word Processors
Webster’s Spelling Corrector

- Spell corrects 80,000 words
- Defines 1,700 commonly confused words
- ( * ) function
- Screen Contrast adjustment
- Spelling Games
- No auto output
- Price $17.95
Portable Notetakers

Dana, Neo
- By AlphaSmart
- [www.alphasmart.com](http://www.alphasmart.com)
- Price: $429/$225
- Platform: Mac/Win
- Dana has palm OS

Writer, Fusion
- By Advanced Keyboard
- [www.writerlearning.com](http://www.writerlearning.com)
- Price: $205/$364
- Platform: Mac/Win
- Notetaker vs. laptop
AlphaSmart
Portable Keyboards

- Compatible with Macintosh or PC
- Transfer files into any application through cable or infrared.
- Portable
- Good for practice keyboarding and word processing
Speaking Spelling & Handwriting Ace

- Pronounces and spells 80,000 words
- Handwriting Module displays correctly written manuscript and cursive letters and numbers.
Handheld Dictionaries & Spell Checkers

Miriam Webster Speaking Dictionary

- By Franklin
- Price: $79
- Features: speaking dictionary, over 300,000 definitions
- Phonetic spell correction
- Word lists
- Word games
- www.franklin.com
Writing Hand Aids

- Help with accuracy in forming letters
- Helps clean up writing
- Keeps from pushing down too hard on the writing utensil
- Writing is more consistent in tone
- Straight lines
Word Processing Tools

- **Word Prediction**
  - Co:Writer, WordQ, Read and Write Gold, WYNN, Kurzweill 3000, PenFriend

- **Text-to-Speech**
  - Write Outloud, Read and Write Gold, WYNN, Kurzweil 3000, Clicker 5

- **Phonetic Spell Check/Homophone Check**
  - Write Outloud, Read and Write Gold, WYNN, Kurzweil 3000
On-screen keyboard
Seven years of R&D
Word/sentence completion
Speech augmentation
Scanning keyboard options
Automatic window management
100+ built-in keyboards
10 built-in assessment tools
TextHELP! (Windows)
Lorien Systems NI, Ltd.
Www.loriens.com

- Screen Reader
- Talking Word Processor
- OCR option
- Reads web pages
- Word abbreviation
- Word Prediction
Read & Write

- Tool for people with reading and writing difficulties
- Works with a windows based application
- Screen reading, including menus and icons
- Advanced phonetic spell checker
Mind Mapping Software

Inspiration

- By Inspiration Software
- Price: $64
- Upgrade: $40
- Platform: Mac/Win
- Features: brainstorming, webbing, diagrams, planning, critical thinking, concept mapping, organizing, outlining

*www.inspiration.com*
Assists with the development and organization of written work such as screenplays, books, speeches and research papers.

- Helps manipulate ideas
- Electronic note cards
Voice Recognition

Dragon NaturallySpeaking
- Price: $100-1000
- Platform: Windows Only
- Consider Preferred vs. Professional
- www.nuance.com

Via Voice
- Price: $124 - $189
- Platform: Windows/Mac
- Various Editions Available
- www.nuance.com

iListen
- By MacSpeech, Inc.
- Price: $184
- Platform: Mac Only
- www.macspeech.com
Software for Academic Support
Low Tech Academic Support
Tech Tools for Math
Calculators

- Large button and display calculator
- Talking calculators
Virtual Calculator

Calcu-Scan

- By Mayer Johnson
- Price: $89
- Platform: Windows
- Virtual calculator with 10 layouts, switch, dwell, keyboard accessible, speech output, integrated math problem display and scoring
- www.mayer-johnson.com
Talking Calculator

- Visual and auditory output
- Clear display
- Large letters and buttons
- Some calculators feature additional options
Snap-On Amplifier

- For ADD/ADHD
- Provides the ability to significantly amplify the incoming portion of the telephone conversations.
- Portable
- Lightweight
Amazon Kindle 2 and Kindle DX

- Completely mobile
- Speech to text
- EInk technology
- 10 oz
- Uses Whispernet
- Thousands of books, newspapers, blogs, magazines and free books
- Long battery life
- Holds 200 titles
- Adjustable text sizes
- Highlighting and notes
- Built-in dictionary
- $359-$489
Sony Portable Reader

- Completely mobile
- Touch screen
- E Ink technology
- 15 hrs battery life
- 10 oz
- e-Book library from Google
- Built-in reading light
- Holds approx 350 books
- Adjustable text sizes
- Highlighting and notes
- Uses Sony CONNECT
- Support multiple formats
- $299-$349
COOL-ER

- Multiple colors
- Uses audio player to read books
- Mp3 player
- Built-in reading light
- Pages can be read landscape and portrait
- Multiple languages
- 6 oz
- $249

- Portable
- Largest e-book library
- Windows and Mac compatible
- EInk technology
PDA’s & Smart Phones
Palm Z22 Handheld (DANA)
- By Palm
- Price: $99
- Features: Calendar, Contacts, Tasks, Notepad, Alarm
- [www.palm.com](http://www.palm.com)
- Consider Palm vs. Pocket PC
Web Based Calendars

- Yahoo or Google
- Free/web based
- Color coding
- Text and email Alerts
- Shared calendars
<table>
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<th>Event Description</th>
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<tbody>
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<td>28 Mon</td>
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<td>ATT Conference</td>
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**Notes:**
- ATT Conference: ATT Conference
- TFL Team Meeting: TFL Team Meeting
- Star Meeting: Star Meeting
Google Earth

Google Earth lets you fly anywhere on Earth to view satellite imagery, maps, terrain, 3D buildings, from galaxies in outer space to the canyons of the ocean. You can explore rich geographical content, save your toured places, and share with others.
Jump$tart Reality Check

Jumpstart's Reality Check

Okay...we're not going to bore you with a lot of details here. Simply put: we want you to imagine how you want to live once you're on your own. What kind of car are you going to buy? Where are you going to live? Do you love to go to the movies or to the clubs every weekend? Remember, it's your life; you can do whatever you want—or can you?

Imagine the possibilities...then take our simple test. Fill in your choices and then get ready for a reality check! Chances are you'll be surprised by how much your so-called "Dream Life" is going to cost you.

Once you've taken the test, we will show you what it takes to live the life you want and what you'll need to do to get you there. We'll even give you the list of careers that support your lifestyle. Now that's cool!

Think you're ready for the challenge? Enter
Handheld AT

Blackberry - Features:

- Full color screen with Icons
- Keyboard - Backlit QWERTY
- WorldClass International handheld for travel in over 100 countries
- Internet
- Notification Methods - Tone, vibrate, on-screen or LED indicator
- Battery - Removable/rechargeable Lithium cell
- Organizer with PC synchronization
- E-mail
Voice Organizers

- Helpful for organizing, keeping and retrieving information
- Compartmentalize Sections
- Audio and/or Visual Feedback
- Portable
Message Recorders

- Dialing assistance
- Instant Playback - No Rewinding
- No Writing
- Memo Pad
- Appointment book
- Alarm-clock
- Calculator
Digital Recorders

- By Olympus
- Price: $40-$180
- Features: 3-16 hours recording, slow to fast playback speeds
- Upload files to computer
- [www.olympusamerica.com](http://www.olympusamerica.com)
WATCH MINDER
LD OnLine  or 800-961-0023

- Assist with A.D.D and LD
- Program as medication reminder
- Large Screen
- Easy to use
- $99.50
Talking Watch

- Talking Watch helps students tell accurate time
- Look for easy to read LCD display
- Alarm
- Come in many different styles
- Low in cost
Hearit

- Increased phonological awareness for all auditory input results in better focus and comprehension
- Noticeably reduces distractions - task!
Online Banking

- Check out reviews
  - www.cumsumersearch.com/online-banking/reviews
- Pay bills Online
  - Car payments
  - Cell Phones
- Automatic withdrawals
- Check balance
- Start savings
- Transfer funds
Social Networking

- Join Groups
- Create Study Groups
- Stay on top of what is going on
The estimated cost of using e-text is approximately $15.00 per book, compared to a cost of $125.00 per book using audio taping.

At nine to fifteen books per year per student, the estimated cost for 100 students a year is $112,500 to $187,500, compared to an e-text estimated cost of $13,500 to $22,500 per year.
Adjusting Accessibility Options

- **StickyKeys**: Press One Key at a Time for Key Combinations
- **FilterKeys**: Ignore Brief or Repeated Keystrokes and Slow Down the Repeat Rate
- **ToggleKeys**: Hear Tones When Pressing Certain Keys
One day, overnight, the world turned violet. Just about everything turned violet from the sky and ocean and mountains to the trees and animals and people and from the tallest skyscrapers to the tiniest ant. People sat around looking at one another wondering if they were dreaming. But nobody woke up and things stayed violet, all except for a single Blue Jay who hadn’t changed color and stayed the brightest blue. Being the only thing in the world that wasn’t violet, he was caught and put in a cage.

People were shocked. Some were afraid and some were amazed and a few thought it funny, because along with everyone else, the President was very violet. Whole families were violet as were teachers, movie stars, doctors, nurses, gas station attendants, the Queen of England, the President of Mozambique, taxi-drivers, everybody. They went from place to place in their violet cars and buses and rode violet bikes and sat on violet furniture and ate violet food. Even Hershey’s candy bars had turned all violet as had Skittles and M&M’s. Girls generally thought this yucky, but some boys thought it was pretty neat.
Resources
Important Catalog & Expo Resources

- QIAT List Serve
- Stanfield Company
- Can-Do Products
- ADHD WareHouse
- CSUN
- Closing the Gap
Job Accommodation Network

US Department of Labor’s Office of Disability Employment Policy

www.jan.wvu.edu

(i.e Writing an Accommodation Request Letter)
Other AT Resources

- Directability - [www.directability.com](http://www.directability.com)
- Alliance for Technology Access - [www.ataccess.org](http://www.ataccess.org)
- Family Center on Technology & Disability - [www.fctd.info](http://www.fctd.info)
- Closing the Gap - [www.closingthegap.com](http://www.closingthegap.com)
- Disability Linkage Line - 1-866-333-2466
- National Assistive Technology in Education Network – NATE
  - [http://natenetwork.buffalo.edu/](http://natenetwork.buffalo.edu/)
- Quality Indicators of Assistive Technology – QIAT
  - [www.qiat.org](http://www.qiat.org)
FREE Classroom Solutions!

- Adobe Acrobat Reader with Speech (v.7.x): It allows most Acrobat docs to be read out loud with variable speed and pitch. [http://www.adobe.com/products/acrobat/readstep2.html](http://www.adobe.com/products/acrobat/readstep2.html)


-sources provided by Ira School, MSU College of Edu
FREE Classroom Solutions!

FREE Classroom Solutions!

- Firefox Browser v2 with FireVox Text-To-Speech: When linked to the FireVox TTS engine, it reads. Can also install one-click dictionaries and right-click translations. 
  www.mozilla.com/en-US/firefox/ (Install Firefox) 
  www.firevox.clcworld.net/clc-4tts_bundle_v2.8_release.xpi (Install Firevox) 
  https://addons.mozilla.org/firefox/918/ (Install gTranslate) 
  www.m-w.com/downloads/firefox/index.htm (Dictionary Installs)

- Google Notebook: Allows students to grab online data, organize it, and share it- from Google Labs  http://labs.google.com

- Google Docs and Spreadsheets: Sharable (within the room or worldwide), free, word-processing and spreadsheets. 
  www.google.com/google-d-s/tour1.html (a tour with get started links)
FREE Classroom Solutions!

- Google Calendar: This calendar can even send reminder text-messages to mobile phone [www.google.com/calendar](http://www.google.com/calendar)

- Google Maps: In lots of different languages
  - [http://maps.google.com](http://maps.google.com) (US)
  - [http://maps.google.co.uk/](http://maps.google.co.uk/) (Britain/Ireland)
  - [http://maps.google.de/](http://maps.google.de/) (German)
  - [http://maps.google.fr/](http://maps.google.fr/) (French)
  - [http://maps.google.es/](http://maps.google.es/) (Spanish)

- Graph-Calc - the on-screen graphing calculator: Allows you to paste equations into notes in a word processing program [www.graphcalc.com/download.shtml](http://www.graphcalc.com/download.shtml)

- Wayfaring - map-making software: Build simple geography and history projects [www.wayfaring.com](http://www.wayfaring.com) (Sign In)
  - [www.wayfaring.com/maps/show/13492](http://www.wayfaring.com/maps/show/13492)
FREE Classroom Solutions!

- Click-N-Type- the on-screen, programmable keyboard: Shows upper and lower case letter to struggling writers and runs in many languages [www.lakefolks.org/cnt/](http://www.lakefolks.org/cnt/)

- SENSwitcher-the simplest switch program: Great support for students with high-needs [www.northerngrid.org/sen/Menu-L.htm](http://www.northerngrid.org/sen/Menu-L.htm)
Learning Disabilities Association of Georgia

- Support Groups
- Statewide Conference
- Workshops
- Web Site www.ldag.org
- Publications
- Phone Information and Referral
The Starfish

There was a young man walking down a deserted beach just before dawn. In the distance he saw an older woman appear to be dancing. As he approached the woman, he saw her picking up stranded starfish and throwing them back into the sea. The young man gazed in wonder as the woman again and again threw the small starfish from the sand to the water. He asked, “Why do you spend so much energy doing what seems to be a waste of time.”

The woman explained that the stranded starfish would die if left in the morning sun. “But there must be thousands of beaches and millions of starfish!” exclaimed the young man. “How can you make any difference?”

The woman looked at the small starfish in her hand and as she threw it to the safety of the sea, she said, “It makes a difference to this one!”.