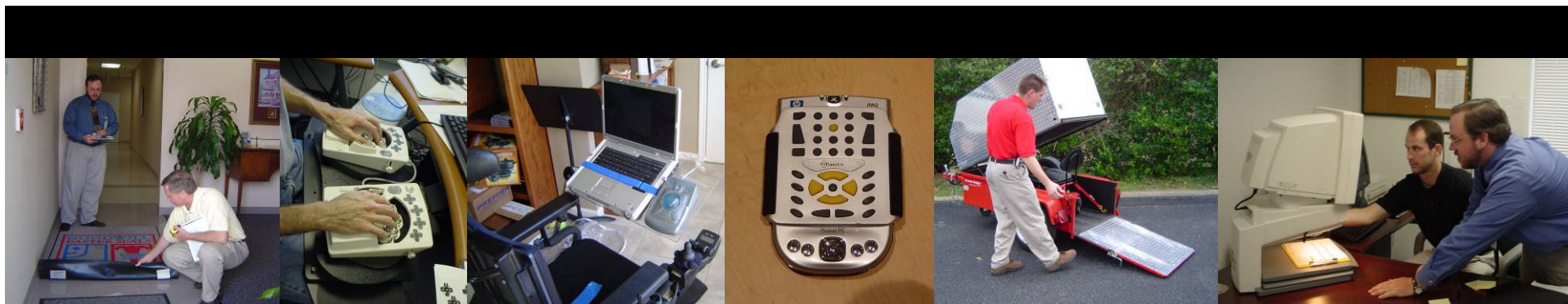




Innovations in Assistive Technology

Michael Papp, MS Rehabilitation Engineering
Jeff Mega, MS Biomedical Engineering
Melissa Crain, BS Biomedical Engineering





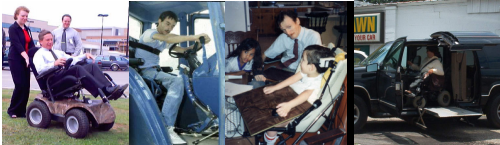
Introduction

- Rehabilitation Technology Specialist
 - Vocational Rehabilitation
 - Children's Rehabilitation
 - Independent Living
- Assistive Technology Evaluations
- Located in Birmingham, Montgomery, and Dothan



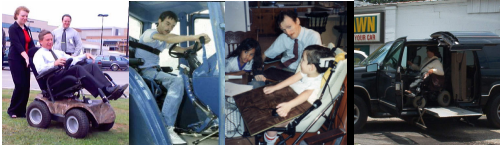
Introduction

- Jeff Mega
 - Architectural Technologies
 - Technology for vision impairments
 - Technology for hearing impairments
- Melissa Crain
 - Augmentative Communication
 - Technology for learning disabilities
 - Technology for computer access
- Michael Papp
 - Technology for Cognitive Impairments
 - Ergonomic equipment



Jeff Mega

- Architectural Accommodations
- Hearing Impairments
- Visual Impairments



Architectural Accommodations

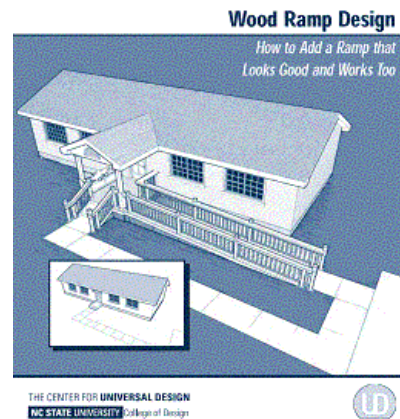
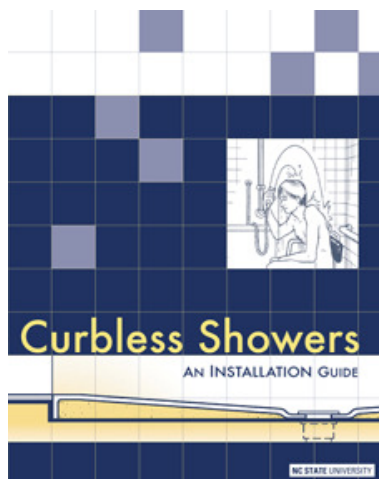
- More individuals are becoming reliant on mobility aids
- Businesses and job sites must be more accessible
- Use available resources



N.C. State University's Center for Universal Design



THE CENTER FOR
UNIVERSAL DESIGN
Environments and Products for All People





Reaching Out to Customers with Disabilities

- Easy to follow online ADA guide

Reaching Out to Customers with Disabilities -- an online ADA course for businesses, In

http://www.usdoj.gov/crt/ada/reachingout/intro1.htm

Reaching Out to Customers with Di...

Reaching Out to Customers With Disabilities

Introduction



Parents, grandparents, and children arrive at a hotel for vacation.

As a business owner or operator, or someone thinking about opening a business, you may have wondered what you have to do to comply with the Americans with Disabilities Act (ADA). This course explains how the ADA applies to businesses in ten short lessons. Putting these lessons into practice will allow you to comply with the ADA and welcome a whole new group of customers to purchase your goods, products, and services. And you may find that making your business more accessible and welcoming to people with disabilities is not as difficult as you thought.

Did you know?

More than 50 million Americans with disabilities - 18% of our population - are potential customers for businesses of all types across the United States.

This group has \$175 billion in discretionary spending power, according to the U.S. Department of Labor. That figure is more than twice the spending power of American teenagers and almost 18 times the spending power of the American "teens" market.

Accessibility attracts not only people with disabilities but also their families and friends. Like others, these customers often visit stores, restaurants, movie theaters, and other businesses accompanied by family or friends. This expands the potential market exponentially!

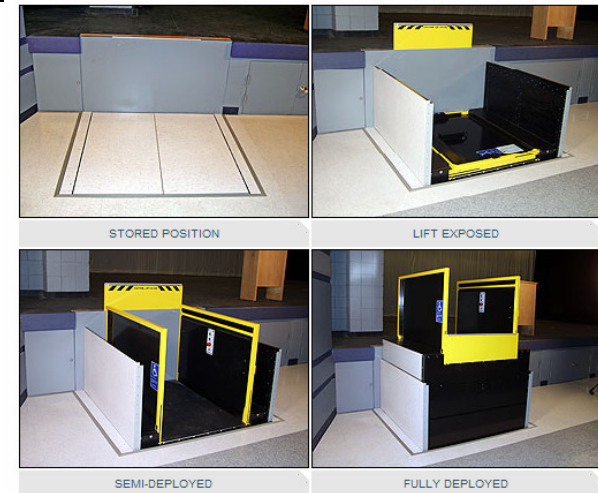
- Introduction
- Lesson 1
- Lesson 2
- Lesson 3
- Lesson 4
- Lesson 5
- Lesson 6
- Lesson 7
- Lesson 8
- Lesson 9
- Lesson 10





Lift-U®

- Specialized Wheelchair Lifts from Hogan Manufacturing, Inc.
- Replace existing stairway with stairs and lift
- Hidden Access Lift





ADRS

Modular Ramp Systems





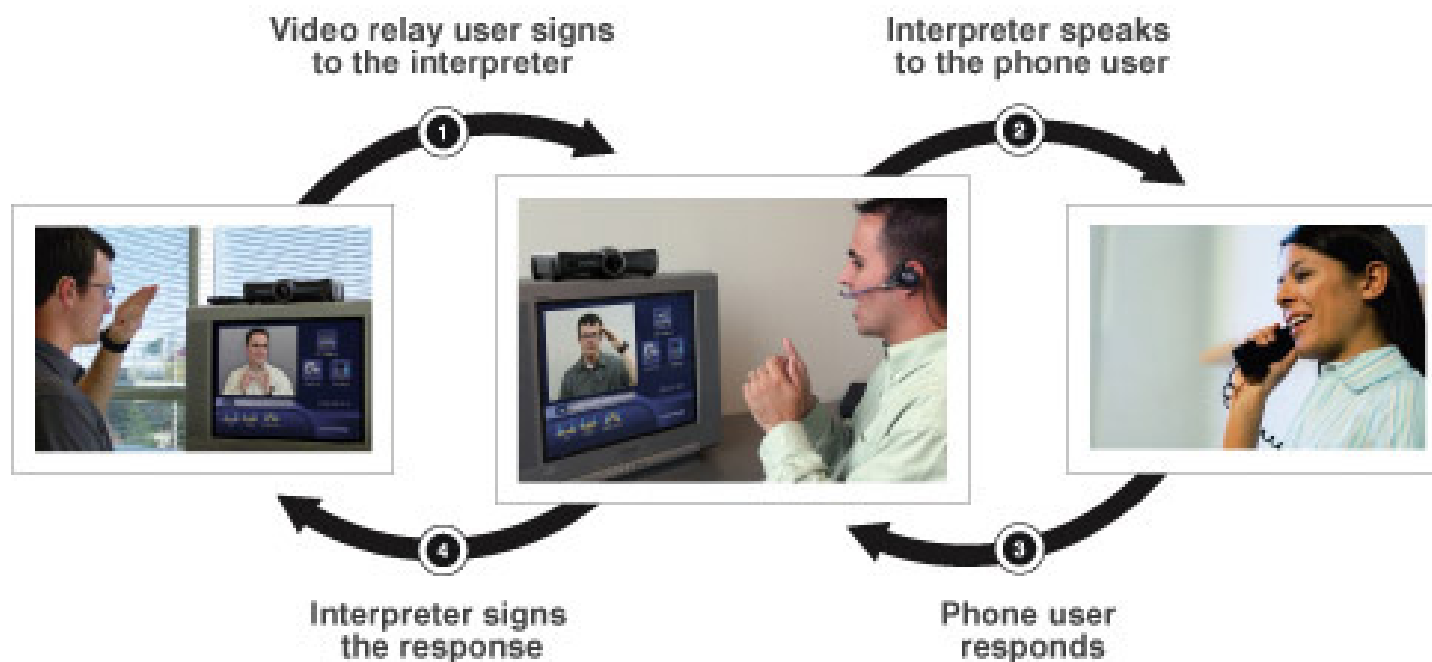
Accommodations for Hearing Impairments

- Relay services, captioning, alert and signaling systems
- Provide clear method of communication
- Ease of use
- Portability
- Compatible with hearing aids



Video Relay Services

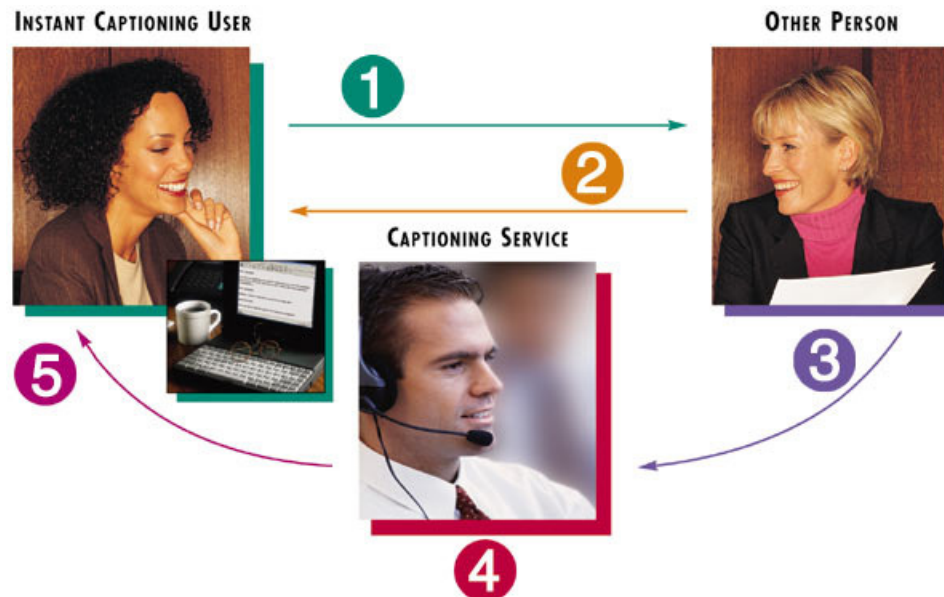
- Qualified sign language interpreters
- No typing or text is required

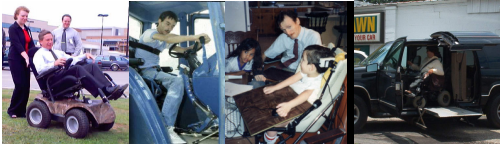




Real-Time Closed Captioning

- Speech to text available in
 - Meetings
 - Classroom

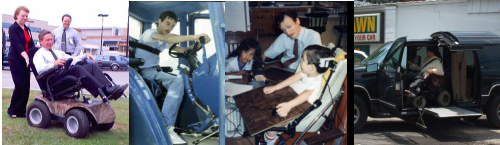




Compact TTY

- Pocket sized TTY can connect to cell phone.
- Portable device lets user use TTY with standard telephone.
- User still needs to use relay service to communicate with non-TTY users.

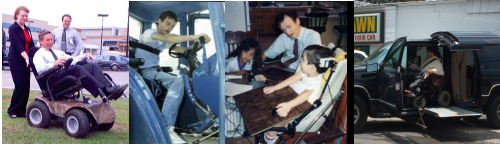




Sidekick III

- Available from T-Mobile
- Email, text messaging, instant messaging, web browser
- IP-Relay service allows users who are deaf to place calls over the internet
- Bluetooth capability

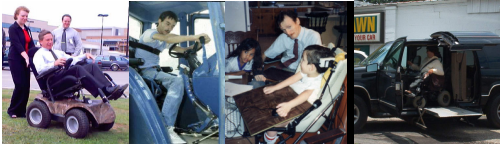




Private Page

- Vibrating or Beeping pagers
- Can connect to external antenna to boost signal
- Can connect to doorbell
- Can send numeric code page to one or more pagers at a time.

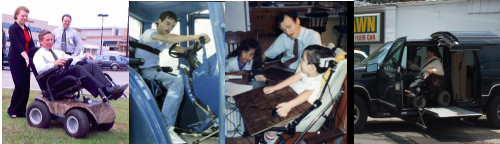




UbiDuo Communicator

- Wireless 2 way communication device
- Rechargeable Batteries
- 4 units can communicate simultaneously
- Provides immediate communication without waiting for interpreter

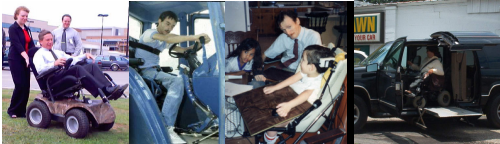




Bluetooth Cell Phone & Hearing Aids

- Interference occurs when cell phone is placed in proximity to the hearing aid
- Bluetooth capable phone sends signal to bluetooth receiver which sends it to the hearing aid via direct connection, T-Coil, or neckloop
- New technology & not for every user

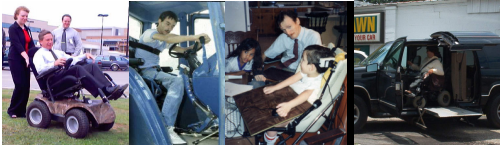




Accommodations for Visual Impairments

- CCTV's
 - smaller footprints
 - portability
- Screen Magnifiers
 - better visual quality
 - Vista compatibility
- Screen Readers
 - Vista compatibility
- Scanning Machines
 - Portability
 - Improved features





Optron CCTV's

- **Optron Pro**
 - Takes up little desktop space, works with computer monitor
 - Can be used to enlarge text, merchandise, phone displays
 - Near and Distance Viewing
- **i-Stick**
 - Laptop based portable CCTV
 - Can be used for close up or distance viewing
 - Can save images to desktop



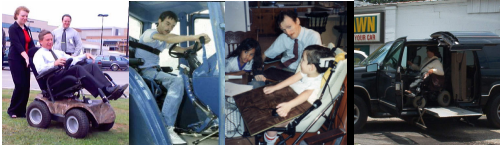


Portable CCTVs

- **Nemo** - Enhanced Vision
 - 4-inch screen
 - 4.5 to 9x magnification
 - 6 color modes
 - 3 hour battery
 - <http://www.enhancedvision.com>

- **SenseView** - GW Micro
 - 4.3-inch screen
 - 4 to 22.5x magnification
 - 6 color modes
 - 5 hour battery
 - <http://www.gwmicro.com/>





MobilEyes

- By Guerilla Technologies
- Portable reading machine
- Takes picture with digital camera, searches image for text, and reads text aloud





Kurzweil 1000

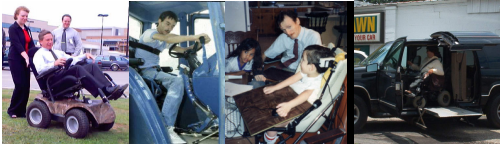
- Originally designed to scan and read text
- New Features:
 - Improved computer voices - NeoSpeech
 - Appointment Calendar with Audible Reminders
 - Quick Access to Scan, Photocopy, and Fax Features
 - Scans into Word
 - Search web and compile information from accessible resources



Talking Vendor Products from Captek

- Talking Cash Registers
- Talking Scales
- Currency Counters, Identifiers, and Sorters
- Coin Counters Sorters
- Talking Food Thermometer

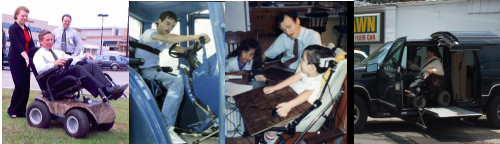




Mobile Speak Pocket

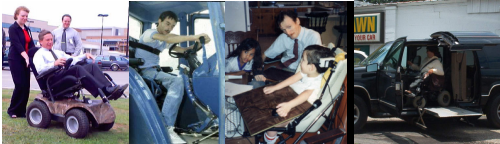
- Screen Reading Software for Windows Mobile Phones and PDAs
- Also have Mobile Magnifier; Software to zoom in on small text on the screen.
- Available in the US through Humanware





Melissa Crain

- Augmentative Communication Devices (ACD)
- Switches and Controls
- Computer Access, including physical disabilities
- Vocational and Training Aids including Learning Disabilities



ACD in the Workplace

New High Tech Products...

- Dynavox V and Vmax
- New Line of Handheld ACDs
- Eco-14 by Prentke Romich Company



New High Tech Features...

- Integrated XP Systems
- Bluetooth Connectivity
- Phone Accessories



Switches and Controls

- *Swifty* by Tash
 - Easy Thumb Drive Access
 - *Beam Wireless Interface*
- X Keys Switch Interface
 - Industry Standard in switch interface
 - PI Engineering



- *Vindicator* by Compusult
 - Speech Enabled LED Event Monitoring
- *Responder* by Compusult
 - Speech Monitoring for Industrial Settings
 - Notifies and Logs any Change in Electronic Equipment

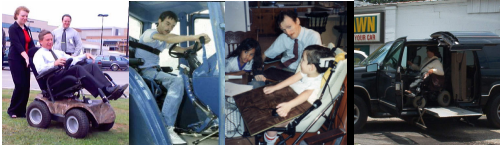




Computer Access by Foot

- Footime Foot Mouse and Pedal
 - Patent Pending
 - \$199 for mouse and pedal combo
 - Pedal has 5 buttons plus a scroll wheel (left to right)
 - Each button can have two functions
 - Mouse operates just like a hand mouse, wear with a Velcro strap





Innovative Keyboard Layout

New Standard Keyboard

- alphabetical letter arrangement
- dominant digits for control and shift keys
- efficient layout, strategic placement
- half the keys of standard QWERTY
- \$70





Dragon Naturally Speaking

- Productive option for people with severe disabilities
- Now less expensive
- Less initial training required
- Higher level of accuracy
- New helpful training tools available



Keep in Mind...

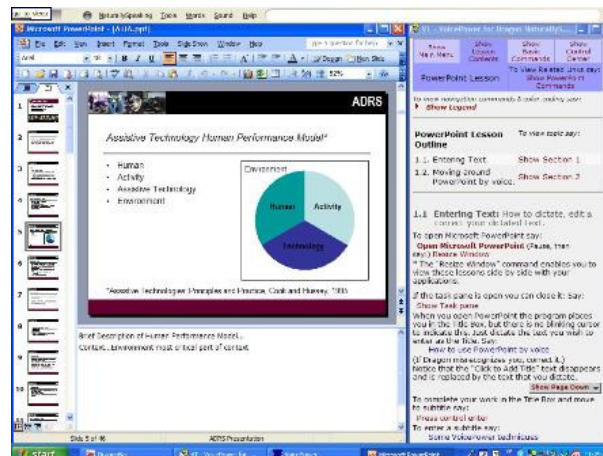
- Memory intensive - Check System Requirements
- Misrecognition still occurs
- Requires time & practice to increase effectiveness

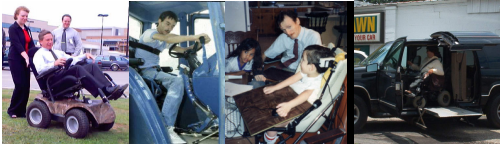


Dragon Naturally Speaking Assistance

Voice Power by VoiceTeach (<http://voiceteach.com>)

- View commands and training guides while working
 - two different viewing modes caters to the level of help needed
- Access to thousands of commands for common programs
 - gmail, outlook, access, explorer, excel, quickbooks, etc
- \$200

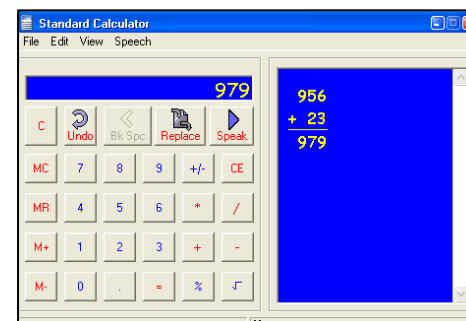
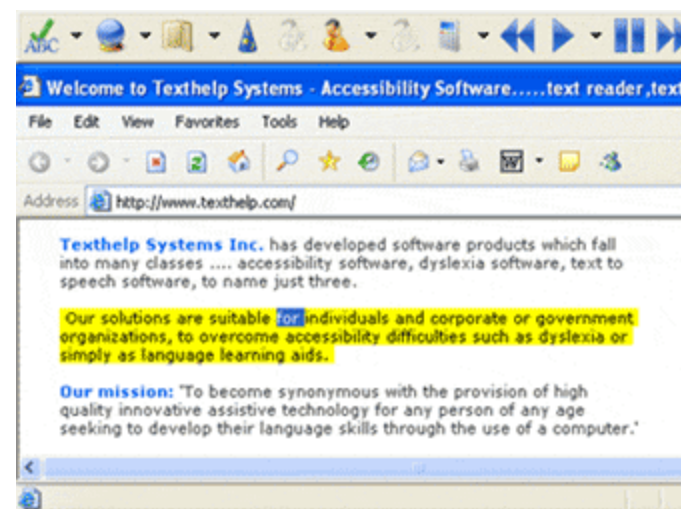


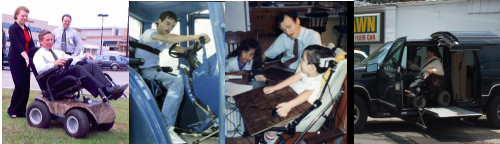


Learning Disabilities

TextHelp Read & Write

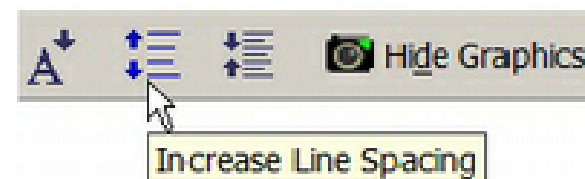
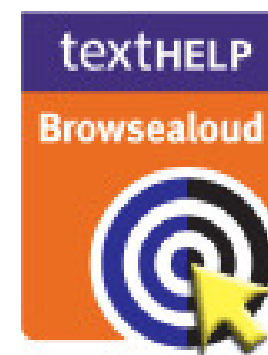
- Also available on portable thumb drive
- Text highlighting with audio feedback
- Expanded dictionary with homophone support
- Scan documents into HTML, Word or PDF files
- Word Prediction
- Calculator with Audit Trail
- New version includes concept mapping tool
- Deluxe version now includes Testmaker tool





Learning Disabilities

- New BrowseAloud 4.0
 - Tools for Enabling Speech on Websites
 - Dual Highlighting
 - New Voices, New Language Support
- Web Accessibility Add-Ons
 - Accessibar (Mozilla)





Learning Disabilities

Key to Access VPod

- Talking Dictionary
- Digital Voice Recorder
- E-Text Reader
- Word Prediction
- Scan and Read Pro
- Talking Calculator
- PDF Magic





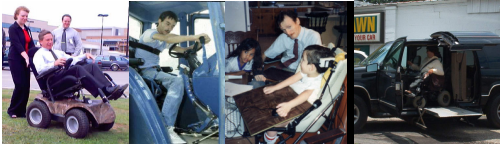
Resources

- Augmentative Communication
 - www.dynavoxtech.com
 - www.prentrom.com
- Switches and Controls
 - www.tashinc.com
 - <http://www.piengineering.com/xkeys/xkswi.php>
 - www.hear-it.com



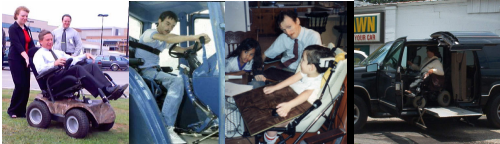
Resources

- Computer Access
 - http://www.bilila.com/foot_mouse_slipper_mouse
 - www.keyboardco.com / www.enablemart.com
 - www.voiceteach.com
- Learning Disabilities
 - www.browsealoud.com
 - <http://accessibar.mozdev.org/>
 - <http://www.readingmadeez.com/VPod.php>
 - www.ldonline.org



Michael Papp

- Cognitive Remediation
- Cognitive Aids
- Industrial Ergonomics
- Accessible Telecommunications
- Computer Ergonomics
- Mobility Devices



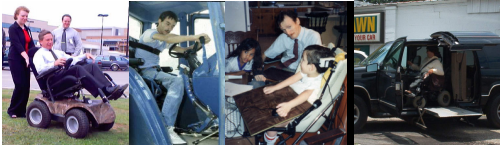
Cognitive Tools

- Cognitive Remediation – strategies to boost thinking abilities, work “inside the brain”
- Cognitive Aids – external tools that augment or replace brain function. Most commonly used for planning activities or remembering information.



Software

- MindFit - <http://www.e-mindfitness.com/>
 - MindFit is designed specifically for the older population. It takes the users through their individually designed exercises that will challenge their minds. Challenging but not frustrating, repetitive but not boring, intensive but not tiring-this is how MindFit keep adults minds active and vital.
- Cost - \$130 download, \$150 boxed version



MindFit Examples

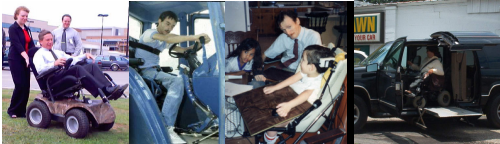


- Picasso Task
 - Develop visual short term memory
 - Memorize abstract design and parts that comprise it
- Inside and Out
 - Train Divided Attention Skills
 - Improve ability to pay attention to more than one stimulus at a time.



Back on Track - <http://www.cognifit.com/>

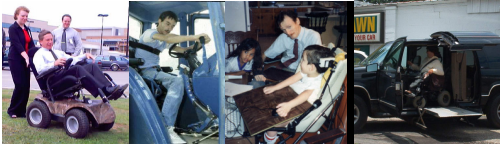
- Software to enhance cognitive function in people after chemotherapy.
- Chemotherapy can affect memory and concentration.
- This software helps improve mental fitness when used several times a week.
- DriveFit also available to improve driving related mental processes



WatchMinder - <http://www.watchminder.com/>

- Training and Reminder Aid
- Set to training mode to periodically beep or vibrate and flash a message such as, pay attention or be positive on screen.
- Set to reminder mode to remind user to wake up, use the bathroom, take medication, etc.
- Cost: \$99.00





AbleLink Technologies - <http://www.ablelinktech.com/>



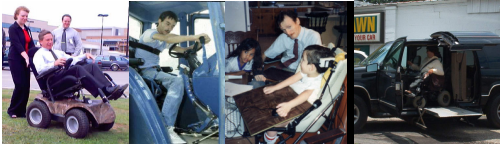
- Community Integration Suite
 - Designed to use used on a hand held Pocket PC
 - Turns on and cues the user to begin a task, travel to a specific location, or remember an event or appointment
 - Caregivers set up the various daily, weekly, and monthly tasks and time cues with audio and custom pictures
 - Pocket PC, Pocket Compass (picture/audio based prompting/cueing application), Schedule Assistant (time-based audio-visual cuing), and Discovery Desktop
 - \$1500



JitterBug by Great Call - <http://www.gojitterbug.com/>

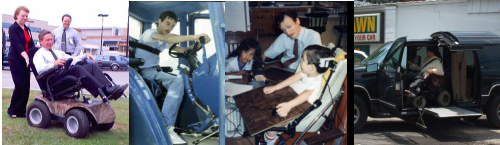


- Large, backlit, and easy to see buttons
- Available in operated assisted dialing or dial yourself models
- Very simple menu structure, vendor will program it for the user
- On screen hints tell user what to do
- Hearing aid compatible
- Phones cost \$147 + monthly service plan \$10 to \$80 a month, also have annual plans
- View demo online



If By Phone - <http://www.ifbyphone.com/>

- VoMail Service – read and reply to email messages in existing email account via phone.
- VoMe Service – Phone reminder service: wake up calls, meeting reminders, medication reminders, etc.



MyCelery Email System - <http://www.mycelery.com/>



- Email system for non-computer users
- User writes out email with recipient's email address, puts it in slot, and presses send
- Uses fax technology, no internet or computer required
- Costs \$99 for hardware and 1 year subscription, \$139 per year



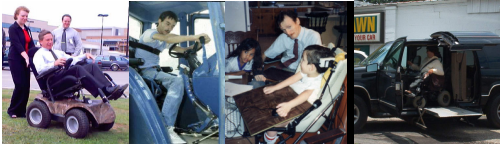
Ergonomic Devices



- Ergonomic mops and brooms
 - Available from many sources
 - Cost about \$35 for the handle



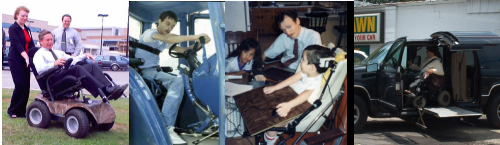
- AutoWrench
 - Black and Decker
 - One handed use
 - \$30



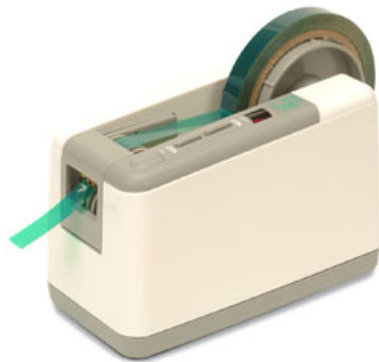
Ergonomic Devices



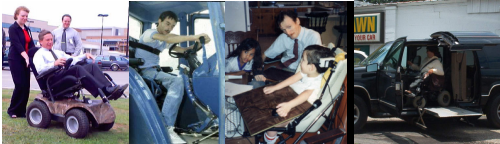
- Ferno MIR Cool Vest
 - Maintain lower core body temperature for up to 2 ½ hours in 100° heat
 - Useful for temperature sensitive conditions such as MS
 - Cost \$139
 - <http://www.ferno.com/>
- Traction Drive Cart
 - Electric motor pulls weight of cart, up to 750 lbs
 - Cost: \$1414.75
 - <http://www.alimed.com>



Ergonomic Devices



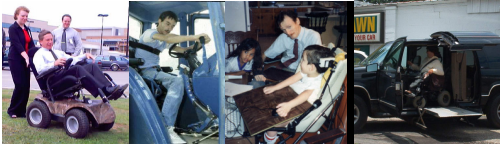
- Ergomates
 - Antifatigue mats strap to shoes
 - Help people with knee, hip, and lower back pain who have to stand all day on hard surfaces
 - Cost: \$46.00 @ Alimed.com
- Electronic Tape Dispenser
 - Cuts preset lengths of tape
 - Battery and AC Powered
 - Also label dispensing models
 - Cost: starting at \$78
 - www.startinternational.com



Accessible Cell Phones



- Nohandcom
 - Adapts PDAs and Cell Phones
 - Single Switch Access and Voice Recognition
 - <http://www.nohandcom.com/>
- ZoomMate
 - Switch Adapted Cell Phone
 - Works with many standard cell phones
 - Uses Bluetooth wireless tech
 - <http://www.saje-tech.com/>



Computer Ergonomics



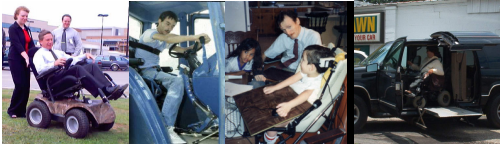
- Roller Mouse
 - Allows user to operate mouse without removing hands from keyboard
 - Places mouse function below the space bar
 - Cost: \$204.00 @ Alimed.com
- Comfort Type
 - Keys slightly angled for improved wrist position
 - Easier to learn than a wavy, split keyboard
 - Cost: \$19.94 @ CDW.com



Mobility Equipment

- Stand and Ride
 - 3 wheel electric scooter
 - Designed to be used standing
 - 300 lb capacity
 - 15 mph top speed
 - About 30 miles per charge
 - \$995 suggested retail
 - Optional “bicycle” seat
 - www.evrider.com





Questions?

- Contact your local Vocational Rehabilitation Office
 - Call 800-441-7607 to find your local office
 - <http://www.rehab.state.al.us/> and click on “Locations”
- Contact Michael.Papp@rehab.alabama.gov
- Copy of presentation and handouts available at www.rehabengineer.com/workforce.html