


## OFFICIAL DEFINITION


- Assistive Technology is "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 functional capabilities of individuals with disabilities."

(Individuals with Disabilities Education ACT (IDEA) 20, USC, Ch 33, Section 1401 (25) US)




## SUB-DEFINITIONS

- Any item, piece of equipment or system that helps bypass, work around or compensate for learning difficulties.



- No tech
- Light tech
- High tech
- As a tool
  - software



## DOES NOT IMPLY

- Computers
- Must be expensive
- Must be prescribed



## Who is involved?

- Consumer
- Family
- Teachers
- Paraprofessionals
- Speech Language Pathologists
- Occupational & Physical Therapists
- Employment & Rehabilitation Counselors
- AT Consultants
- Disability Specialists, Support Workers and Advocates











## DISABILITIES

- Learning Disabilities
- Blindness or Low Vision
- Hearing loss
- Speech Impairments
- Mobility Impairments
- Muscular Dystrophy
- Multiple Sclerosis
- Cerebral Palsy
- Developmental Disabilities
- Autism, ADHD, PDD, Brain Injury and so on.



- Increases independence
- Builds self confidence
- Improves the quality of life
- Breaks barriers when providing the tools for possible employment and educational opportunities.


	<h2>Assistive and Adaptive Technology Represents Both a Process and Product</h2> <p>"Technology is a tool that serves a set of educational goals, and if we don't think about what we want the technology for first, we end up with technology-driven solutions that have very little impact in the lives of children and in our educational system."</p> <p>Linda Roberts, Director of Education Technology, U.S. Department of Education.</p>
	
	
	

	<h2>RANGE AND SCOPE OF ASSISTIVE TECHNOLOGY</h2> <p>Potential outcomes include:</p>
	
	
	



## Adaptive Play

This includes the use of commercially available battery operated toys/activities to allow young children and adults to experience control over their environment despite severe physical restrictions, motor control deficits and developmental disabilities.



## Switches

Single or multiple switch access methods



## Environmental Controls

### Electronic Aids




## Augmentative and Alternative Communication (AAC)

AAC includes any technology application that results in the improvement of a person's communication with individuals, groups and even by telephone..



## Alternative Learning Strategies





Computer based adaptive learning hardware and software




## POSITIONING

- No matter what the disability
- No matter what the limitation
- No matter what the cognitive level
- POSITIONING IS KEY
  - DESK/TABLE TO CHAIR HEIGHT
  - VISUAL
    - STUDENT/TEACHER
  - AUDITORY

	<h2>Specific Learning Disabilities</h2>
	<h3><b>Meeting the Challenge: Overcoming Barriers</b></h3>
	<p>What are the challenges?</p>
	<p>What are the barriers?</p>

	<h2>Reading Printed and Electronic Materials</h2>
	<h3>Limits in the ability to read printed or electronic materials independently.</h3>
	
	



## Common Issues


- Word recognition and word attack difficulties
- Poor fluency
- Reading difficulty interferes with comprehension



## Available Tools

Reading Printed and Electronic Materials

- **Text to Speech**
- **Screen Readers**
- **Optical Character Recognition**
- **Talking Web Browsers**
- **Electronic Text (E-Text)**
- **Audio Books and Playback**



## Writing and Spelling

- Some individuals with learning disabilities struggle with written expression due to difficulties with spelling and or handwriting



## Writing and Spelling

- Limited spelling vocabulary
- Letter reversals
- Dysgraphia
- Grammar and punctuation
- Vocabulary
- Structure



## Spelling


Use of electronic dictionaries

- [www.franklin.com](http://www.franklin.com)
- Spelling Ace
- Children's dictionary
- Thesaurus

■ Use of built in spell/grammar checks

■ Software/Internet sites

- Co-writer
- [www.dictionary.com](http://www.dictionary.com)



## Writing

■ Light tech:

- Raised Line paper
- Pencil grips
- Slant boards
- Handwriting grids
- Adapted writing tools
- NCR paper
- Softer surface




## OUTLINING/ORGANIZING

Brainstorming- group discussions to facilitate ideas


Use word processor to organize

- Use of graphic organizers
  - Kidspiration [www.kidspiration.com](http://www.kidspiration.com)
  - Inspiration [www.inspiration.com](http://www.inspiration.com)
  - [www.gliffy.com](http://www.gliffy.com) free online




## WRITING PROGRAMS

- Microsoft products:
  - Word
  - <http://www.aacintervention.com/mastermsword.pdf>
  - AUTOCORRECT, WIZARDS, VISUAL CHANGES, WORD SPACING, Etc.
  - Notepad
  - Wordpad



## TEXT TO SPEECH

- Write Out Loud
- Intellitalk
- Windows XP
- Kurzweil
- Text Help
- Free ones on the internet
  - Open Office



## Portable Word Processing

- AlphaSmart
- Dana
- Neo
- Writer
- Fusion
- Various ordering configurations with spelling, grammar, text to speech
- Laptop or tablet computer
- Mobile note taker
  - [www.ergoguys.com](http://www.ergoguys.com)
  - Blackberry, PDA's



## Word Prediction

- CoWriter
- [www.donjohnston.com](http://www.donjohnston.com)
- Kurzweil
- [www.cambiumlearning.com](http://www.cambiumlearning.com)
- Read and Write Gold: Text Help
- [www.texthelp.com](http://www.texthelp.com)
- Word Q



## VOICE RECOGNITION

- Wordq/Speakq
- Dragon
- Via Voice
- Microsoft Word
- ALL NEED TRAINING
- ALL NEED QUIET
- ALL NEED PATIENCE



## KEYBOARDING

- A must
- Doesn't need to be perfect
- Will improve with use




## WINDOWS ACCESSIBILITY

- Accessibility Wizard
- Narrator
- Magnifier
- On Screen Keyboard
- Utility Manager
- Mouse Settings: Speed Size Color
- Headset Jack
- Page color
- Font size and color




## Adapted Devices

- ABC order keyboard
- One handed keyboards
- Ergonomic keyboards
- Color coded keyboards
- Intellikeys
- Mini Keyboards
- Tablets




## PHYSICALLY DISABLED

- Intellikeys
- Big Keys
- Mini Keys
- On screen
- Touch screen
- Mouse emulation
  - Trackers
  - Pointers
  - Eye Gaze
  - Switches




## VISUALLY IMPAIRED

- Screen readers
- Audio enhancement
- Screen magnification
- Braille




## AUDITORY IMPAIRMENTS

- FM units
- Audio enhancements
- Sign



## COGNITIVE DELAYS

- Use of appropriate software
- Writing with Symbols
- Clicker 5
- Intellitools Suite
- Attainment products
- Use of appropriate hardware for access: switch activated



## References

- <http://www.trecenter.org/>
- <http://www.nsnet.org/>
- [www.scottmarfilius.com](http://www.scottmarfilius.com)
- <http://atto.buffalo.edu/>