

Using Assistive Technology to Enhance Occupation

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Pre-OT Club Presentation

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What is Occupational Therapy at CSU?

The mission of the Occupational Therapy department at CSU is to optimize human performance and participation in everyday occupations and contexts across the lifespan.

[OT Curriculum Design: http://ot.chhs.colostate.edu/students/curriculum-design.aspx](http://ot.chhs.colostate.edu/students/curriculum-design.aspx)



Google image from:
uscmarketplace.com



Google image from:
blythedale.org

Definition of Assistive Technology

- A broad range of devices, services, strategies and practices that aid in assisting individuals with disabilities.
- An AT device is any item, piece of equipment, or product system that is used to increase, maintain or improve functional capabilities of individuals with disabilities.

-Cook & Hussey

Types of Assistive Technology

- Assistive Technology examples:
 - Technology and electronic information access (ATRC focus)
 - Augmentative Communication Systems
 - Environmental Controls
 - Technology to enhance mobility

What is the Assistive Technology Resource Center (ATRC)?

- Role on campus: the ATRC seeks to ensure equal access to technology and electronic information for CSU students and employees with disabilities
- Disability groups served – Students with Physical, Sensory, Non-Apparent impairments
- Experiential learning of AT for OT students



ATRC and Occupation

- Occupational Therapy Role
 - Assessment - Interview
 - Intervention – Equipment recommendation & training
- Goal: increase student participation in school-related activities and enhance academic performance.
 - Reading
 - Writing
 - Note-taking
 - Test-taking
 - Accessing computers and technology

AT for Physical Impairments

AT for Typing and Accessing Computer:

- Alternative Pointing Devices (Mice)
 - Head tracker
 - Sip and puff
 - Switches
- Alternative Keyboards
 - One handed keyboards
 - Chorded keyboards
 - On- screen keyboards
- Ergonomic Keyboards and Mice
- Positioning
 - Adjustable tables and monitors
 - Devices, e.g. mobile and static forearm supports



AT for Writing:

- Alternate Input
 - Voice recognition software
 - Word completion and word prediction software

AT for Students Who Are Blind

AT for Reading:

- Braille and Tactile Graphics
 - Refreshable Braille Keyboard
 - Braille Embossers
 - Text to Braille converting software
 - Thermo Pen
 - PIAF (Pictures in a flash)
- Audio
 - Talking Web Browsers
 - Talking Digital Book Players
 - Audio Formatting Software
 - Scanners with OCR to convert text to audio format



AT for Accessing Computer:

- Screen Readers
- Tactile Key Indicators

AT for Calculating:

- Talking Scientific Calculator

AT for Students with Low Vision

AT for Reading:

- Large Print and Braille
- Digital Book Players
- Built in Accessibility Options
- Software
 - Magnifier and Reading Software
 - Scanning and Reading Software
- Magnifiers
- Portable
- Video



AT for Typing:

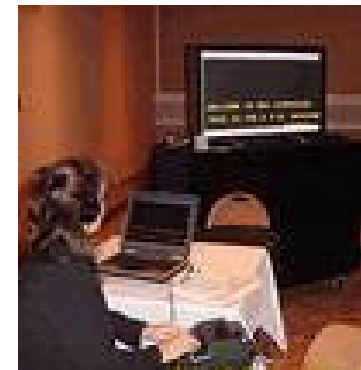
- Labels for keyboard



AT for Students who are Hard of Hearing

AT for Note Taking and Classroom Participation:

- FM Systems: Portable, wireless listening system for classroom use. The teacher wears a compact transmitter and microphone. Students use a portable receiver with earphones.
- Captioning
- Communication Access Realtime Translation (CART): instant translation of speech to text via advanced, remote or onsite real-time translation software



AT for Students with Non-Apparent Disabilities

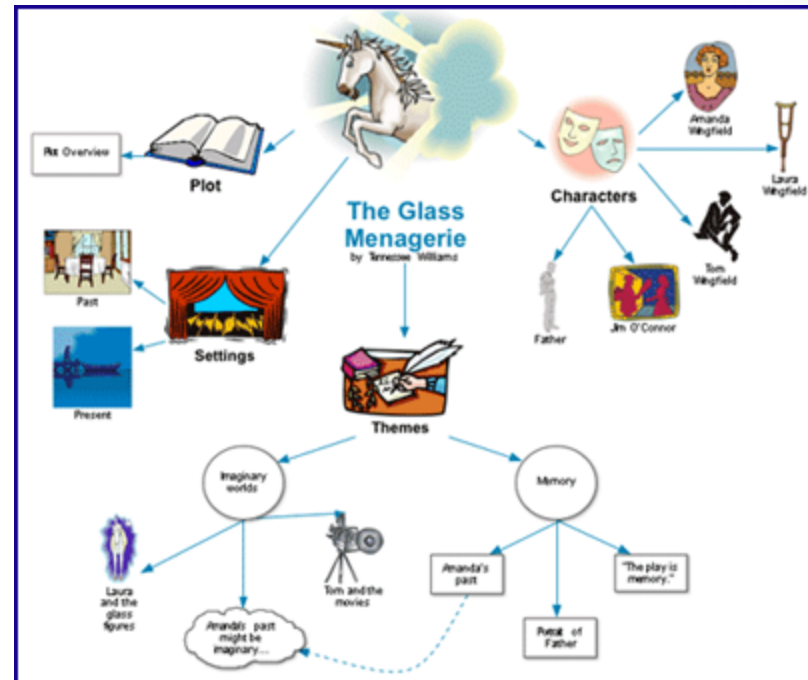
– Writing Aids

AT for Writing:

- Spelling and Word Selection
 - Phonetic Spell Checker
 - Word Completion and Word Prediction
 - Talking or Visual Dictionary
 - Word Wizard
 - Homophone Checker
- Thought Organization
 - Thought Mapping
 - Outline Format
- Other Aides
 - Speech recognition: Dictation vs. typing
 - Text to speech

AT for Note Taking:

- Digital Recorders
- Smart Pen
- Apps for mobile devices



AT for Students with Non-Apparent Disabilities

– Reading Aids

AT for Reading:

•Converting Printed Material to Electronic Format

- Scanning with OCR
- Learning Ally (human voice recordings)

•Auditory Output

- Portable Book Reading Devices: Digital book players and MP3 players
- E-text Reading Computer Software: Text to speech
- Options: synthesized or human voice, audio only or audio + text
- Apps for mobile devices

•Visual Layout

- Size of text and line spacing
- Color of text and background
- Masking
- Highlighting words as they are read
- Speed Reading

•Portable Miscellaneous Reading Aides

- Scanning and Reading Pens
- Portable dictionary

The Irlen Method -
Helping Children and Adults with processing
problems for over 25 years

The Irlen Method is the only research-based method using colored overlays and filters. There are over 4,000 educators in school districts who have been trained, and millions of children use Irlen colored overlays. Helen Irlen discovered and created this method in 1980, and it is now being used in over 42 countries. Helen Irlen, MA, LMFT, is the nation's leading expert in perceptually-based reading and learning difficulties.

The Irlen Method is non-invasive, patented technology that uses colored overlays and filters to improve the brain's ability to process visual information. It is the only method scientifically proven to successfully correct the processing problems associated with Irlen Syndrome.

Sample Distortion

Find us on Facebook

We Need Your Help!

Sign our petition to help prevent the ban on incandescent light bulbs

Click here to read about how you can help >>

We have 3873 signatures

is the

AT for Students with Non-Apparent Disabilities - Organization

AT for Organizing Assignments:

• Low Tech

- Checklists, day planners, task sequencing lists, alarms and timers on watches and cell phones

• High Tech

- Devices: Computers, tablets, smartphones, PDAs
- Software or Apps:
 - Planning: calendars and “to do”
 - Audio notes to self
 - Multimedia prompting system

AT for Students with Cumulative Trauma Disorders

- Hardware

- Ergonomic keyboards
- Ergonomic mice
- Wrist pads
- Adjustable tables
- Document holders
- Adjustable monitors
- Mobile devices/touch screens



- Software

- Word completion and word prediction software
- Dictation software
- Apps



Augmentative and Alternative Communication

AT for Classroom & Social Participation:

- Augmentative and Alternative Communication (AAC) Devices
 - Low-Tech Picture Boards
 - DynaVox, Tango, Toby Lightwriter
 - Software with Communication Boards
 - Apps on mobile devices



Mobility Technology

- Low-tech: cane, walkers, manual wheelchair, etc.
- High-tech: power wheelchairs
 - Direct Control: use body part or extension to directly interact
 - Fastest control method
 - More intuitive
 - Requires refined, control movements
 - Indirect Control: requires an interface between user and the wheelchair; switches and scanning
 - Slow control method
 - Requires less motor control, but higher cognitive demand than direct control



Environmental Control Units (ECU)

- Control interface that enables people to control various devices in their environment independently
 - Lights
 - Electrical Appliances
 - Heating/Cooling Systems
 - Stereo
 - TV
 - Computer

Mobile Devices

- Apps for iOS & Android to support:
- Life Organization
 - Scheduling /Time Management
 - School Organization
 - Note taking/Audio Recorders
 - Financial Organization
 - Work Organization
 - AAC
 - Reading
 - Community Mobility and Accessibility
 - And on and on.....



Hands-On Opportunities!

- Case Studies
 - Alternative Keyboards and Mice
 - Reading Aides
 - Augmentative and Alternative Communication
 - Alternative Computer Access
 - Environmental Control Unit Use
 - Cognitive Support
 - Low Vision Support
- Microsoft Office Built-Ins
- Mac Accessibility Features

Hands On Time

Explore case studies at the ATRC!

Questions?

[ATRC Website](#)

www.atrc.colostate.edu