ASSISTIVE TECHNOLOGY OCCUPATIONAL THERAPY SCHOOL SETTING

Objectives

Participants will learn:

- Legal contexts
- Basic definitions and examples
- Assessment and implementation
- Resources

Region One Education Service Center

- Training and technical assistance to school districts and charter schools

- Team training with permanent loan packages

- Technical assistance and support to families

- Loan library

- Statewide AT Conference hosted by Region 4

Congressional Intent of IDEA 2004

- Improved student performance

- Increased accountability

- Strong parental participation

- High expectations for student achievement

- Linked to the general education curriculum

- Accessible instructional materials

**Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004)
Public Law 108-446 and Title 34 of the Code of Federal Regulations**

Congressional Intent of IDEA 2004

- IDEA 2004 affirms emphasis on AT as a means to support educational achievement
  - Requires consideration of AT in the IEP process
  - Places responsibility for decision-making with ARD committees
  - Requires accessible instructional materials

**Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004)
Public Law 108-446 and Title 34 of the Code of Federal Regulations**

IDEA 2004: Final Regulations Definitions – Assistive Technology

34 C.F.R § 300.105 Assistive technology

(a) Each public agency must ensure that assistive technology devices or assistive technology services, or both, as those terms are defined in §§ 300.5 and 300.6, respectively, are made available to a child with a disability if required as a part of the child's—

(1) Special education under § 300.36;

(2) Related services under § 300.34; or

(3) Supplementary aids and services under §§ 300.38 and 300.114(a)(2)(ii).

(b) On a case-by-case basis, the use of school-purchased assistive technology devices in a child's home or in other settings is required if the child's IEP Team determines that the child needs access to those devices in order to receive FAPE.

(Authority: 20 U.S.C. 1412(a)(1), 1412 (a)(12)(B)(i))

IDEA 2004: Final Regulations Definitions - Device

34 C.F.R. § 300.5 Assistive technology device
Assistive technology device means __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 the functional capabilities of a child with a disability__. The term does not include a medical device that is surgically implanted, or the replacement of that device. (Authority 20 U.S.C. 1401(1))

IDEA 2004: Final Regulations Definitions - Service

34 C.F.R. § 300.6 Assistive technology service

Assistive technology service means **any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device.** The term includes:

(a) The **evaluation** of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;

(b) **Purchasing, leasing, or otherwise providing for the acquisition** of assistive technology devices by children with disabilities;

(c) **Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing** assistive technology devices;

(d) **Coordinating and using other therapies, interventions, or services** with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;

(e) **Training or technical assistance for a child with a disability or, if appropriate, that child's family**; and

(f) **Training or technical assistance for professionals** (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of that child.

(Authority: 20 U.S.C. 1401(2))

IDEA 2004: Final Regulations Consideration of Special Factors

34 C.F.R. § 300.324 Development, review, and revision of IEP
(a) *Development of IEP—*
    (2) Consideration of special factors. The IEP team must—
        (v) consider whether the child requires assistive technology devices and services.

SECTION 504 AND AT

□ AT falls under the §504 categories

□ Special Education and related aids and services constitute FAPE, the provision of which is required

Region One ESC

ADA AND AT

- AT falls under the ADA definition of auxiliary aids and services

- Auxiliary aids and services must be provided when they are necessary to afford an individual an equal opportunity to participate

Region One ESC

TEXAS AT RULES & POLICY GUIDELINES

- Texas Education Code §30 0015
- Title 19 Texas Administrative Code §89.1056
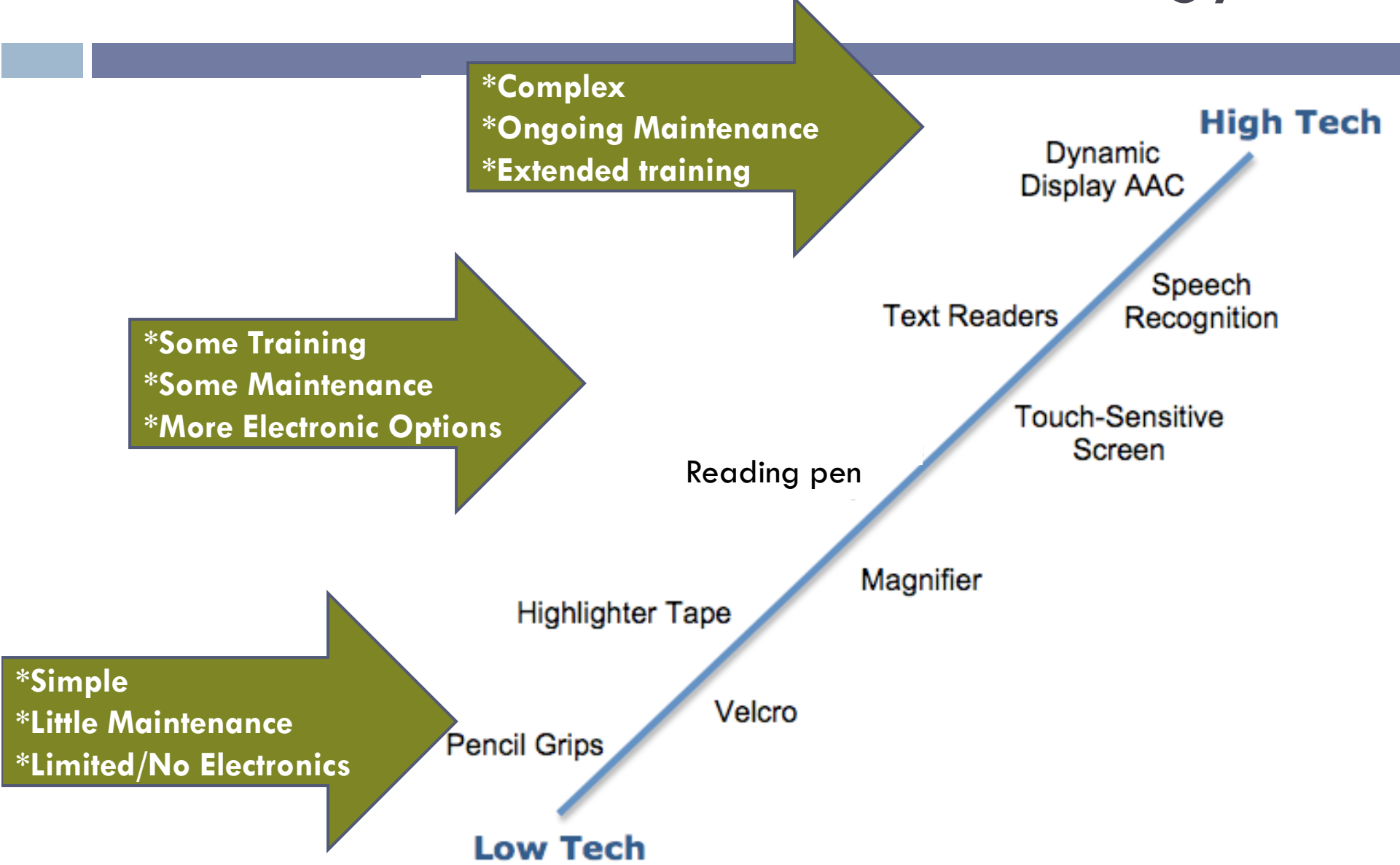
Region One ESC

TRANSFER OF AT DEVICES

- Transfer to new school, district, state, or agency following graduation, or to parents or student when they move

- Optional

- Agreement must be in writing and contain specific provisions

- Written consent required

Region One ESC

TEXAS STATUTORY OBLIGATIONS-REFLECT IDEA

- ☐ If necessary, AT must be written in as component of the IEP

- ☐ Must implement provision of AT device and/or AT services indicated in IEP

Region One ESC

Continuum of Assistive Technology

*Complex
*Ongoing Maintenance
*Extended training

High Tech

Dynamic Display AAC

Speech Recognition

*Some Training
*Some Maintenance
*More Electronic Options

Text Readers

Touch-Sensitive Screen

Reading pen

Magnifier

Highlighter Tape

*Simple
*Little Maintenance
*Limited/No Electronics

Velcro

Pencil Grips

Low Tech

Consideration

Consideration of AT

- AT devices and services must be considered by the ARD committee during the development of every IEP
  - Present level of academic achievement
  - Present level of functional performance
    - Goals / objectives
      - Accommodations
- Includes FIE and every time the IEP is being revised
- Must be based on documented evidence of needs

Consideration of AT

- Results of consideration:
  - AT is not required
  - AT is required
  - More information is needed
- Decisions are documented

Evaluation

AT Evaluation: When is it Needed?

- When student has never had an AT evaluation
- When more information is required to make a decision about AT
- When the ARD Committee determines that re-evaluation is necessary
  - student's health/sensory abilities have changed
  - educational demands change

AT Evaluation: Process

- Review how student currently performs tasks
    - Time, effort, supports
    - How others currently perform tasks
- Determine barriers and tasks that are difficult or impossible for the student
- Compile and evaluate data
    - Consider the tools used to meet the demands of the occupation (activity)
    - Matching the client's abilities, preferences, environmental contexts, and barriers to the technology device features
- Use data to determine and recommend if AT devices or services are needed

Region 4 ESC   January 16, 2016

AT Evaluation: Results

- Provides ARD committee with information to determine:
  - if AT devices and/or services will be needed
  - the nature and extent of AT devices/services required to participate and benefit from FAPE
    - Select the tool(s) that are required for the student to receive FAPE
    - Develop an Implementation Plan
    - Monitor the effectiveness of AT
    - Adjust as appropriate
    - Collect data to review at annual ARD/IEP meeting

Region 4 ESC   January 16, 2016

AT Evaluation: Who is Involved?

- Multidisciplinary team familiar with the student, environments, tasks and AT

- Includes the parents, family members, caregivers, intervener and paraprofessionals

- Includes the student, if appropriate

AT Evaluation: Protocols

- WATI AT assessment guide - www.wati.org
- SETT form, Joy Zabala & Anne Denham - www.joyzabala.com
- DATE - www.texasat.net

What Can be Evaluated?

- Reading (comprehension, decoding, vocabulary)
- Writing (mechanics, spelling, organization, expression)
- Math (computation, problem solving)
- Cognitive skills
- Recreation
- Seating/Positioning

- Communication
- Hearing
- Seeing
- Self-Care
- Mobility
- Problem-solving
- Organization
- Behavior
- Vocational

OT Role in AT Assessment

- Learning environment: Classroom or Community during CBI
  - Chair, desk, storage
  - Workspace
- Personal care
  - Eating, feeding, hygiene
- Mobility
  - Transfers, transitions, navigating environmental barriers
  - School bus
  - School campus
  - Use of mobility equipment

- Gross Motor
- Fine Motor / Visual Motor
- Visual tracking
- Visual-Perceptual skills
- Functional
- Visual Motor
- Sensory Processing
- Tolerance of sensory stimuli
- Play / work skills
- Attention and Motor Planning

Low or No Tech: Do Not Dismiss the Importance!

- Laptrays, adapted desks
- Typing aids, splints
- Book holders, 3 ring binders, slant boards
- Built-up handles, grips, new Crayon TwistUps, etc.
- Reachers, mouthsticks and head/chinpointers
- Hand held magnifiers, whole page
- Raised line paper, writing guides
- Homemade devices - Client or therapist

Overview of AT Products

☐ Not meant to be all encompassing

☐ Just representative, novel products

☐ Trying to put a name to a product to help with recognition later

☐ Sources listed on slides on handouts or email for more info, some fav sources so becomes resource list for you

Hierarchy of AT Computer Access

Least Restrictive Access

Keyboard
Mouse Technology
Proportional Joystick
Switched Joystick
4 switches
3 switches
Single switch scanning
2 switches
Single switch
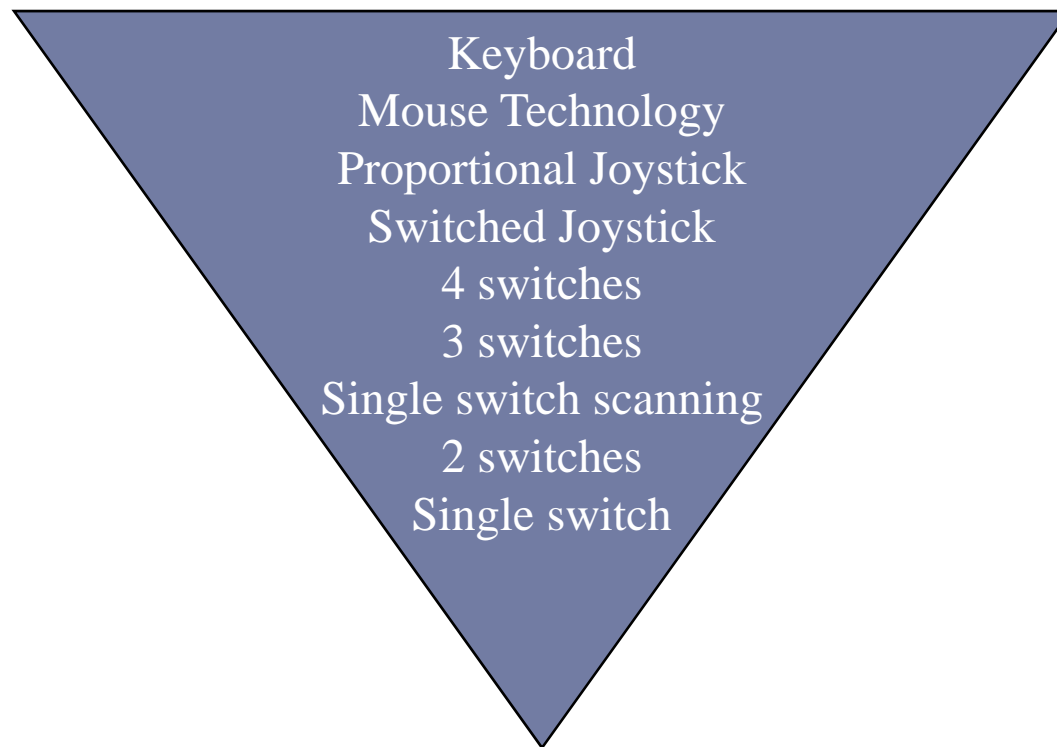
Most Restrictive Access

Regular Keyboard Use

Lefthanded Keyboard

Keyboard Labels or Keycaps

Keyboard skin

Keyguards

Low Vision Keyboard

Regular Keyboard Use

- Keyboard labels
- Keyguards
  - www.turningpointechnology.com
- Low vision, Braille keyboard
  - www.maxiaids.com
- Keyboard skins
  - www.enablemart.com
- Alternate keyboards
  - http://www.fentek-ind.com/

Regular Keyboard Use: Typing Aids

Slip-on Typing Aid

Mouth stick stylus

Mouthsticks, www.wisdomking.com, $62 and Headpointer, $112

Regular Keyboard Use: Typing Aids

- Mouth stick stylus
  - www.griffintechnology.com
- Headpointer
  - http://pattersonmedical.com/
- Typing aids
  - www.Maxiaids.com

Portable Word Processors

- http://www.writerlearning.com/

no longer manufactured

Alternative Keyboards

- www.enablemart.com

- www.datadesktech.com

Trackballs, Joystick or Mice Examples

- www.infogrip.com

- www.enablemart.com

Button

Button

Button

Button

Button
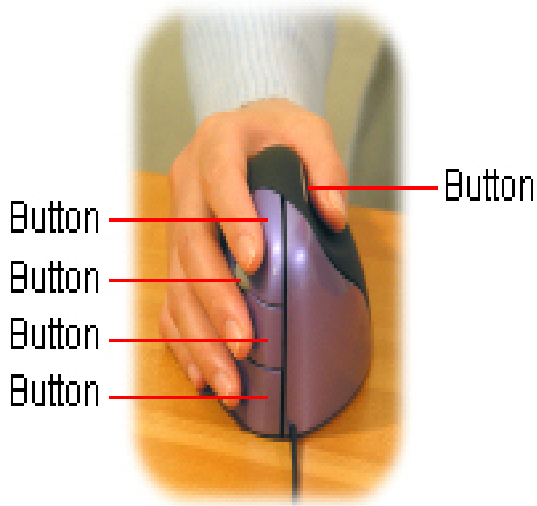
Mouse Emulation

- www.infogrip.com
- www.enablemart.com

Onscreen Keyboard

- Built in to all current computer OS
- Reach Interface
- SofType
- Cnt.lakefolks.com
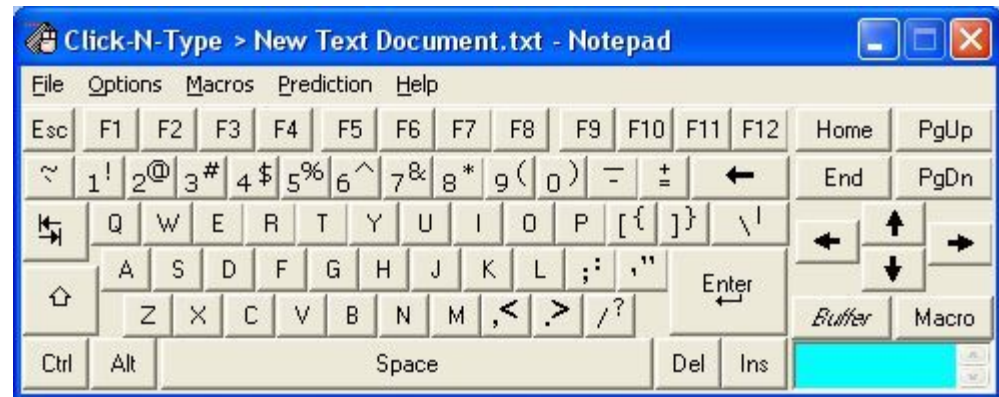
Word Prediction / Writing Support

- Co:Writer
- Kurzweil 3000
- Read & Write Gold
- Word Q
- Claro
- Clicker 7

Voice Recognition

- Built in to all current OS

- Dragon Naturally Speaking (software vs. app)

- Speak Q

- Depends upon individual

- Bottom line: For what tasks?

  - May use VR for some and type (via other methods) for some

- Where to use in public school settings? What grades? Cognitive load.

Switch Interfaces

- Have to have an interface to use switches to operate computer

- www.enablemart

- Switch software commercially available or can do some customization if needed

Switches

- Factors influencing switch access and skill development:
- Motor
- Perceptual skills
- Sensory skills
- Motivation
- Distractibility
- Preference
- Positioning: individual, equipment & resources

Fundamental Rules

☐ The chosen switch method needs to be the easiest, the quickest and the most reliable. Over time this may change.

Effort high, success and enjoyment low

Effort low, success and enjoyment high
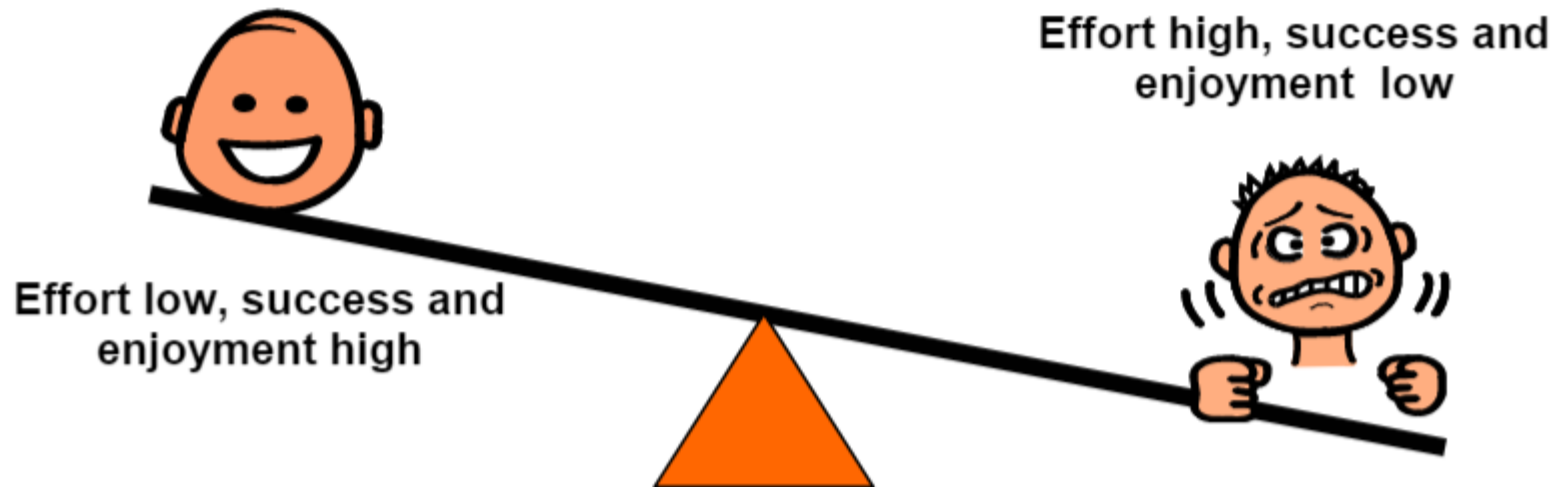
Choosing the right switch

Contact switches

- Target area - size depends on accuracy of movement
- Sensitivity : pressure needed to operate switch
- Travel: how much movement (if at all) the switch
- moves before it operates
- Feedback given from the switch e.g. auditory click
- Design: robustness, hard or soft, moisture
- resistance (if position ned near the mouth)
- Safety (e.g. if using head switches won't cause accidental damage to face/eye).

Non contact switches

- These can be technically more difficult to set up.
- They have little or no feedback and generally need a higher cognitive ability

Evaluating Switch use

- Can the individual:
  - understand what a switch press can achieve?
  - perform a movement to activate switch(es)?
  - activate the switch at the right time?
  - hit the switch when they want to?
  - not hit the switch when they don't want to
  - repeat switch press time after time?
  - sustain attention: maintain attention on what they are controlling?
  - use the switch without causing physical harm?

Scanning: Techniques and Patterns

The most laborious and mentally straining form of access is auditory scanning so is usually a last resort for access! Visual scanning is easier.

Scanning Techniques: Automatic, Step, Directed or Inverse

Patterns: Linear, Circular, Group , Customized

Augmentative Communication

- OT plays vital role as part of assessment team
- Students should be using their devices in OT sessions, not just in speech therapy or in class
- Resource sites
  - www.lburkhart.com/
  - http://praacticalaac.org/
  - http://www.janefarrall.com/

10 things I wish my teacher knew about AAC

(insert AT or therapist, parents, etc) Callier Center/ ASHA
http://www.callier.utdallas.edu/ACT/res.html#C

1. I wish my teacher would joke with me.
2. I wish my teacher would learn how to work my communication device.
3. I wish my teacher would stop shouting at me like I can't hear.
4. I wish my teacher would remember that I don't always spell very well.
5. I wish my teacher wouldn't have a heart attack when my device doesn't work.
6. I wish my teacher would have more patience with me.
7. I wish my teacher wouldn't hit my machine when it doesn't work- that's my mouth she's hitting!
8. I wish my teacher would call on me for Share Day.
9. I wish my teacher would give me enough time to say what I'm thinking.
10. I wish I could walk and talk like my sister and brother.

AAC with Environmental Controls

- Dynavox and Prentke Romich products have had infrared access for years with high end AAC devices.
- Use for electronics in home or for operating toys for children.

Controlled device or toy.

- AMDI Tech Talk ECU

Environmental Control:
ECU or EADLs

- www.adaptivation.com
- Jumbo Universal Remote
  - www.enablemart.com
  - walmart
- Powerlink
  - www.ablenetinc.com
- More complex with scanning

Self Feeders

Neater Eater,
www.sammonspreston.com, $3796.00

Winsford Feeder, Sammons, $3746 or
www.activeforever.com at $2795!!

Steady Spoon, Sammons, $40-50.00

Low Tech Toys and Learning

My Handout

- Great research summary article about using AT with infants and toddlers:

www.asu.edu/clas/tnt/presentations/UsingAssisTechInfTodEBP.pdf#search='toddlers%20AND%20power%20mobility'

- Spice up use of switch toys by being creative, using in units, cooperative activities, encouraging language and motor skills

- Look wherever you shop for battery operated, current toys can add a battery interrupter to. Cracker Barrel, $1 stores..

- Best sources of adapted switch toys remains www.enablingdevices.com, but try Ebay as well!

The Low Down on Battery Operated Toy Adaptation

- Battery interrupters, $8-14 from
        AAA-D battery sizes
- Make own, directions online.
- Cold solder is now available
- Buying toys already adapted is more expensive, but some benefits
- Adding own interrupters to cheap toys allows to increase interest with current toys, like Curious George or Dora

More Toy Tidbits…

- Some call adapters, but adapters are the way to change from a 1/4 inch plug to a 1/8 plug or vice versa

- Note can buy both from Enabling Devices, just not shown in catalog. Also from Radio Shack and others

- Many toys have multiple operations and may not be easy to adapt

- Some battery compartments are too tight to place copper disk in

- Rasp to notch edge of cable

- Key! One adapter for one toy! Last much longer, easily used…

Vision AT Examples

- Magnifiers, handheld, lighted

- ADL aids: many talking ones now for blood pressure, color and money detection (Voice It All, $250, www.maxiaids.com , scientific calculators,hobbies!

- CCTVs, ex. Quick Look color portable, $745, Maxiaids

- Software for screen enlargement (Zoomtext) or screen reading (JAWS, $900-1100, Maxiaids) or Braille input/output

Telephones and Cell Phones:

- Ameriphone RC 200 Handsfree telephone, $400,

- Picture Phones, $60, www.101phones.com

- Bluetooth technology advances

- Amplification,Headsets

- TTY, Relay services,Speech to Speech/Sprint

- Alltel Disability Access cell phone reference:

http://www.alltel.com/phones/disability-access.html

- Engineer who specializes in adapted cell phones for all disabilities, Ray Gonzales,

  919-523-0205

http://www.etoengineering.com/quadriplegic.htm

Mounting

Mounting Systems:
For Switches or AAC

mounts360.com

- www.adaptivation.com

- www.rjcooper.com

- www.inclusivetechnology.com
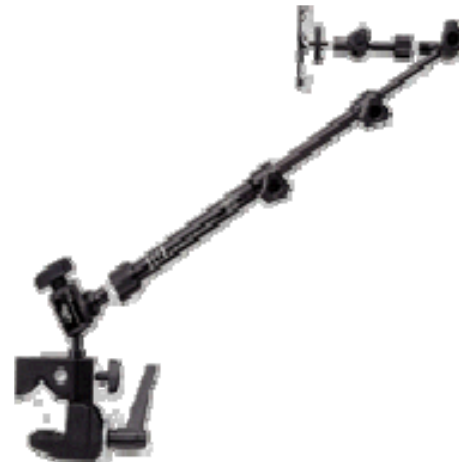
Early Positioning AT

- Bumbo Seats
  - www.bumbo.com
- Ladybug corner chairs
  - www.adaptivemall.com
- Tomato
  - www.adaptivemall.com
- Giraffe standers
  - www.adaptivemall.com

Adaptations for Children

Adaptations for Children with Disabilities

- Environmental Support
- Materials Modification
- Modifying the Activity
- Using Child Preferences
- Peer Support
- Invisible Support
- Adult Support

- Physical
- Visual
- Auditory
- Cognitive
- Behavioral

Environmental Support

- Has difficulty putting toys and equipment away during clean up
  - use pictures or symbols on shelves and containers. Make clean up a matching game.

- Has difficulty playing near peers
  - plan cooperative small group activities with engaging and highly motivating materials so that the child is in proximity with peers while engaging in fun activities such as creating murals and building cooperative block structures.

- Has no play partners
  - build friendships by seating the same peer next to the child every day at a planned activity such as small group or circle time.

- Does not participate in learning centers during free choice time
  - create a picture schedule for the child. The picture schedule can have pictures or symbols representing the various learning centers organized in a certain order; 1. art, 2. dramatic play, 3. blocks The child should be taught to refer to her schedule each time she finishes one activity and goes onto the next. She can also refer to her schedule when it is time for her to join an adult in a center in order to learn how to play there.

- Has difficulty making transitions
  - just before the transition provide the child with a picture or symbol representing the area or activity that the child should go to next. The child could even take the picture or symbol card with him to the next area.

- Quickly finishes with an activity and then has difficulty waiting for the next activity
  - open one or two quiet centers (such as the book area or computer) after the activity and allow her to leave the activity and go to one of the open quiet areas.
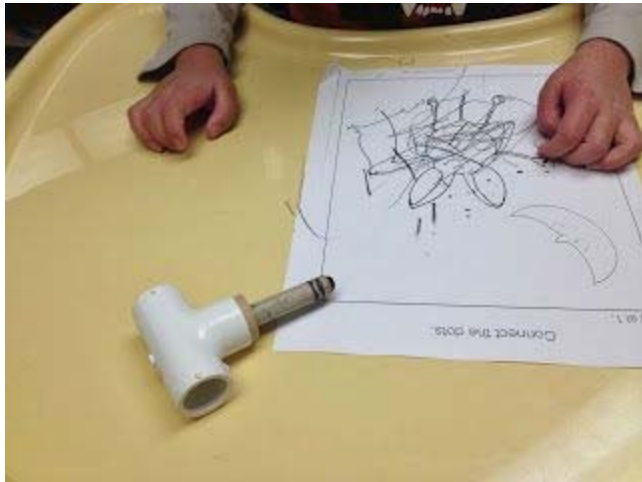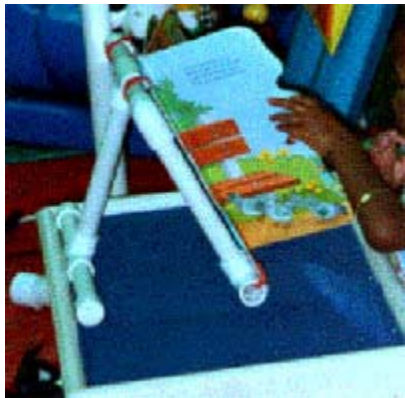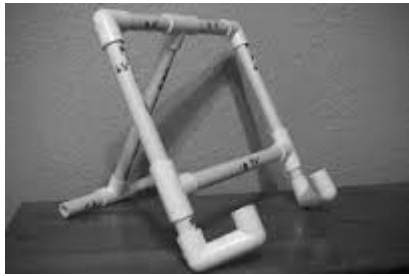
Pool Noodles

For positioning

Pool Noodle Seat

Your THERAPY Source

Metal bed frame²

Stub your toes
Cut your heels
NO MORE!

POOL NOODLE PADDING!

small fine print

easy-to-make
POOL NOODLE
CARD HOLDERS

5 1 2 6 4 ... four

a blog post by
the brown bag teacher

Pool Noodle Seat

Your THERAPY Source

Metal bed frame?

Stub your toes
Cut your heels
NO MORE!

POOL NOODLE PADDING!

small fine print

easy-to-make
POOL NOODLE
CARD HOLDERS

5 1 2 6 4 ... four

a blog post by
the brown bag teacher

PVC

For anything

Writing

Mobility / Seating

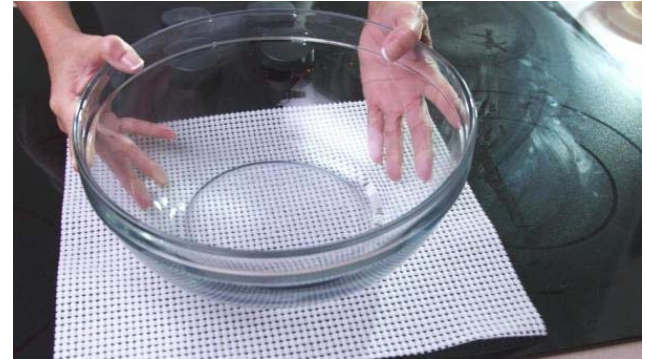# Position for Access

Sensory

The Wonders of Velcro

Follow the Velcro rule!

the

The
T-H-E,
T-H-E,
I can spell "the,"
T-H-E

I can spell " the !"

1
2
3
4
5

6
7
8
9
10

Nap Time Creations

man
shook
worm
grew
pizza man
girl
elf
king

Easels / Slant Boards

quick, easy and
affordable
pvc pipe easel

Dry
Erase
Slant
Boards

HAMMERMILL
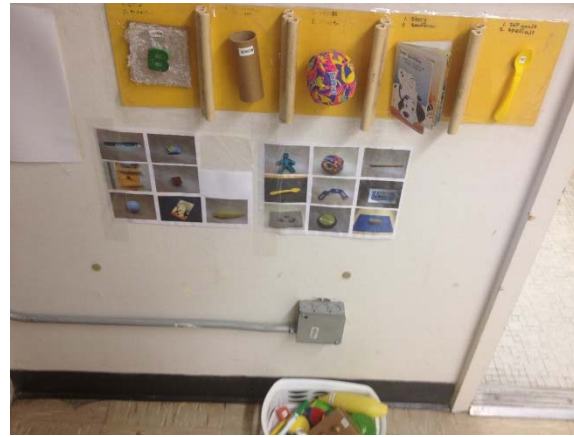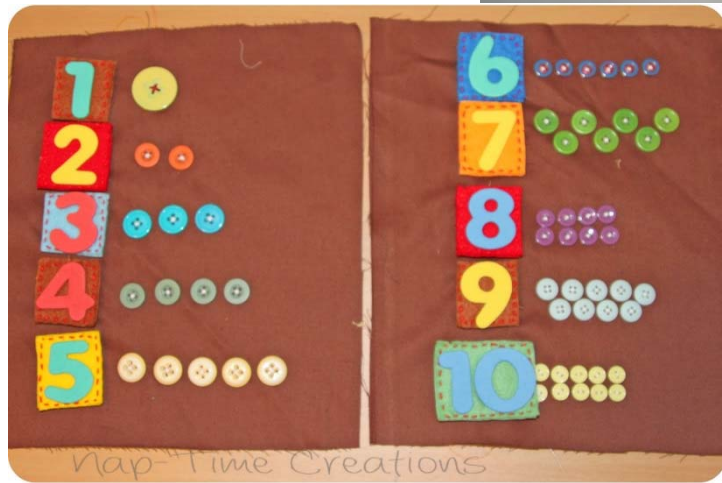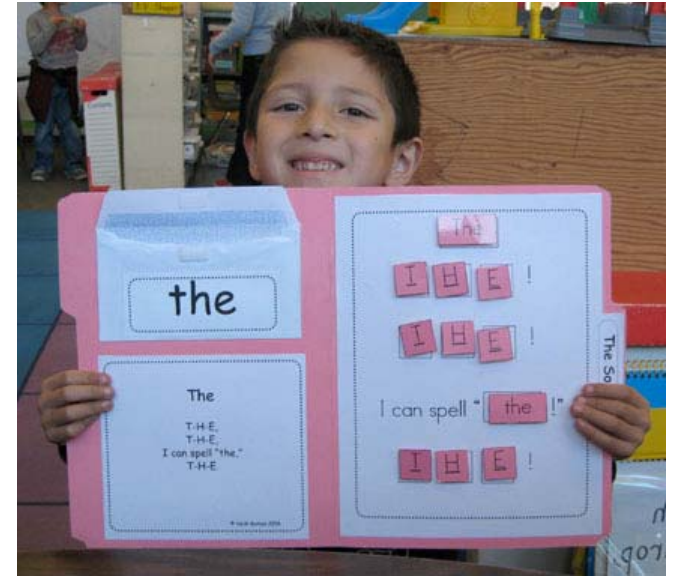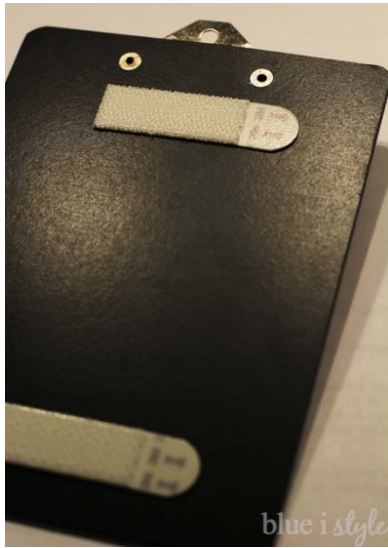
Stabilize

Upper Extremity Support

Powerboard, www.sforh.com, $115

Zonco Mobile Arm Valet, www.zoncoarm.com, $838 plus for various attachments

Ergorest, www.infogrip.com, $119-199

Morency Rest, www.sforh.com, $115

Electronic Page Turning: Worth it?

- Book holders and mouthsticks easiest! Cheapest as well.
- Electronic: GEWA (Winsford) and Touch Turner

www.touchturner.com $980

www.zygo-usa.com

Roberts Book Holder, $19,
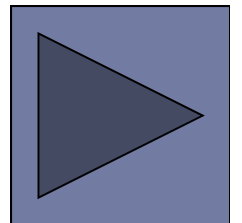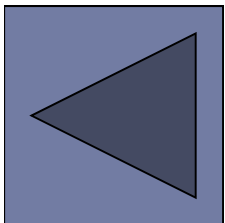www.activeforever.com

Adapting Grips

Low Tech Book Holders or Page Turning

- Books on CD or tape, spiral bound for SCI is easier
- Book holders, nice ones from Bible stores
- Magnetic Page Turner, $60, www.augresources.com
- BookWorm, $239, www.ablenetinc.com switch access and voice output
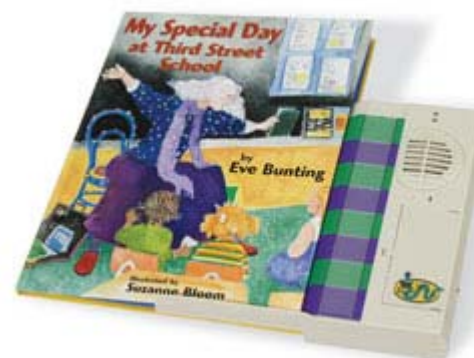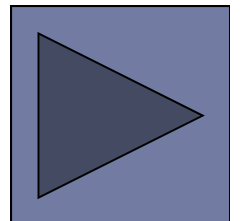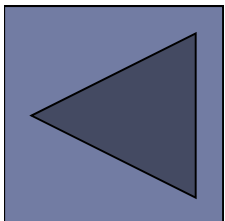
I Love Cats!
Our Field Trip to Big Cat Rescue

Big or small…. I love cats!

Link to how to adapt Powerpoint for switch books, various sites

www.everhart.leon.k12.fl.us/downloads/Powerpoint%20V3.pdf

DIY Modifications

- https://www.pinterest.com/lmswedberg/diy-occupational-therapy-gadgets/

- https://www.pinterest.com/aacandat/diy-at/

- https://www.pinterest.com/kristaw70/ot-assistive-devices-and-adaptations/

Power Mobility and Driving

- These are true specialty areas.

- Karen Kangas, OT, great resource for power mobility, 13 page article about LMN for head access for power mobility www.asl-inc.com/PDFS/overallhead.pdf#search='karen%20kangas%20AND%20assistive

- Peggy Barker, P.T. website with sources for AT for power mobility www.atole.com/

- Adaptive Driving, An Introduction

www.infinitec.org/live/driving/dealers.htm

- Adaptive Driving and Vehicle Modifications, sources www.familyvillage.wisc.edu/AT/Driving.htm

Melanie, from film
www.freedommachines.com

Contact Me

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mhorney@esc1.net

956-984-6264