Using Assistive Technology to Support Engagement with Literacy

Presented By:

Stephanie Mundinac, TSVI, ATP

Kristen Wells, COTA/L, EFC

STEPHANIE MUNDINAC, MA SMD, TSVI, ATP

Stephanie is a teacher for students with visual impairments for the Ozark Public Schools. She has worked for Ozark for the past twelve years, the first nine having been spent working in special education with students with severe and multiple disabilities in grades Pre-K through 8th grade. In 2016 she received her Master's degree from West Virginia University in the area of Severe and Multiple Disabilities and in 2021 completed a graduate certification in the area of Blindness and Low Vision at Missouri State University. She is a RESNA certified Assistive Technology Professional and loves that AT makes learning accessible for the students she has the privilege of working with.

KRISTEN WELLS, COTA/L , EFC

Kristen is an Occupational Therapy Practitioner in the Ozark R-VI School District where she has been practicing in pediatrics for about 10 years, but has worked with a variety of ages. Her focus in schools is supporting teachers and helping students develop self-regulation skills, motor skills, vision skills, etc. to increase their independence and functional engagement at school. Utilizing assistive technology with students is often imperative to their success, engagement, and independence in the classroom environment.

ASSISTIVE TECHNOLOGY REMINDERS FOR THE EDUCATIONAL SETTING

- **Assistive technology decisions are team decisions and should be made by members of a multidisciplinary team.**
- **Implementation of assistive technology involves the entire IEP team and requires constant communication and collaboration.**
- **Certain pieces of assistive technology must only be used under the supervision and/or guidance of professionals who have specific expertise with those devices to maintain student safety.**

DEFINITION OF LITERACY

“ At its simplest, literacy is the way that we interact with the world around us, how we shape it and are shaped by it. It is how we communicate with others via reading and writing, but also by speaking, listening, and creating. It is how we articulate our experience in the world and declare, “We Are Here!”

- **Amber Peterson, National Council of Teachers of English (2020)**

WHY IS IT IMPORTANT?

- **Literacy is not just reading and writing, but how we experience the world around us, which contributes to our overall quality of life.**

- **Literacy activities can support language acquisition and communication, which in turn allows students to have a voice.**

- **All students should have the opportunity to receive information in ways that support their strengths and promote independence.**

- **All individuals need access to literacy to participate in society.**

ACCESS TO LITERACY

- Physical Access
- Compensatory Access (Vision/Communication)
- Cognitive Access

PHYSICAL ACCESS

- Can the student physically access the literacy materials?
- How can materials be positioned to promote independence?
- How can the student be positioned to promote independence and physical engagement?

COMPENSATORY ACCESS

- **How will student who are blind or visually impaired engage with materials? Have those materials been modified appropriately?**
- **If a student has communication needs, how can we present literacy activities that help develop language and increase independence with their communication modality?**

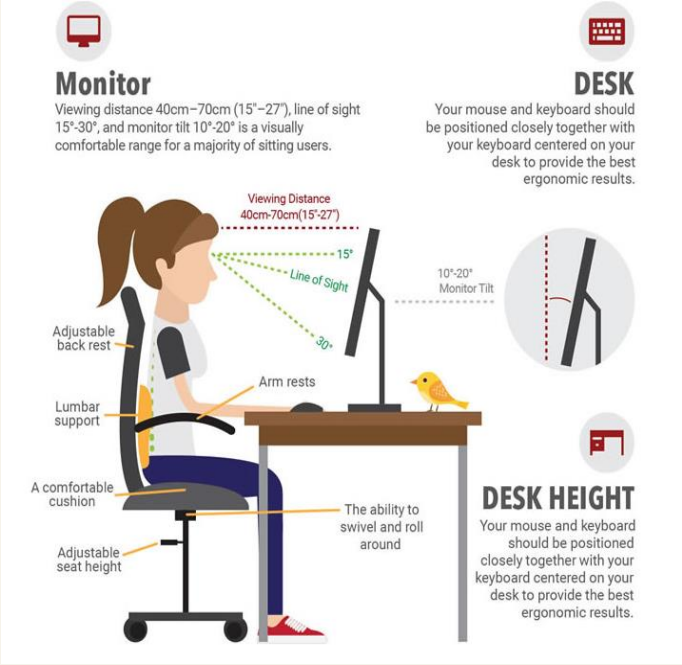
COGNITIVE ACCESS

- How can materials be modified to ensure students with cognitive disabilities can receive and understand the information?
- How will we know if they are engaged?
- How can specific pieces of technology increase cognitive access for students?

PHYSICAL ACCESS: POSITIONING

- Maintain skeletal alignment
- Decreases abnormal muscle tone or influence on the body
- Provides a stable base of support which supports overall function
- Promotes comfort and relaxation
- Helps to facilitate normal movement patterns
- Decreases physical fatigue
- Enhanced autonomic nervous system functions (digestion, heart rate, breathing, etc.)

PHYSICAL ACCESS: POSITIONING 2



- Proximal to Distal (pelvis, spine/core, shoulders)
- Functional distal movement (hands, feet, head/neck) often requires stability proximally
- Posture and Stability: our posture is frequently shifting and changing to facilitate functional movement
- For a child with a physical disability, their body is most likely not doing this on its own.
- Be mindful of table and desk heights
- 90 - 90 - 90

WHEN POSITIONING STUDENTS…

- Always start with the student's body then the device/activity
- Proximal to Distal - get their core stabilized then work outward
- Questions to ask yourself:
  - What will the child need to move/what movements are required
  - Can they physically engage and also see what they are working on
  - What modifications will you need to make to help them be the most independent
  - Location/Equipment (standing vs sitting, quiet room vs busy classroom, etc.)

POSITIONING EXAMPLES





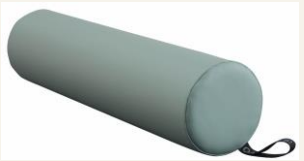
BODY SUPPORT TOOLS

Benik Vest

Hensinger Collar

Headpod

i2i Headrest



Bolster

Towels/Blanket

Wedges

Rifton Activity Chair

Special Tomato Seat

Boxes

POSITIONING TOOLS

Easy Flex Stylus

iPad Stylus

Mobile Arm Supports

EasyHold Cuffs

Built Up Handles

Slant Boards or a Binder

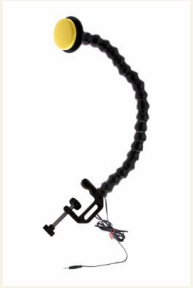
POSITIONING DEVICES

Wheelchair Mounts

Device Floor Stands

Table Top Stand

Special Tomato Mobile Activity Tray



Easy Flex Switch Mount

COMPENSATORY SKILLS

Compensatory skills include skills necessary for accessing the core curriculum including concept development; communication modes; organization and study skills; access to print materials; and the use of braille/Nemeth, tactile graphics, object and/or tactile symbols, sign language, and audio materials.

Texas School for the Blind and VIsually Impaired

COMPENSATORY ACCESS: VISION

- Sensory channels (visual, auditory, tactile)
- Modified graphics: simplified, high contrast, tactile
- Enlarged Print/Braille
- Movement components
- Size and distance
- Light (backlit vs overlit)
- Tactile discrimination skills
- Auditory components
- Objects vs pictures
- Hierarchy of learning media

AT for Vision

Light Box

Novel Effect App

Clip Lights

Tactile/Dual Print Books

Work Trays

Story Boxes

HIERARCHY OF LEARNING MEDIA

1. **Own body** (passive sensory input)

2. **Objects, people, and actions touching the body** (early exploration of one primary object of interest at a time)

3. **Objects, people, actions, and places beyond the body** (exploration of things at distance)

4. **Clusters of objects, people, actions, and places that are part of events beyond the body** (using integrated multisensory information for understanding relationships between multiple elements)

5. **Symbols for objects, people, actions, places, and events**

– Static forms that remain present over time: objects, part objects, pictures, print, braille

– Dynamic forms that go away after presentation: spoken language, signed language

Let’s talk through it!

HIERARCHY OF LEARNING MEDIA

COMPENSATORY ACCESS: COMMUNICATION

- Requesting
- Refusing/Rejecting
- Requesting Attention
- Labeling/Describing
- Commenting
- Asking and Answering Questions
- Expressing Feelings

(What are Communicative Functions? 2019)

AT FOR COMMUNICATION - Low Tech/Static Display

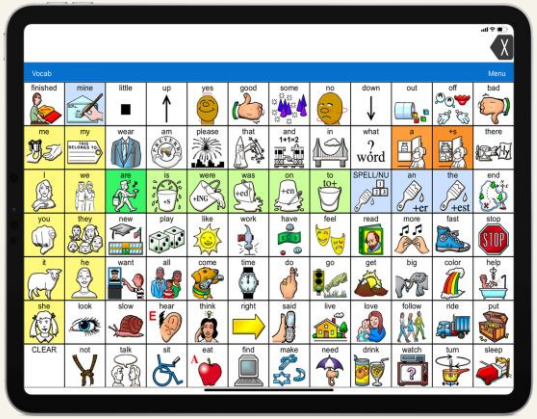
Backlit Picture Communicator

Four Button Picture Communicator

Four Level Communicator

Recordable Switches

AT FOR COMMUNICATION



LAMP WFL Unity

WinSlate Pro with Enable Eyes

TD Snap Communicator

COGNITIVE ACCESS INCLUDES

- **Adaptability - Create activities and experiences that can be presented in many different ways without losing information**
- **Distinguishable - Make content easy to see and hear**
- **Enough Time - Allow students enough time to process sensory stimuli**
- **Navigation - Provide methods, including physical supports, to help users explore and navigate literacy materials**
- **Readability - Make content that is easy to understand visually and cognitively**
- **Predictable - Create activities that are easy to engage with and predictable in nature (plan for repetition)**
- **Input Assistance - Teacher support**

(Halpin, A Guide to Improving Cognitive Accessibility 2024)

Supporting Active Learning

Ensuring that students have optimal physical, compensatory, and cognitive access to literacy allows them to be active, rather than passive learners.

ACTIVE LEARNING

- Experimentation
- Application
- Creation (communication)
- Synthesis (combining ideas, sensory input)
- Multiple modes of learning

PASSIVE LEARNING

- Observation
- Listening

(Active Learning vs. Passive Learning 2022)

WHY IS ACTIVE LEARNING MORE EFFECTIVE?

- Improves short term information acquisition
- Improves long term knowledge retention
- Creates room for frequent feedback
- Allows more information to be presented from multiple sources
- Stimulates learner’s attention
- Requires participation, which leads to more long-term retention
- Encourages learners to develop critical thinking skills
- Helps learners apply lessons to real life

(Active Learning vs. Passive Learning 2022)

5 KEY POINTS OF THE ACTIVE LEARNING APPROACH

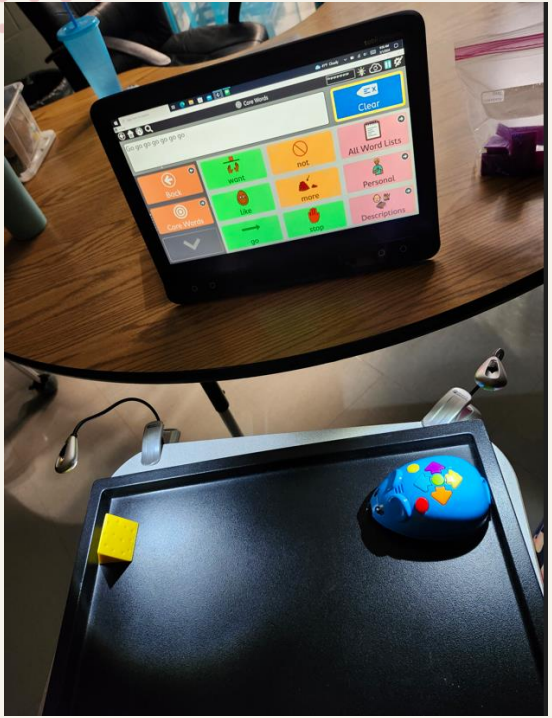
1. Active Participation
2. Repetition of Opportunities
3. Developmentally Appropriate
4. Reinforcing to the Student
5. Limit Distractions

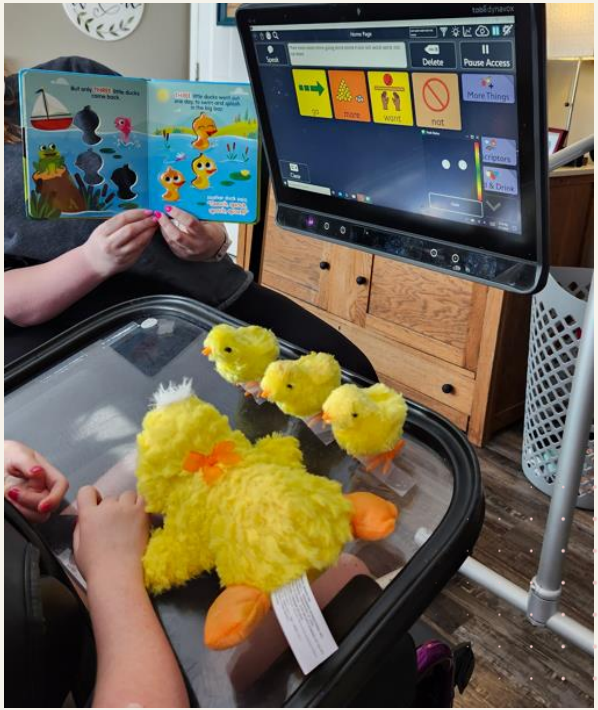
(Renaud, What is the Active Learning Approach in Special Education? 2023)

STUDENT EXAMPLES

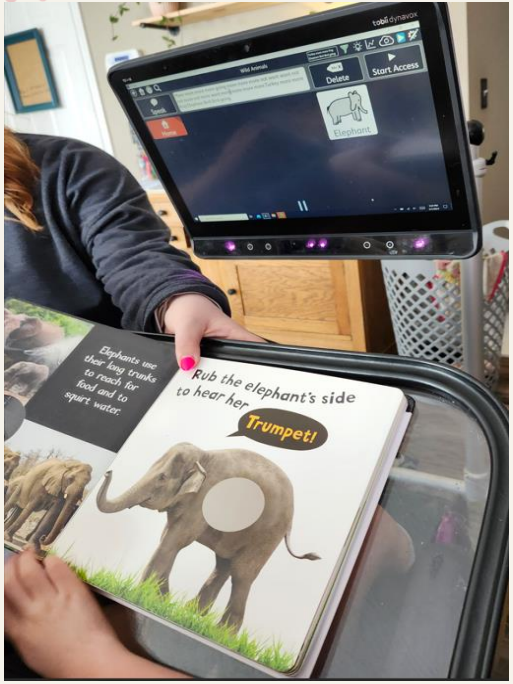
STUDENT EXAMPLES 2

STUDENT EXAMPLES 3

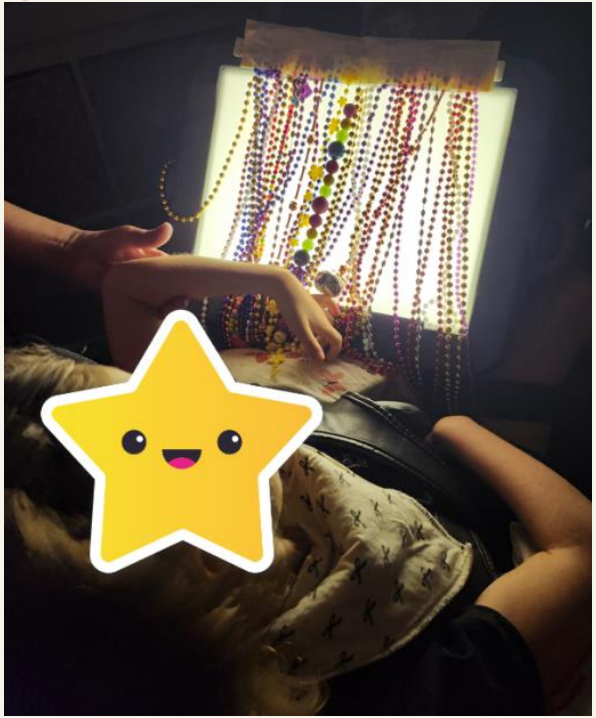




STUDENT EXAMPLES 4



STUDENT EXAMPLES 5



QUESTIONS?

THANK YOU!

Resources

- Pathways to Literacy
- Perkins School for the Blind
- Teaching Students with Visual Impairments
- American Printing House for the Blind
- Texas School for the Blind and Visually Impaired
- CVI Supports
- Every Move Counts

Resources Continued

- Enabling Devices
- TobiiDynavox
- LAMP Words for Life
- WinSlate Series
- Roman Word Bubbling
- Novel Effect
- Literacy Strategies for AAC Users

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