



# Effective Access to Communication and Literacy for Students with Visual and Multiple Disabilities

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# About me...

- Graduated from U of A in 1997
- Teacher of the Visually Impaired
- Certified Orientation and Mobility Specialist
- Coursework in AT
- Currently a TVI/COMS in the Madison Elementary School District
- Students with visual impairments and multiple disabilities are my passion

# About You....



# Topics for today:

- Special characteristics of MD/VI students
- appropriately select and use an abstract symbol system for literacy and communication
- use common assistive tools and devices more effectively
- modify the environment and materials for more effective access

# Characteristics of students w/ Multiple Disabilities & Visual Impairments

- MD/VI
- Often due to prematurity or other birth complications
- Visual Issues
  - usually mild to moderate
  - typically combined with visual processing problems
- VI typically is not the primary disabling condition

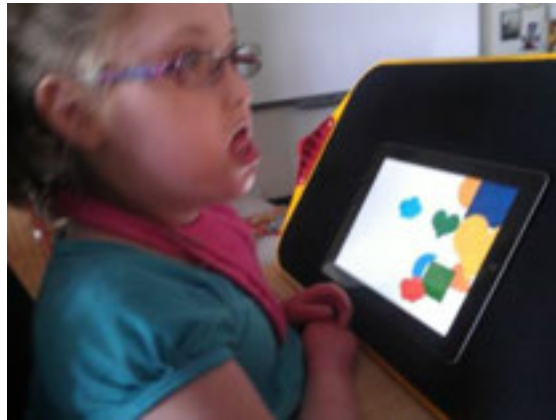
# More characteristics common to students who have MD/VI



# More characteristics common to students who have MD/VI

- History of brain damage
- Limited verbal skills
- Eating/feeding issues
- Gross & Fine Motor issues
- Use wheelchairs
- Medically fragile
- Seizures
- Behavioral issues
- Cognitive impairments

# Examples – Students who have MD/VI





## Visual issues can be a hidden problem...

- A large percentage of children with multiple disabilities are visually impaired
- “Over 40% of the brain is devoted to visual function, so it is not surprising that a large portion of children with damage to the brain have visual problems.” \*

\* Dr. Christine Roman-Lantzy, Cortical Visual Impairment, AFB Press, 2008, pg. 10.

# Impact of Vision Loss on Learning

- Limits ability to learn incidentally from the environment
- About 80% of what children without visual impairments learn is through visual cues \*
- The other senses do not fully compensate – the only other distance sense, hearing, does not give long-lasting information that can be re-examined easily

\* Project IDEAL Online <http://projectidealonline.org/index.php>

# Communication/Literacy & Students who have MD/VI

- Communication & Literacy are intertwined
- Communication & Literacy = a way to share with others
- Incorrect use of symbols with MD/VI is a common barrier

# Using a Symbol System for Communication & Literacy

- Ultimate = print/braille & spoken language
- Common alternative = symbol or photograph based system
- Many MD/VI students struggle with symbols



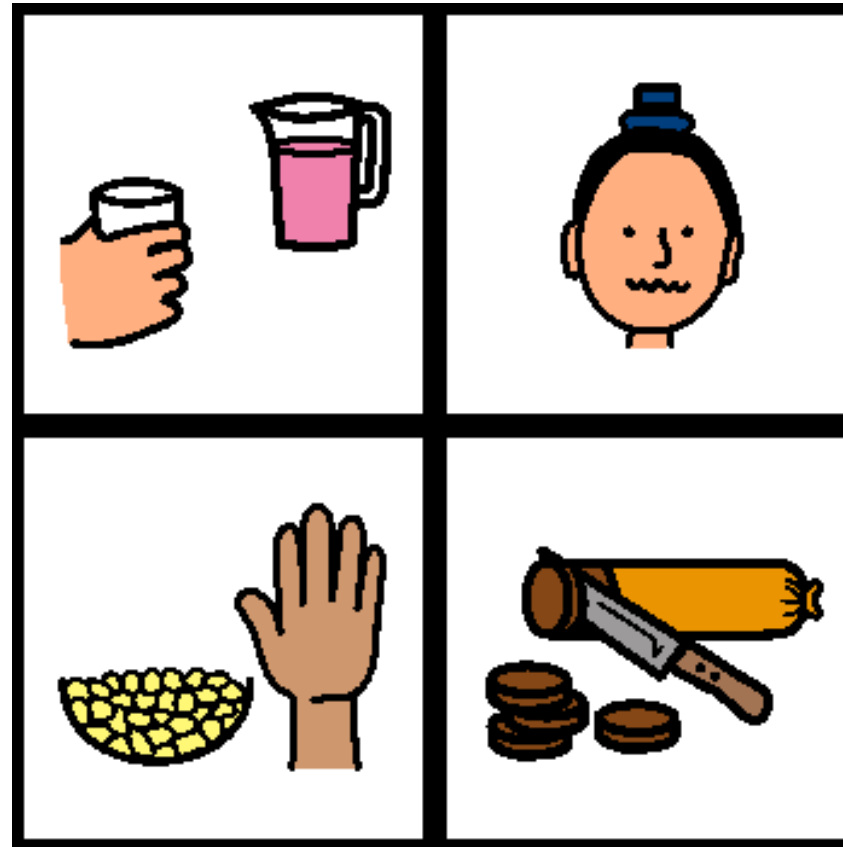
# Common Problems Using Symbols

1. Materials with symbols are visually complex
2. Learning medium isn't considered – incorrect symbol type is chosen

# Problem 1 – Symbols are Complex

- The drawings can be very abstract
- The parts necessary to determine exact meaning can be very small
- 1 1/2” size typically used is usually too small
- Multiple colors can be cluttered & distracting
- Remember, students usually can't read the text label...

# Guess what?



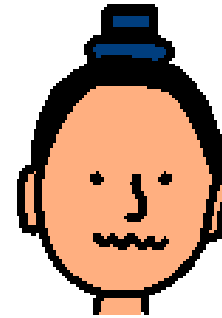
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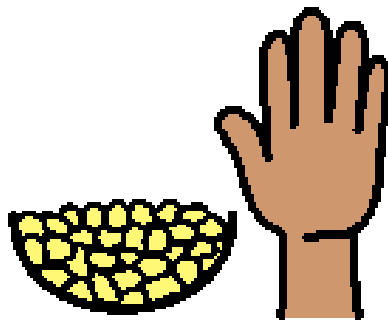
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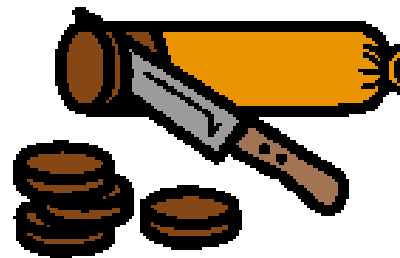
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3.



4.





more



too little



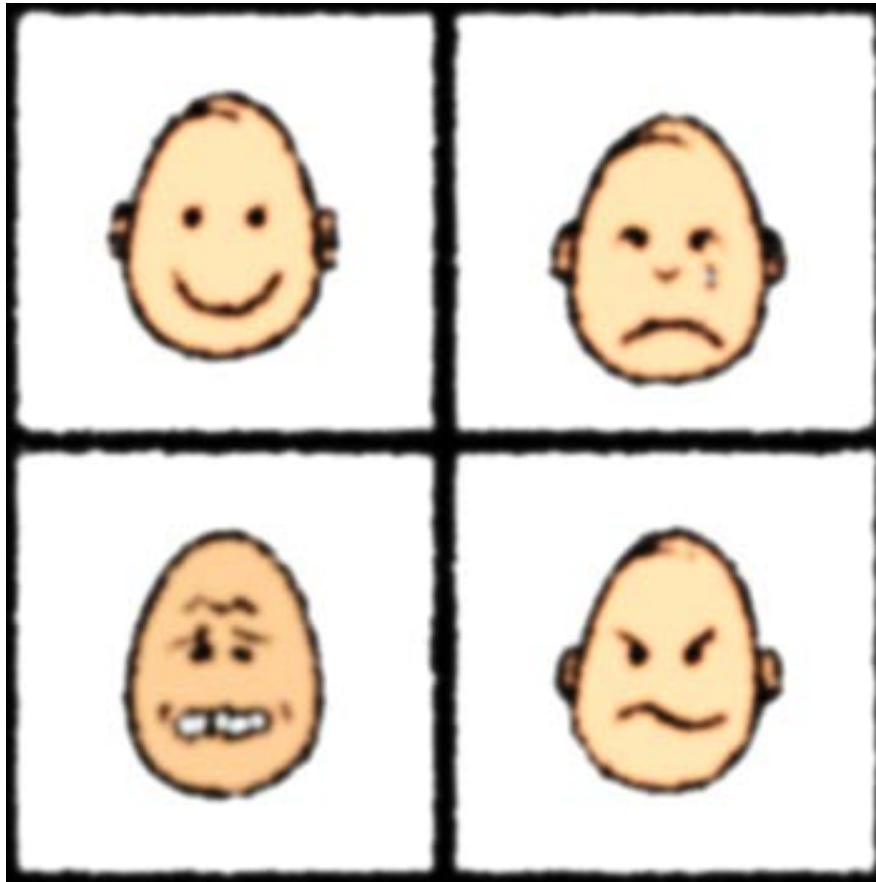
full



slice



Which face matches says what I am feeling?



happy



sad



scared



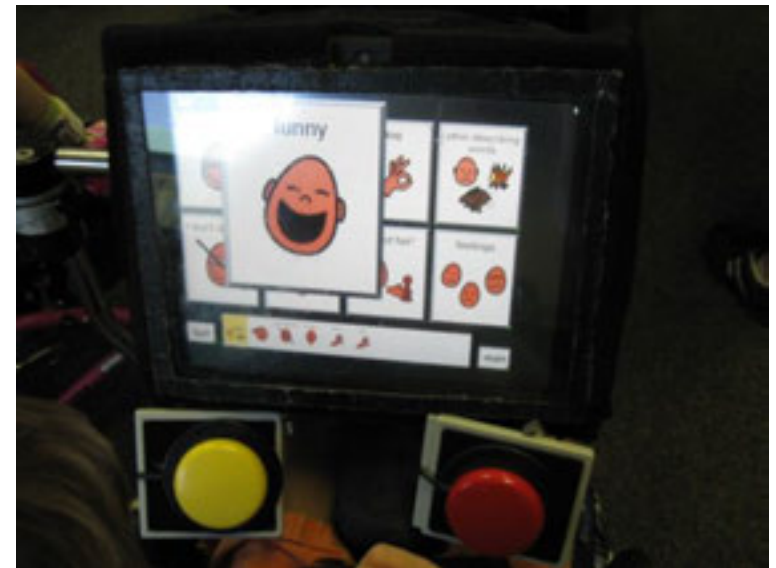
mad



## Better ways to use Symbols –Size & Glare

- Use symbols large enough to correctly discriminate – my standard is 3” square
- Size is even more important when the student has limited motor skills
- Consider lighting & glare
  - Check glare at kid’s eye level
  - Reposition materials/student
  - Glare from laminating film
  - **CRITICAL** for computer/device screens

# Glare – A Hidden Problem



# Better ways to use Symbols - Simplify

- Use extra spacing
- Reduce number of symbols shown
- Use black backgrounds
  - reduce clutter & increase focus
- Try different total number of symbols and arrays

# Examples – Better Symbols



## Problem 2 – Correctly Consider Learning Medium

- Learning Medium = what sensory channel is used for learning
  - Vision, tactile, auditory
- Usually a primary and secondary medium
- Learning Medium determines the type of symbol system that is needed
- TVI and Speech must work together



# Visual Learners – Continuum of Symbols

Standard = print or line drawing

Less Abstract Alternatives

- Objects
- Parts of objects
- Photographs
- Photos or symbols with simplified or enhanced elements (Visually Enhanced Symbols)



## CVI Challenges with 2-D images

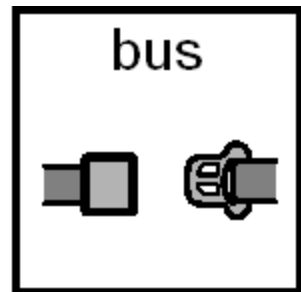
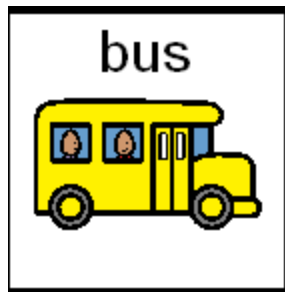
- Photos or symbols are not recommended for children with a CVI Range score less than 6 due to visual processing issues \*
- Teach more complex symbols over time as CVI score improves

\* Dr. Christine Roman-Lantzy, Cortical Visual Impairment, AFB Press, 2008, pg. 136.

# Visually Enhanced Symbols

- Symbols or photos can be modified to enhance certain elements
- Take out the text
- Simplify/highlight elements
- Boardmaker has a PCS High Contrast Symbol Library

# Examples Visually Enhanced Symbols



Boardmaker High Contrast Library

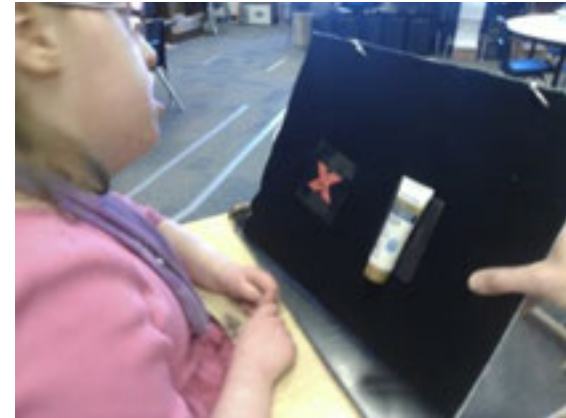
# Tactile Learners – Continuum of Symbols

Standard = Braille or ?

Less Abstract Alternatives

- Single or multiple objects
- Partial Object Symbols – pieces of actual objects NOT mini objects
- Challenges with tactile symbols for verbs, adjectives, & common “chat” language mean an auditory system may be needed

# Tactile Symbols - Examples



# Auditory Learners – A Continuum of Symbols

Standard = Speech

Less Abstract Alternatives

- Gestures & facial expressions
- ???

# Auditory Learners – What to Do

- Use the secondary medium combined with auditory feedback – or auditory only
- Consider step scanning with auditory feedback
- Simplified scanning
- Even more modeling and practice/experience time will be needed



# Auditory Learners - Examples



Auditory Scanning with the new Smooth Talker from [www.inclusivetlc.com](http://www.inclusivetlc.com)

# Common AT to Support Communication and Literacy



# Use common AT tools correctly for VI needs

- Classroom AT tools for Literacy and Communication need to be used differently for MD/VI students
- Individual visual functioning must be considered for each student – TVI's area of expertise
- Visual and motor needs are hard to separate - coordination between the TVI, SLP, OT, and PT is needed



# Common AT to Support Communication and Literacy

- Picture Based Symbol Systems
- Step-by-Steps
- Environmental Control Units and switches
- Mid-Tech AAC Devices
- Personal AAC Devices

# Tips to Use Common AT tools with students with MD/VI

## Placement & Positioning

# Placement & Positioning Problems



# Tips to Use Common AT tools with students with MD/VI

## Placement & Positioning

- Consider visual field/functional vision along with physical access needs
- VMI challenges complicates access
- Permanent mounting location
- The head may be best location for switch access - visual input is not always needed

# Placement Examples



Loc Line from  
[http://www.modularhose.com/  
Assistive-Technology](http://www.modularhose.com/Assistive-Technology)



## More Tips

- Your body adds visual complexity
  - Clothes
  - Gestures used
- Be specific about where you stand
- Give extra processing time
- Model how to use devices multiple times

Modify the environment & materials...

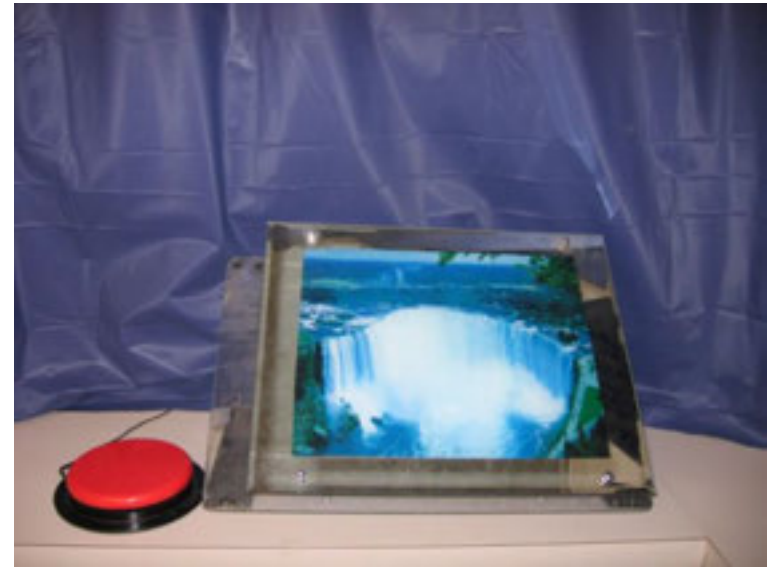
# Visual Complexity = You



# Modifying the Environment for MD/VI

- SIMPLIFY VISUAL CLUTTER
- Use background backgrounds
- Remember most MD/VI kids aren't aware of things more than 4-6 feet away

# Example of Reducing Environmental Clutter



Invisiboard from APH



## More Environmental Modifications

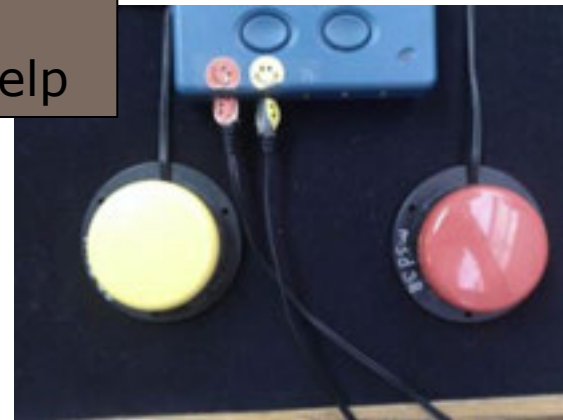
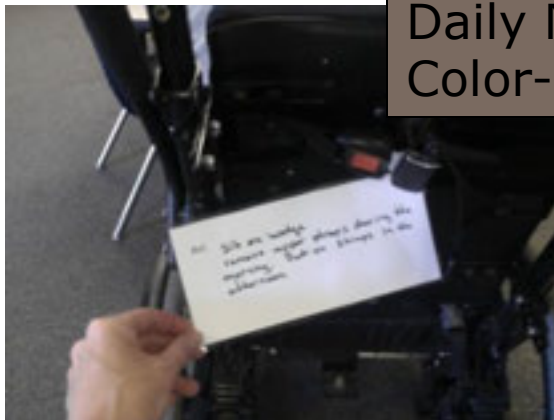
- Consider position related to lighting & glare – particularly for non-mobile students
- Reduce extraneous noise
- Make it easier for staff

# Modifying the Environment: Making it Easy for Staff

Communication  
"Cheat Sheets"



Daily Notes &  
Color-Coding Help



# Modifying the Materials for MD/VI

- Reduce visual clutter
- Simplify materials
- Be cautious with lamination
- Use black backgrounds & extra spacing
- Usually use enlarged materials
- Use appropriate symbols

# Examples – Modifying Materials





# Summary

- The TVI is a critical element in a team of specialists who collaborate regularly
- Selecting the appropriate symbol system is critical for communication and literacy to be accessible
- Changing how we use devices and set up the environment is key to helping students with MD/VI be successful communicators

# Questions?

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