CVI for the TVI

My Expanding Understanding: The Visual Behaviors of CVI

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Perkins School for the Blind
Perkins-Roman CVI Range© Endorsed
Classic TVI Education

- Anatomy of the eye
- Types of visual impairment
- How the visual impairment impacts development and all learning.
Classic TVI Education

- How to provide access using residual vision and compensatory skills.
- How to effectively collaborate with educational teams and parents.
- How to adapt materials for access.
Classic TVI Education

- How to teach specific skills that sighted children learn incidentally.
- How to teach appropriate media access including Braille, print and use of technology.
- How to assess functional visual skills for ocular impairments.
Increased number of children with visual skills that did not match eye reports.

- Cortically blind
- Neurological Visual Impairment
- Cortical Visual Impairment
- Cerebral Visual Impairment
Out of My Comfort Zone After 25 years

Keenly aware and uncomfortable serving my students who had brain based visual impairments.

- Did not know the causes of the poor functional vision.
- Did not know the unique visual behaviors that I needed to assess.
- Did not know what adaptations or interventions to use.
- Could not effectively program planning or adapt materials.
- Knew I was providing poor consults to parents and teams.
Learning from one another and from Perkins staff are important parts of parent groups in Perkins Infant/Toddler Program. Pictured above is parent Dawn O’Neill with her daughter Emma.
Emma’s Ophthalmologist

- “Eyes are healthy.”
- “Maybe delayed visual maturation.”
- “Optic nerves might be a bit pale.”
- “See the neurologist.”
- “See a strabismus specialist.”
Emma: Functional Vision Assessment

- Typical looking eyes
- Holds eyes to the left
- Alternating exotropia
- No eye contact
- No fixation
- No tracking
- No scanning
- No response to visual field testing
- No blink reflex
- No light sensitivity
Vision and the brain
New criteria to consider for assessment
Possibility for improvement
New ideas for interventions
Emma: Reframing Functional Vision Assessment

CVI Range (Roman-Lantzy)

- Attention to color
- Attention to movement
- Latency for looking
- Unequal visual field use
- Attention to light
Emma: Reframing Functional Vision Assessment

- Non-purposeful gaze
- Problems with visual, auditory, positional and tactile complexity
- Preference for familiar
- Distance attention or distance understanding
- Reaction to visual threat
Emma: CVI Functional Vision Assessment

Roman-Lantzy Characteristics:

- Preference for red materials.
- Movement of materials draws and keeps her visual attention.
- Needs extra time to locate and turn to materials.
- Locates materials faster in her left visual field at eye level.
Emma: CVI Functional Vision Assessment

- Visually locates best with simple environments that are quiet, with non-complex backgrounds and if she is solidly positioned.
- Stares at light sources and can be visually inattentive.
- Looks only at items in near space 12”-18”.

Perkins School for the Blind
Looks at familiar items faster and sustains visual attention longer.

Locates materials with peripheral vision.

Shows a delayed blink to touch and no blink to threat.
2005-2010: Roman Mentorship

- Launched my understanding of the visual brain.
- Launched my background understanding of CVI.
- Launched my deeper understanding of the CVI Range. (Roman-Lantzy)
- Improved my interview skills for parents, students and teams.
Learning with TVI and teachers from New England.

- Shared our beginning understanding of strategies/interventions.
- Shared our successes, building understanding and resources.
- Shared inservice ideas to build team understanding of CVI.
Other Mentors and Resources

- Dr. Gordon Dutton and Dr. Amanda H. Lueck
- Dr. Mary Morse
- Dr. Lea Hyvärinen
- Dr. Carey Matsuba
- Dr. William V. Good
- My TVI colleagues learning about CVI
- Parents of children with CVI
- My students
Improvement: Emma 2016

- Moved from Phase I to early high Phase II
- Using a TOBII eye gaze system to communicate.
Building Continued Understanding of CVI

At first:

Statements on the CVI Range determined the parameters of my understanding.

Example:

- If “Color” statements disappeared from the CVI Range, I incorrectly determined that color was “resolved”.

- I did not think of color as an important support for a student’s learning.
Limited and Narrow Understanding

- Did not have complete understanding of the meaning behind the statements.
- I assessed students incompletely.
- I had an incomplete, incorrect understanding of my student’s functional vision.
- I missed opportunities to use those supports for student learning.
- I dismissed students from direct service.
Expanding Ideas of CVI

- All kinds of kids
- Theorists are more similar than different and all have value.
Dr. Dutton’s interview questions into CVI Range characteristics?

- Complexity 44 questions
- Visual Field 25 questions
- Distance Viewing 15 questions
- Visual Novelty 15 questions
- Visual Motor 1 question
“Does the child have difficulty recognizing close relatives in a group?”

Roman:
- Facial complexity
- Complexity of Array
Mary Morse

- Avoid visually fixating on the human face/stare intently at the human face (Roman: facial complexity)
- May look toward only one part of the face (Roman: complexity of array)
- May not recognize and identify the person (Roman: facial complexity)
- May recognize some faces from one orientation, but no other orientations or situations. (Roman: facial complexity and novelty)
- May want to touch people – especially their faces (Roman: facial complexity)
- May not realize a person is present unless the person says something or moves (Roman: facial complexity, movement, using auditory cues)
Mary Morse

- May focus on a specific aspect of a person: hair, glasses, height: (Roman: facial complexity and salient features)

- May have difficulty relating to peers (Roman: facial complexity)

- May/may not have difficulty interpreting some/all types of two dimensional visual representation (Roman: complexity of the object)

- Some may be able to recognize pictorial representations of faces but not be able to do so with tangible face (Roman: facial complexity)

- May have difficulty managing multiple sensory-motor demands (Roman: sensory complexity)
Expanding Ideas of CVI

- Brain understanding thanks to Dr. Merabet. Moving out of the library’s Children’s section.
- What the brain does with what it sees.
- How my vision works.
- What parts of the brain do and how they work together.
- Looking does not mean understanding what is seen.
Expanding Ideas of CVI

- CVI does not resolve.
- Visual behaviors do not disappear. They remain important supports.
- Compensatory skills are brain based too.
- How CVI impacts students and creates behaviors.
- The importance of salient features (Roman-Lantzy)
How to design an accessible day.

Moving to 2D: How complexity of object impacts student understanding of images that become increasingly symbolic.
Attention to Color

- Related to other characteristics
- Not always red and yellow.
- Not just looking at certain colors
- Solid one colored items supports understanding that is it one object.
Attention to Color

Color supports:

- Identifying things
- Finding things against complexity
- Finding things at distance
Attention to Movement

- Related to other characteristics
- Movement supports location.
- Kids move to see better.
- Movement is a kind of complexity
Latency

- Related to other characteristics
- For looking and for understanding what is seen.
- Related to visual fatigue
Visual Fields

- Related to other characteristics
- Not loss more of a neglect
- Lower visual fields are often impacted at all levels of severity and linked to location of brain damage.
- Visual fields must be checked with light, with non-lighted and with observation of function.
Attention to Light

Related to other characteristics

It disappears early on the CVI Range but you see it:

- When tired
- When struggling to walk
- When answering hard questions or thinking about hard something.
- In noisy places or new places
- Providing backlighting helps with latency, visual fatigue.
Non-purposeful gaze: Reframed by Dr. Roman

Related to other characteristics:

- Visual fatigue
- Visual break
- The child is not provided access to any visual target within the distance they need.
Complexity

Not just problems with visual, auditory, and positional complexity.

Broken down into (Roman):

- Complexity of Object
- Complexity of Array
- Complexity of Sensory Environment
- Facial Complexity

Related to other all other characteristics. (Tietjen)
Complexity of Objects

- Related to visual agnosias: apperceptive agnosia, associative agnosia, visual form agnosia, integrative agnosia, alexia (Dutton)

- Not just what the child looks at.

- It is the identification of objects or the understanding of pictures, letters, words and people.
Visual Novelty

- Related to other characteristics
- Preference for known: individual visual libraries.
- No “visual attack skills” for the new.
Perspectives Matter:
Perspectives Matter:
Distance attention

- Related to other characteristics
- Is it attention to movement?
- Is there distance understanding of what is seen
- Need to identify the student’s typical distance of visual curiosity.
Visual Motor

Related to other characteristics:

- Improves on plain backgrounds. (Complexity of Array)
- Improves on backlighting. (Light)
- Improves in quiet places. (Sensory Complexity)
- Improves with solid understanding of the object. (Complexity of Object)
To Keep Learning

- I must understand the brain as well as I know the eye.
- I must understand the impact of damage to the brain as well as I understand the impact of damage to the eye.
- I must understand how to create access for the visual brain as well as I create access to the retina.
- I must understand the capacity for visual improvement for CVI.
Major Breakthrough

Looking does not mean understanding what is seen.
To Keep Learning

- How to apply other tools in the TVI toolbox to give me usable information for the student with CVI.
- How to use this information.
- How to teach advocacy skills to the child with CVI.
- How to create optimal access to the visual brain to improve visual recognition.
Deeper Understanding of CVI

- Allows me to more correctly assess the functional vision of my students with CVI.
- Allows me to more accurately the impact of the compensatory skills.
- Allows me to provide optimal learning supports.
Still and Always on The CVI Path!
Matt’s: CVI Umbrella

CVI for the TVI continues...

Next up:

Thursday November 29th at 3:00

Dr. Christine Roman-Lantzy

Topic: Cortical and Cerebral Visual Impairment