CVI: How a learning media assessment will help

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Objectives

- Learn why a Learning Media Assessment is needed for learners diagnosed with CVI
- Explore the characteristics of CVI that make learning to read and write more challenging
- Discuss strategies and tools that help provide access to learning for this population
Do learners diagnosed with CVI need an LMA?

- Yes!
- Many students with CVI will use vision as their primary modality for learning, but other students may utilize tactile learning or auditory learning when accessing information.
- Many students will use a combination of modalities and media.
- Provide LMA regularly as students with CVI may have vision that changes and fluctuates over time. (Lueck & Dutton 2015)
Mandate for LMA for CVI

- An LMA is an objective process of systematically selecting learning and literacy media for students with visual impairments (Koenig & Holbrook 1995)

- Students with visual impairments, including those with multiple disabilities, are entitled to high-quality educational literacy programming. Decisions for determining appropriate literacy instruction must be based on data... (Position Paper of the Association for Education and Rehabilitation of the Blind and Visually Impaired)

- Recent legislation has mandated the use of learning media assessment (LMA) to inform instructional decisions about the media (ex. visual, auditory, tactual) used to accommodate for the reading needs of children with visual impairments (Huebner, Merk-Adam, Stryker, Wolfe, 2004; IDEA Regulations)
Recent directives from the Department of Education’s Office of Special Education Programs (OSEP) has reinforced a broad interpretation of the special education eligibility category called visual impairments to include those with visual processing disorders. Within the scope of visual processing disorder are those diagnosed with cerebral visual impairment (OSEP, 2017).
Why does brain damage make reading and writing more challenging?

- Reading involves many brain regions, including the visual, visual perceptual, eye movement control areas, auditory processing and language systems
- Young children with CVI from birth or soon after need habilitation strategies
- Older children and adults with CVI due to acquired brain injury need rehabilitation strategies
Young children with CVI from birth or soon after need habilitation strategies

Exposure, exposure, exposure!

- Low complexity presentation, extra spacing, single color
- Lights and movement to capture attention and lengthen interest time
- Repetition of activities
- Patience through wait time
- Perhaps can’t see and touch or hear at the same time - but still need to experience all senses and learn about objects physical attributes in order to form meaningful understanding
Only after learners have been exposed to all media can we accurately determine what their media channels will be.

- Children with CVI often struggle with reading. It is hypothesized that this struggle could stem from lack of exposure to letters and other literacy materials in an accessible media (Barclay 2015).

- Children with typically developed vision take notice of letters and words everywhere. Remember to make children with CVI aware of environmental print too! Point out all the places where letters can be found in their world.

- Begin early. Just as you describe and involve your child in other daily activities, tell her when you read the newspaper, follow a written recipe, make up a grocery list, read instructions for her newest toy, or write a note or email (Stratton, J. M., & Wright, S. 1991).
Exposure to all media channels
Exploration in the Sensorimotor Stage (developmentally birth – 2)

- Bond; feel safe to learn
- Exploration with all senses
- Uses mouth, then hands to engage with different behaviors of the object
- Sensory exploration of letters and their salient features
- Sensory exploration of braille materials
Exposure in the Pre-Operational Stage (developmentally 2 – 6)

- Build the word bank
- Build bridge from symbol to experiences
- Learn symbols have meaning
- Build letters, classify letters by straight lines, curves, tall, short, dropping....the salient features
Talk about the differences between letters
As we have learned to present learning materials and toys in controlled environments for learners with CVI, we need to continue to support those needs as we introduce symbols and letters.
Kids with typical vision see that McDonald’s golden arches and link it to their favorite French fries, that environmental symbol has a meaning.
Can the child with CVI see those golden arches in a busy cityscape?
Maybe we need to give them the symbol as they are getting in the car to go, then try to point it out when they arrive, Then expand, that symbol is an M, for McDonalds.
Older children and adults with CVI due to acquired brain injury need rehabilitation strategies

We need to discover the effects of the brain damage.

Skills that were intact, may be gone – some will not return

These learners need awareness, support and strategies through rehabilitation.
Possible consequences of brain damage to literacy skills

Visual agnosia – characterized by the total or partial loss of the ability to recognize and identify familiar objects and/or people by sight.

- Simultanagnosia - inability to identify more than a single item at a time
continued...

- Alexia – loss of the ability to read or understand words, sentences, or, in some cases, even recognize letters
- Pure visual alexia – ability to write, but cannot read what they wrote
Agraphia – deficit in the ability to produce written language
continued...

Poor motor control - dysfluent reading due to difficulty with saccadic eye movements, tracking, accommodation

- Visual motor pairing - Inability to copy from the board
continue...

- Challenge with novelty - font design, upper case vs. lower case, normal or bold weight of text, size
continued...

Crowding issues - spacing of letters, words, lines, graphics, photos
Consider environments for LMA and learning

- Physical environment - lighting, positioning of materials, complexity in the space, seating that is comfortable and supportive

- Physical materials - braille books with tactile pictures, print books with tactile pictures, auditory book with tactile pictures while swinging, single letters on a contrasting color iPad screen? Should expressive literacy include writing on a braillewriter, with a tactile pen and paper, typing on a keyboard?

- Atmosphere - Does he need a completely quiet room, can he look at letters while hearing a book read with an expressive voice? Does music playing in the background affect his ability to focus on vision tasks? Does lunch cooking in the next room override his visual attention?

- Human interaction - Good rapport with teachers and peers make the time more enjoyable. Is the reader using a volume and speed that allows the student to process what is being said? Is the child given appropriate wait time when asked to answer a comprehension question?
Strategies for accommodations

Strategies such as presenting the letter in the child’s preferred color or outlining a word in the child’s preferred color have been suggested.

Students may prefer to have a color/font difference to signal a change in letters or letters spaced further apart to simplify complexity.

Or

Braille? Maybe
Tools that help provide access to learning

Beeline Reader
http://www.beelinereader.com/


Read-Right
http://www.readright.ucl.ac.uk/index.php
Help to Organize,
Simplify
Electronic magnifiers can help students control size and presentation of print addressing the complexity of presentation.
Alphabet Practice Test

1. Say the word. Which letter is the first letter of the word? 
   - a
   - e
   - r
   - t

2. Say the word. Which letter is the last letter of the word? 
   - e
   - r
   - o
   - i
Simplify

1. \( 8 - 5 = \)
2. \( 11 - 5 = \)
3. \( 9 - 5 = \)
4. \( 11 - 7 = \)
5. \( 7 - 5 = \)
6. \( 10 - 6 = \)
7. \( 11 - 4 = \)
8. \( 9 - 0 = \)
9. \( 8 - 5 = \)
10. \( 11 - 2 = \)
11. \( 9 - 6 = \)
12. \( 11 - 9 = \)
13. \( 10 - 8 = \)
14. \( 7 - 6 = \)
15. \( 10 - 7 = \)
16. \( 11 - 3 = \)
17. \( 9 - 8 = \)
18. \( 8 - 6 = \)
19. \( 11 - 1 = \)
20. \( 9 - 2 = \)

9 - 0 =
Organize

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In each row, give the number that comes next.

- 2 4 6 8 10 12 14 16
- 1 3 1 3 1 3
- 1 2 3 4 5 6 7 8
- 2 4 6 8 10 12 14 16
- 1 3 1 3 1 3 1 3
- 1 2 3 4 5 6 7 8
For example, we see the image above as a series of circles rather than as many much more complicated shapes.
If you receive (or suspect) a CVI diagnosis for your child and do not know where to begin, start by thinking about the sensory input in your child’s environment. While your child is learning to use his vision to access and understand his world, he may not be able to tolerate multiple sensory information at the same time. When trying to achieve “best vision,” remove competing auditory, tactile, and olfactory distractors. As your child learns to use his vision, you will work to return those inputs one by one as you begin to understand exactly the kind of environment your child needs to use vision to the best of his ability.
Writing

- Research indicates that reading and writing are complementary processes, each of which supports the learning of the other.
- Writing and Reading are supported in different parts of the brain.
Bottom line:

- Provide opportunity for CVI learners to have access to all learning channels
- Complete a learning media assessment regularly for your learners with CVI – both congenital and acquired
References


