Do You See What I See? Helping Young Children with Cortical Visual Impairment in Natural Environments

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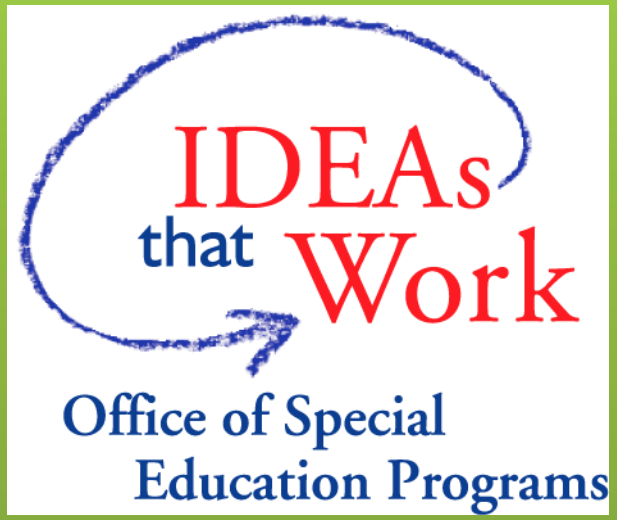
Project Reach: Illinois Deaf-Blind Services

Brought to you by…



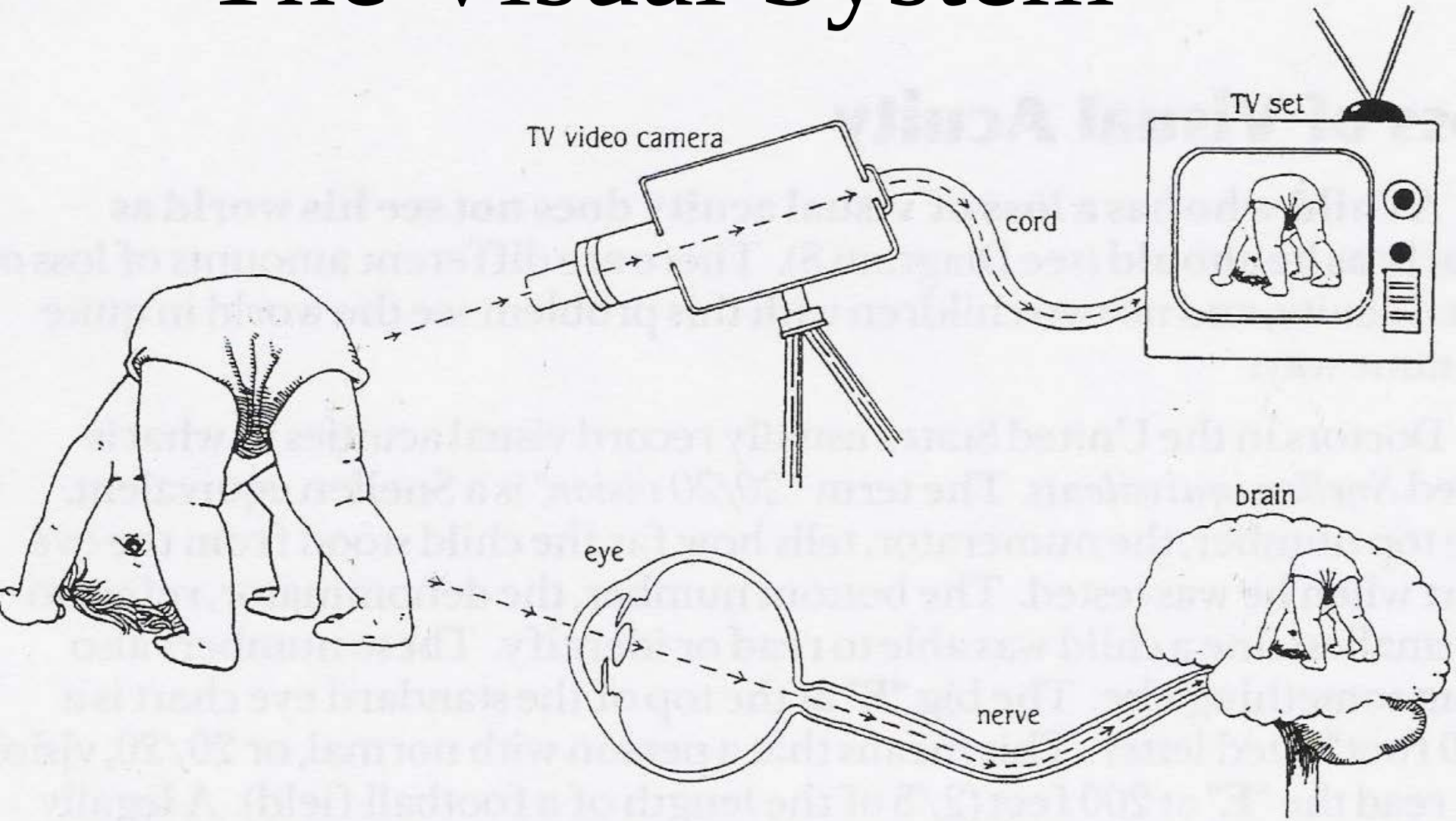
What will we do together?

- Share information about the challenges caused by cortical visual impairment in early learning environments
- Share accommodations for cortical visual impairment
- Discuss incorporating accommodations into routines and a variety of environments

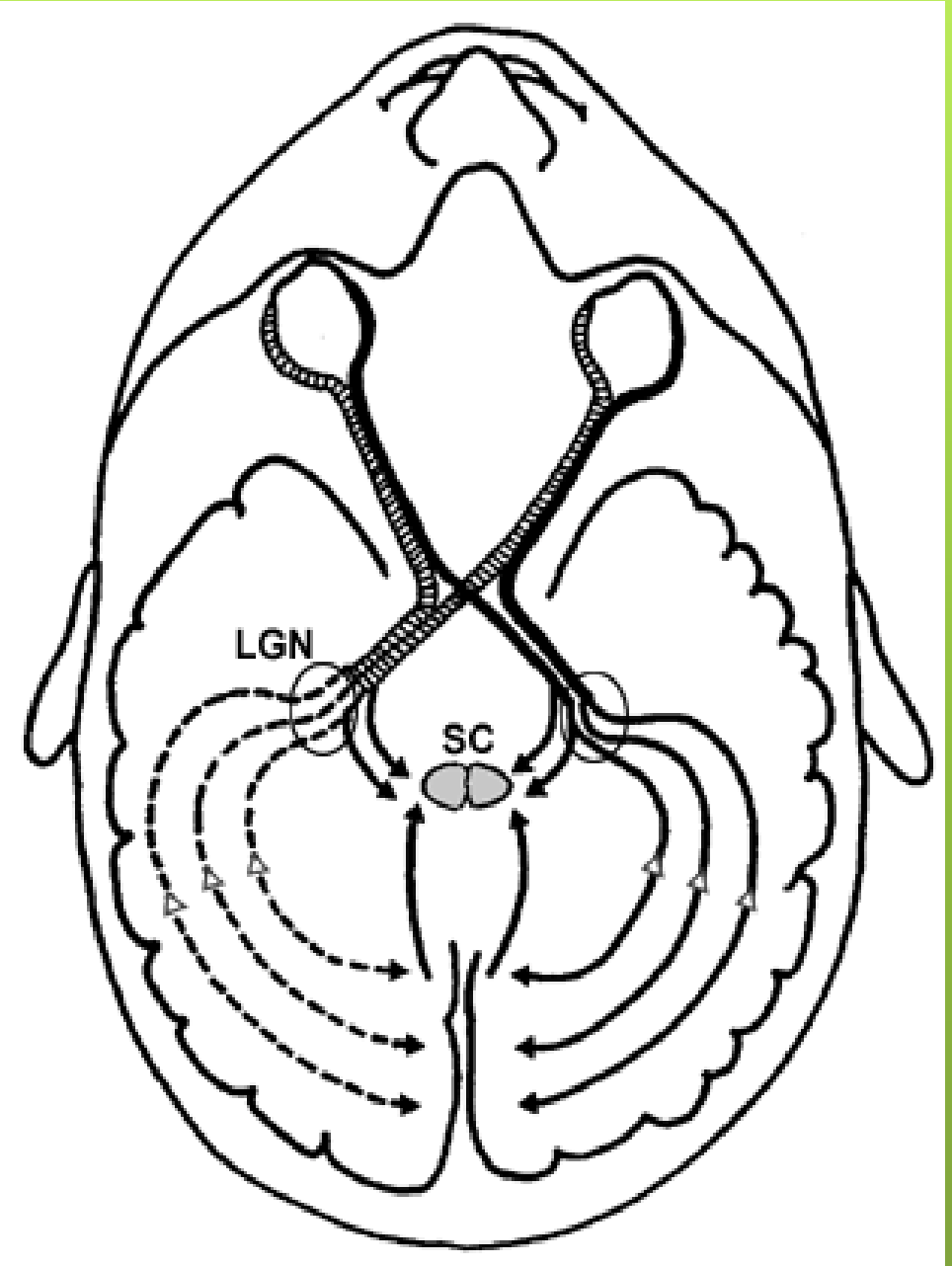
What is Cortical Visual Impairment (aka CVI)?

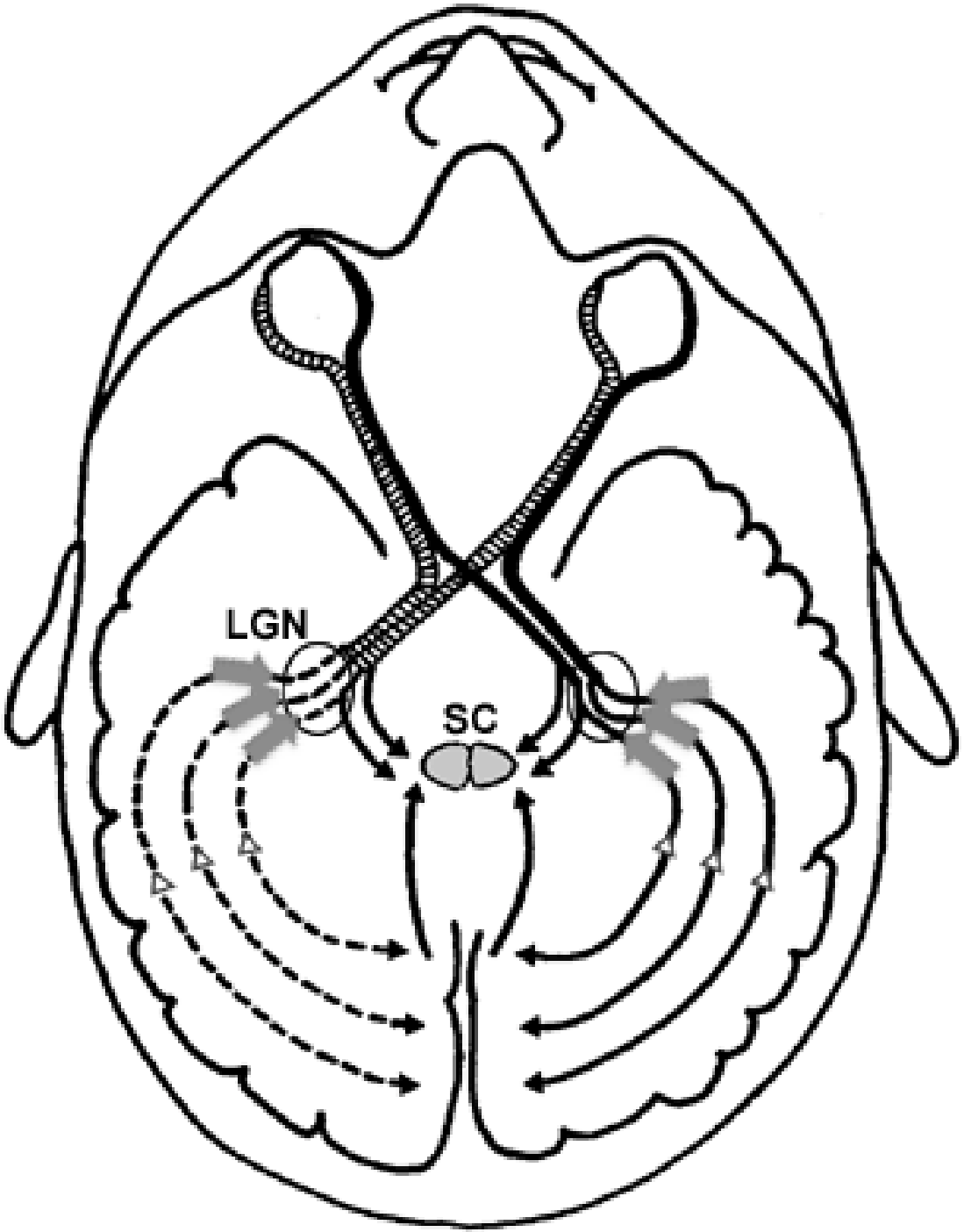
- Brain based visual impairment which occurs before, at, or shortly after birth
- Can occur along with ocular visual conditions
- Fastest growing reason for visual impairment among young children

The Visual System



VISUAL PATHWAYS




LGN
SC

Common Causes of CVI before birth

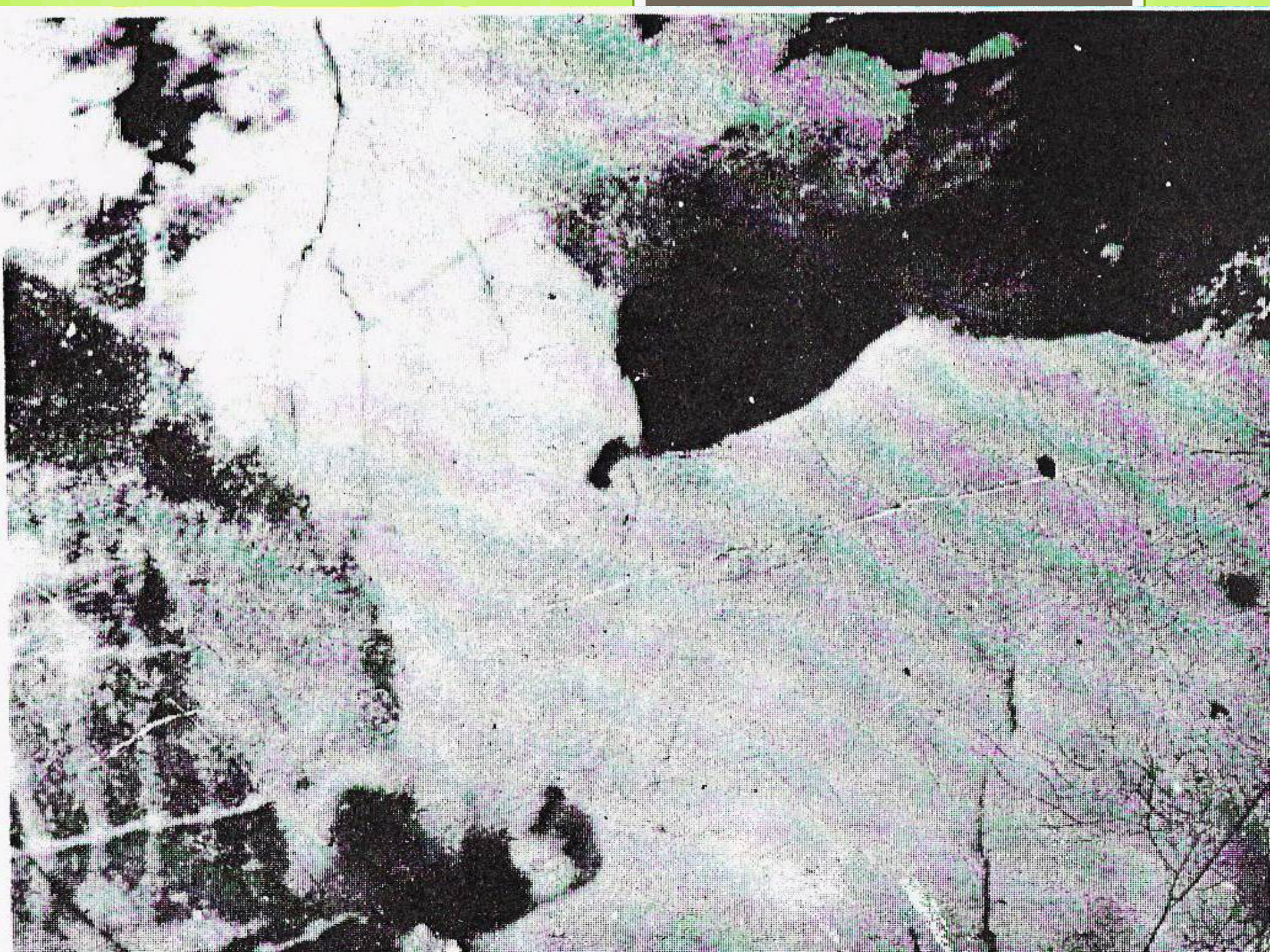
Anything that might impact the structure and functioning of the brain, Including:

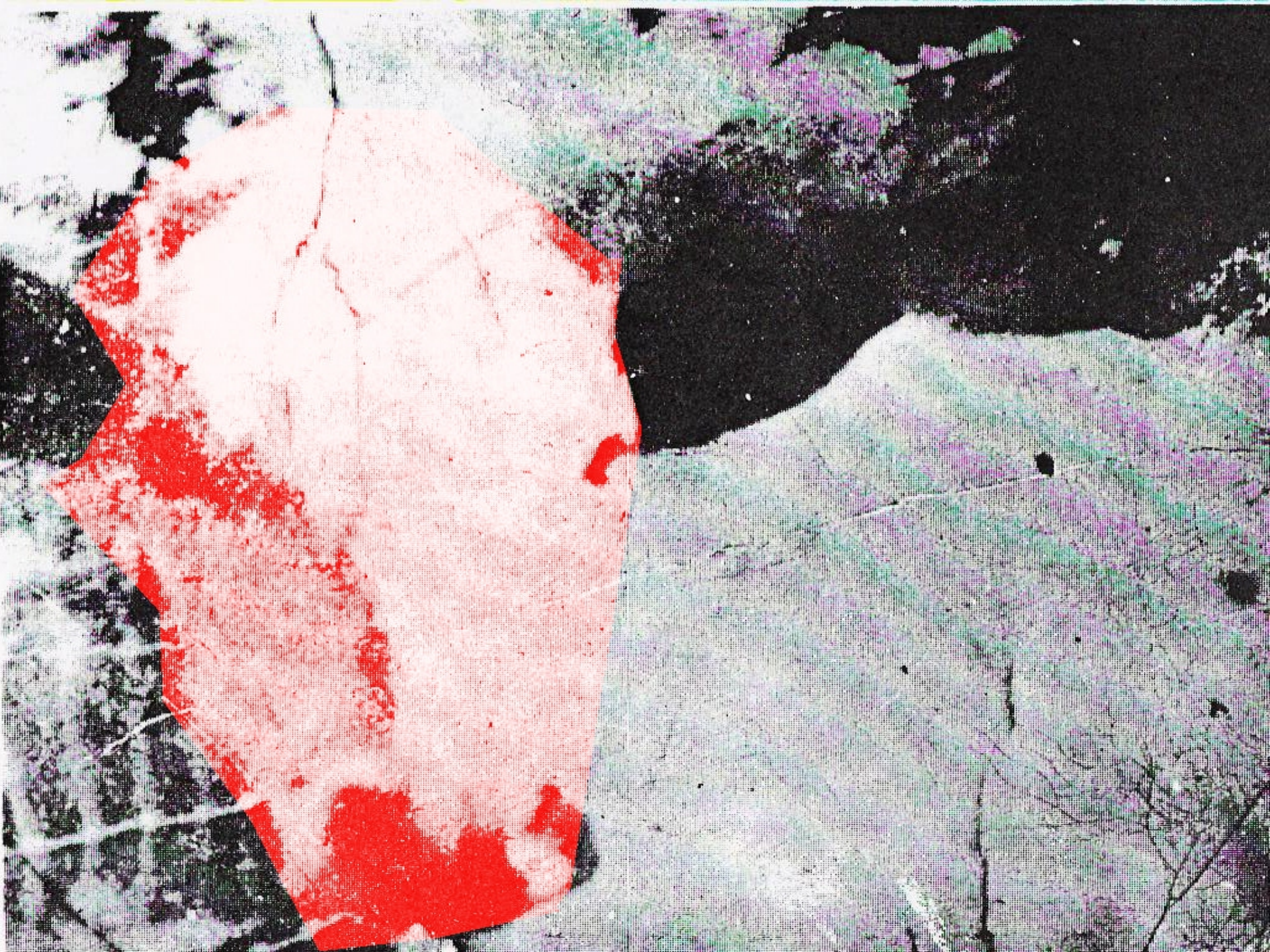
- **Anoxia or Hypoxia**
- **Periventricular leukomalacia (PVL)**
- **A variety of syndromes**
- **Accidents after birth**
- **Intraventricular hemorrhage**

Common Causes of CVI after birth

- Anoxia or Hypoxia
- Meningitis or encephalitis
- Accidents after birth
- Metabolic conditions

OPINIONS DIFFER ON WHEN IT IS NOT LONGER CVI but CEREBRAL VISUAL IMPAIRMENT





There is new research....

- Previous research by Dr. Jan et al (1980s – 1990's) creates "cortical visual impairment"
- 1990s, Mary Morse notes specific dysfunctions in vision (facial agnosia)
- 2000's Christine Roman documents specific visual behaviors, and improvement after intervention

Some Typical CVI Behavioral Characteristics

- Strong preferences for one color (often yellow or red)
- Seeing moving things better than stationary things
- Needing extra time to look at something (visual latency)

Some Typical CVI Behavioral Characteristics

- May have great difficulty with visual complexity (this can mean a hard time looking at faces, a hard time looking at complicated patterns instead of simple ones, a hard time attending in clutter, may not be able to listen and look together)

Some Typical CVI Behavioral Characteristics

- Distracted by lights, and looking at them to the exclusion of other things
- Only seeing things in certain fields (only on the left, etc)
- Only seeing things that are near to them even though they do not have nearsightedness

Some Typical CVI Behavioral Characteristics

- May not blink to touch or to visual "threat"
- May only attend to familiar things
- May not be able to maintain gaze on an object while they reach towards it

GOOD NEWS!

Visual behaviors can improve over time with structured activities and environmental accommodations

How can we adapt?

- APH Lightbox
- iPad and specific apps
- Household materials used to highlight and modify everyday items
- Changes in timing, location, backgrounds, and participants if possible

LIGHT BOX

Functional Use of Lightbox

- Research shows passive looking leads to passive behavior
- Want to find ways for lightbox use to be interactive
- “50 Ways to Use a Lightbox”
- Let’s brainstorm on ways light and lightboxes might be used during routines

iPads: Research

Supporting iPads for CVI

COURTESY of BRENDA JAGER

- brightly lit background/screen
-bright colors
-unlimited forms and pictures
-interactivity
-software that responds to the child's actions.
-the ability for the child to control starting and stopping
-possibilities for children who do not have reach and grasp

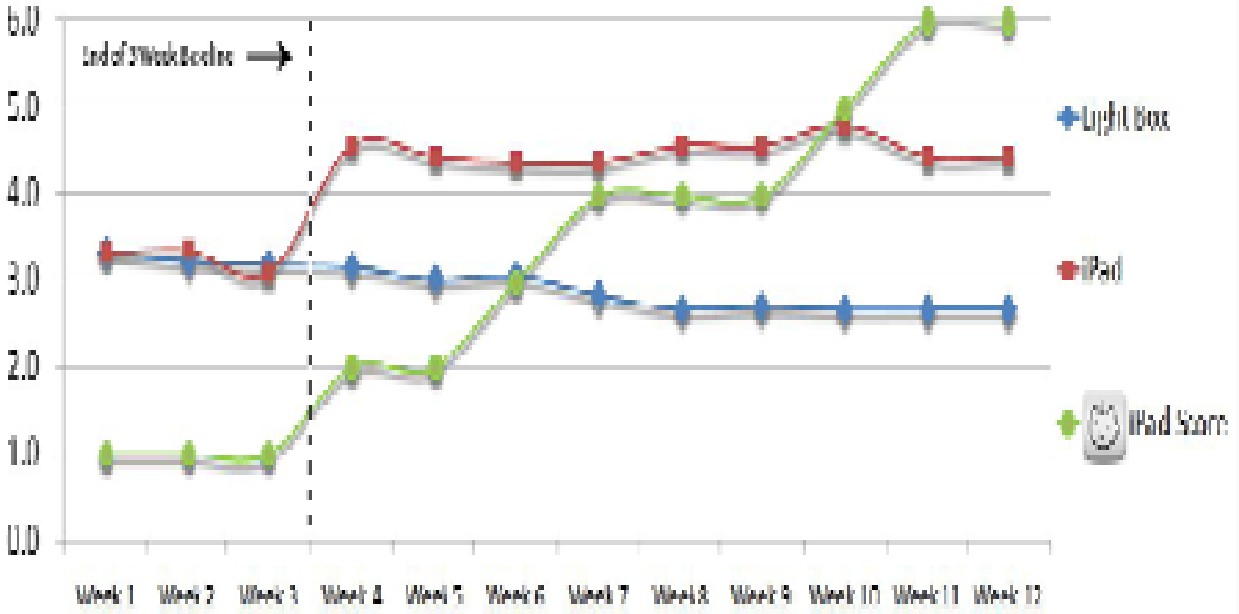
http://www.cadbs.org/news/gloria-the-ipad-and-apps-for-children-with-cvi/

Jr. Blind's Research

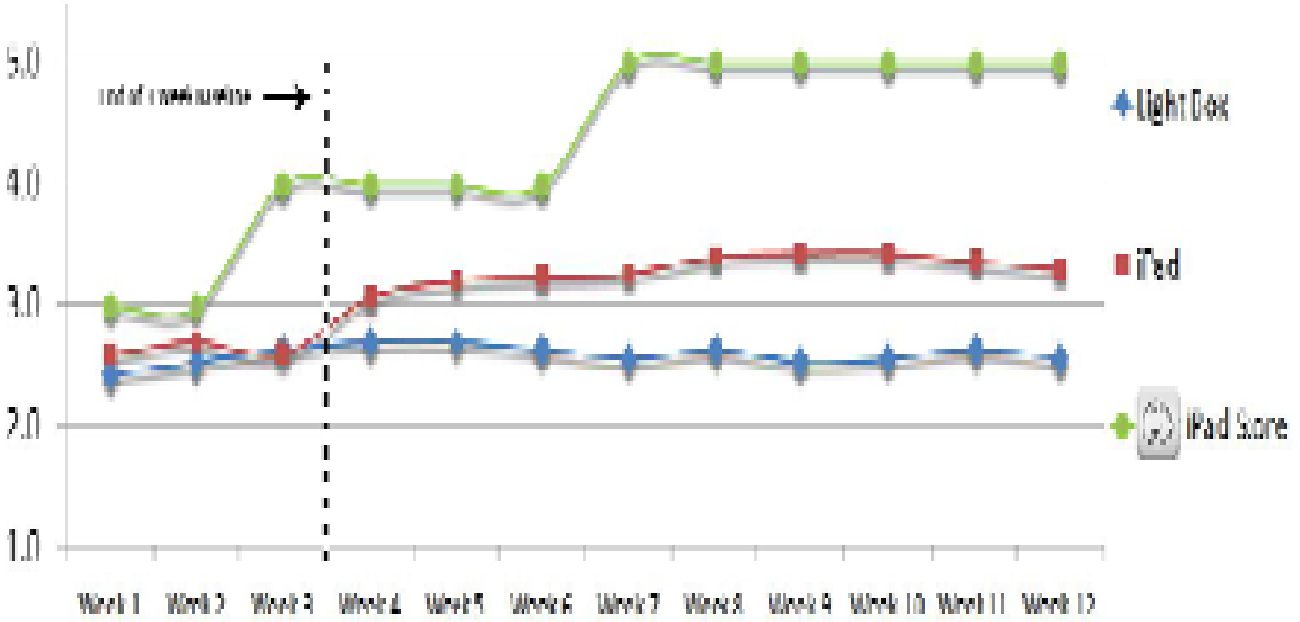
http://www.juniorblind.org/site/iecp-test-presentation

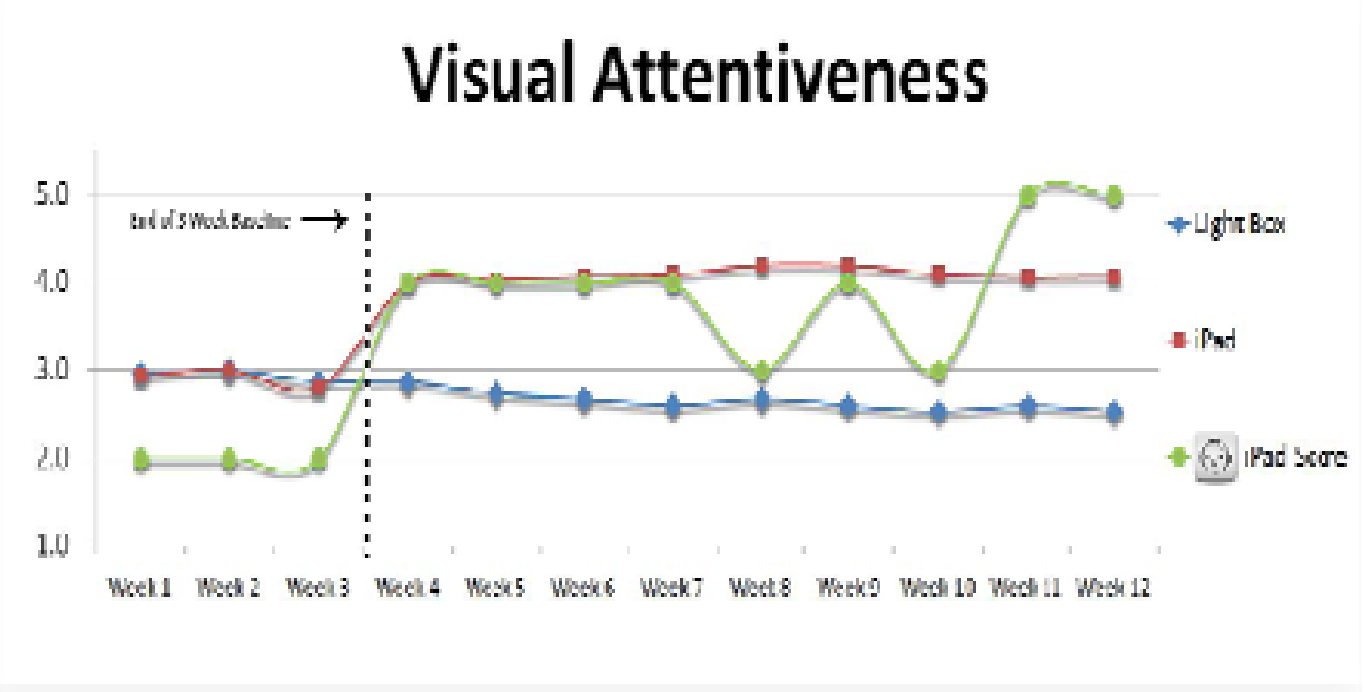
- investigated the use of the iPad as a means to strengthen or initiate visual engagement, parental interactions, communication, visual attentiveness, reaching and/or activation with the children with visual impairments and/or multiple disabilities.

Length of Engagement

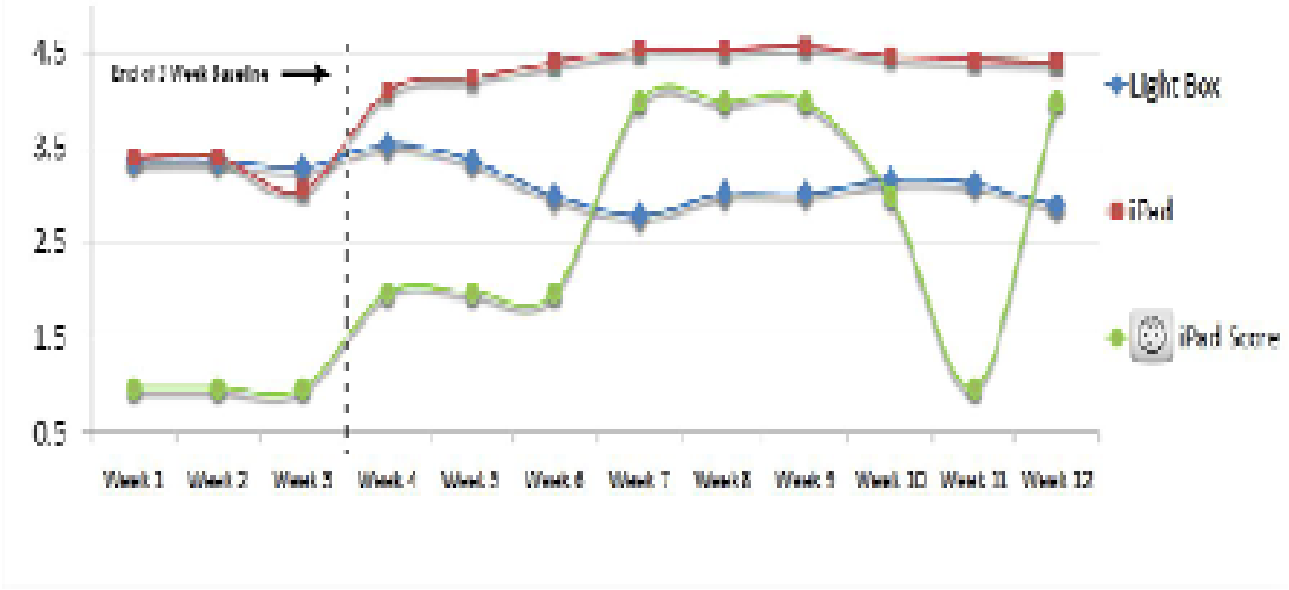


Communication

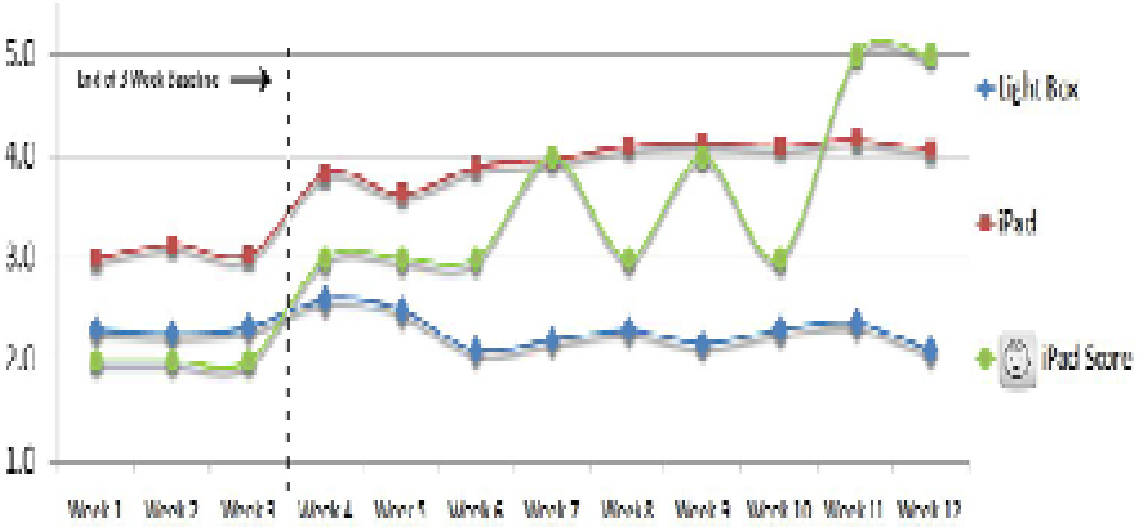



Visual Attentiveness
5.0
4.0
3.0
2.0
1.0
Light Box
iPad
iPad Score
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12

Reaching


4.5
3.5
2.5
1.5
0.5
End of 3 Week Baseline
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Light Box
iPad
iPad Score

Activation



Applications used in the in the study:

- Art of Glow
- Awesome
- Baby Finger HD
- Baby's Musical Hands
- Bubble's Magic
- The Cat in the Hat
- Cosmic Top
- Fireworks Arcade
- First Words: Toddler Touch and Say
- Kids' Song Machine
- Little Bella's – I Close My Eyes
- Infant Arcade
- Magical Images Imagine
- Paint Sparkles
- Peekaboo HD
- Rainbow Pad
- Shapes Toddler
- Wheels on the Bus HD

Does everything have to plug in to be helpful?

No! We can also use

- Household materials used to highlight and modify everyday items
- Changes in positioning, timing, and location, if possible

Can we make what we have shiny, yellow, red….

- Aluminum foil (shiny mimics movement!)
- Mylar wrapping paper
- Colored or patterned shelf liner
- Paint or magic markers

Can we make what we have shiny, yellow, red….

- Outline visual target with preferred color or pattern (this includes letters and pictures!)

If we buy can buy new, can we get…

- Cups, plates, placemats in preferred colors?
- Towels or bath toys in preferred colors or patterns?
- Plain blankets instead of busy ones?

What about positioning?

- Have windows, lights and fans behind children
- Place items at eye level, in preferred field
- Only use one thing at a time, not positioning too many things too close together

What about positioning?

- Consider screens to block out unneeded information (Cover calendar when it is done, cover play areas not being offered, cover pictures that are not essential to the story…)
- Consider a student's position within a group to take advantage of preferred visual fields

What about timing?

- Give children plenty of time to look!
- If new units are coming up, give then a grace period with objects BEFORE the new unit, so they become more familiar

What about location?

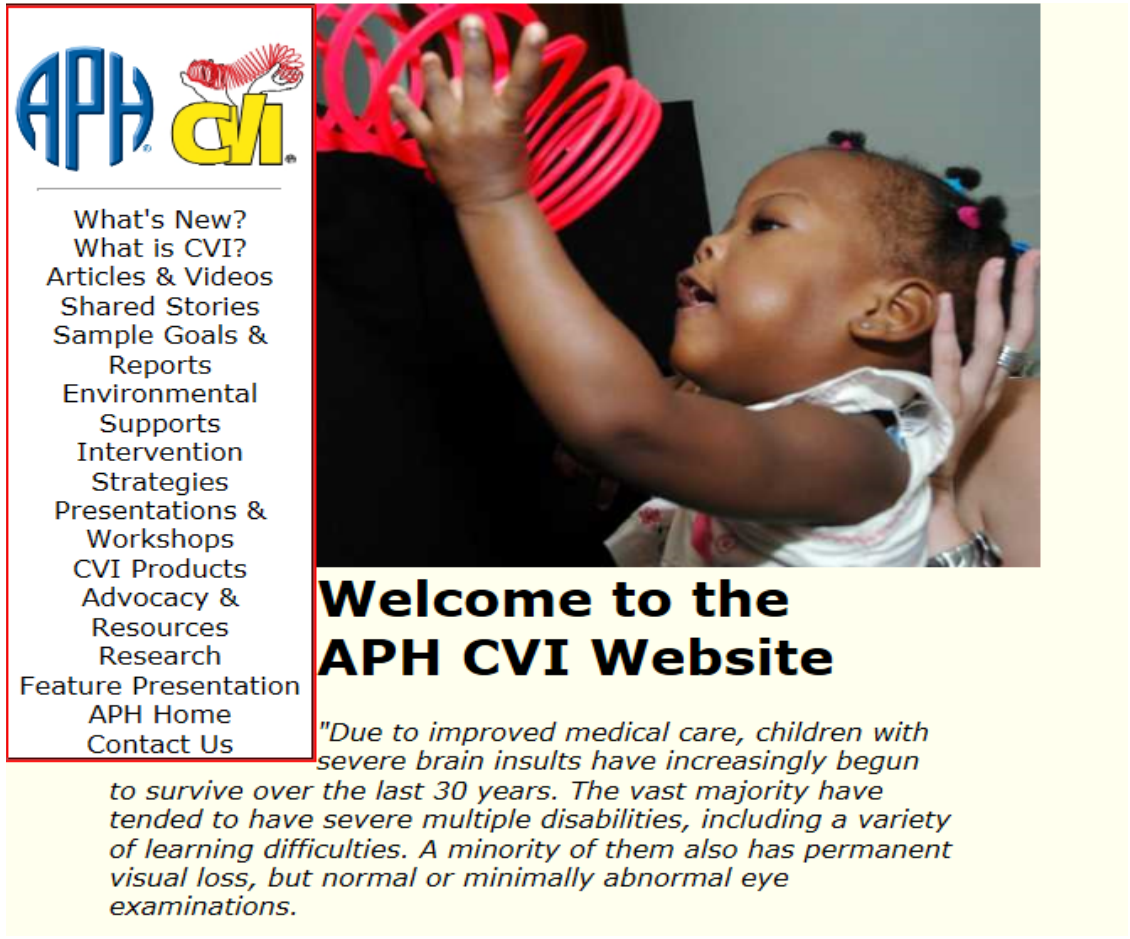
- When new content is being taught, perhaps have smaller, quieter groups
- Do not expect visual attention in noisy, active locations – convey information in other ways

Let's apply what we know

- Get into groups
- Choose a case study (age 2 ½ or 4 ½) OR think about a child you know.
- Select a few challenges the child has, and then think of some things to try

Great sources of information

- http://www.aph.org/cvi/

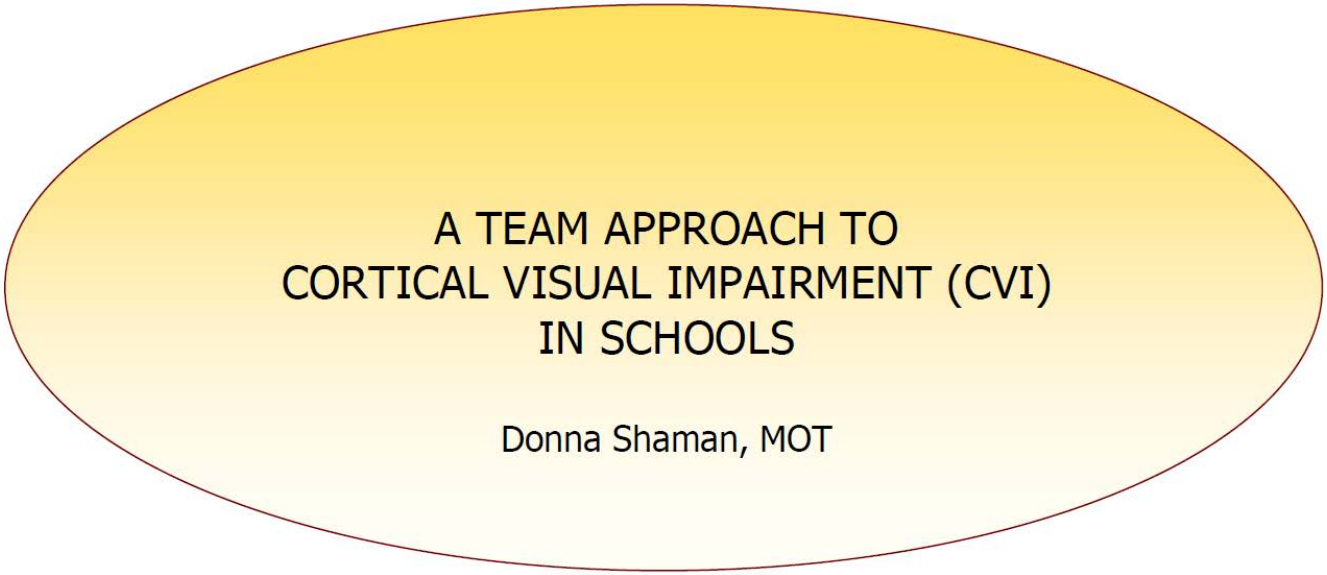


Great sources of information

- http://wvde.state.wv.us/osp/vi/cvi/basicunderstanding.html

Great sources of information

- http://documents.nationaldb.org/products/TeamApproachtoCVI.pdf



Great sources of information

http://www.littlebearsees.org/what-is-cvi/

Please complete an evaluation!

- Questions?????