

## Young Children with Complex Communication Needs, Visual and Motor Impairments: Educational Practices

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**AAC FOR EVERYONE**  
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### The Bridge School

- Non-profit school. Located in Hillsborough, CA
- Founded in 1987
- Educates children with complex communication needs and physical disabilities, ages 3 to 12 years
- Supported over past 27 years through Neil and Pegi Young's efforts



Thanks to Dr. Vicki Casella, Executive Director

### Mission

To ensure that individuals with severe speech and physical impairments achieve full participation in their communities

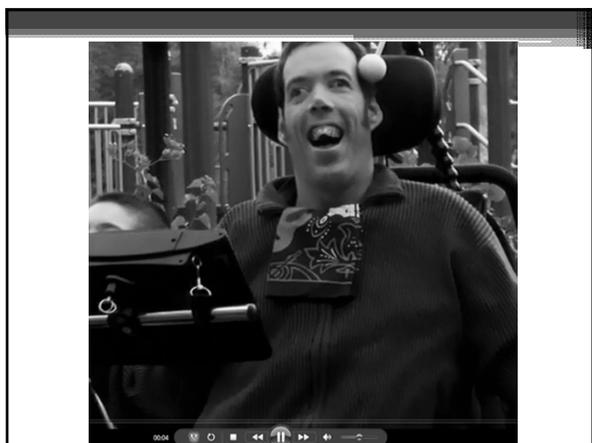
- Use of AAC and AT
- Development, implementation and dissemination of innovative life-long learning and educational strategies.



[www.bridgeschool.org](http://www.bridgeschool.org)

### Purpose

- Brief introduction to Bridge School and its programs
- Discus three replicable, innovative strategies
  - Upright wheeled mobility
  - Writing program
  - Cortical visual impairment

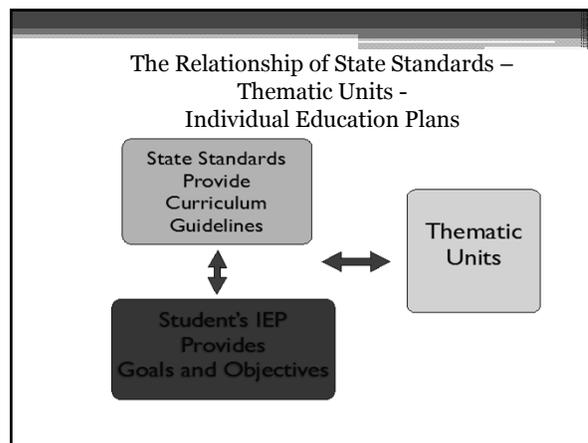
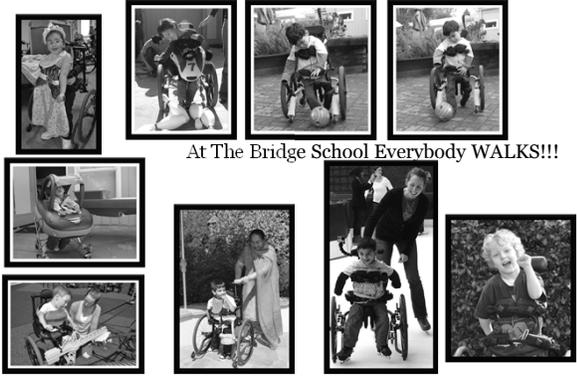




**At The Bridge School  
It's About Educating!**

### State Standards - based Curriculum



At The Bridge School Everybody WALKS!!!

### Upright, self initiated, independent mobility

- A powerful communication tool
- Hands-free support walkers
- 90 minutes out of a 240-minute school day five days per week
- Centers, cleanup, and outside time




Christine Wright Ott, Occupational Therapist: Kid Walkers

### Increases interaction






Encourages exploration





Expands Access to Community Activities



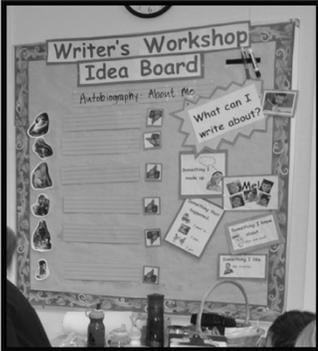

**At The Bridge School  
Everybody  
WRITES!**

Roman writes about Batman with the help of an adapted computer keyboard.

Writer's Workshop is the time we focus on writing and sharing our written work.



Writer's Workshop begins with students deciding on a topic.



After a topic has been selected and a target skill identified, it's time to start writing.



Each student plans their writing, selects a writing tool, chooses a photo to anchor the writing and then creates their story.

The way we write varies, but the process and the product are the most important things.

The best part of writing is sharing! Once a week each student takes the Author's Chair and shares their writing with the class and staff.

Authors' Day at school brings all the parents, siblings and many grandparents in for the students to share their writing.

### Cortical Visual Impairment

- Leading cause of visual impairment in children in "first-world" nations  
(Good, Jan, Burden, 2001; Hoyt, 2003; Ketalpal & Donahue, 2007)
- Damage to (or atypical structures of) visual pathways and/or visual processing centers of the brain

### Guiding principles of CVI

- CVI is fundamentally different than ocular causes of visual impairment
- Children with CVI require specialized methods for identification, assessment, and intervention
- Functional vision improvements are facilitated, not automatic
- No child is too brain injured to see

## Unfortunately,

- Children with CVI are at risk for
  - misdiagnosis or
  - no diagnosis of CVI

Only through careful assessment can individuals with CVI be identified

At high risk for learning, language and communication development, severely limiting activities, opportunities, independence, and participation

## To make a diagnosis of CVI

1. Eye exam does not explain child's profound lack of visual attention.
2. History of neurological condition always associated with CVI
3. Unique visual and behavioral characteristics associated with CVI

## 1. Eye Exam: Traditional diagnostics do not measure function

- MRIs- Can't reliably confirm or deny the presence of CVI
- VEPs- Can not reliably identify CVI or describe child's functional vision
- Teller Acuity Cards - Do not correlate with CVI or child's functional vision

## The Risk

- Children with CVI are not diagnosed in a timely way
- The average age of diagnosis is 3 ½ years of age (Roman Lantzy & Lantzy, 2010)
- In 2013, 7 individuals over 15 years of age were diagnosed with CVI at Pediatric View...even though their CVI existed since birth

## 2. Neurological History

| CONGENITAL AND PERINATAL CVI                                      | ETIOLOGY OF BRAIN DAMAGE  |
|---|---|
| Asphyxia  | Oxygen deprivation to brain resulting in excess carbon dioxide  |
| Perinatal hypoxia ischemia, hypoxic ischemic encephalopathy (HIE) | Bleeding that occurs in the germinal matrix and/or ventricles and surrounding tissues of the brain.   |
| Intraventricular hemorrhage (IVH)                                 | Injury or death of white matter in the brain. (generally associated with prematurity).  |
| Periventricular leukomalacia (PVL)                                | Neonatal stroke occurs when blood capillaries in the brain rupture or when blood flow is blocked  |
| Cerebral vascular accident/cerebral artery infarction             | TORCH infections (e.g., cytomegalic virus) can pass from mother to fetus in utero or occur after birth. Meningitis, Group B strep   |
| Infections that effect central nervous system                     | Bleeding that occurs in the germinal matrix and/or ventricles and surrounding tissues of the brain.   |
| Structural abnormalities/malformations                            | Alteration in normal progression of brain development (e.g., Dandy Walker syndrome, primary microcephaly, hydrocephalus, lissencephaly etc.). Often secondary to chromosomal disorders. |
| Metabolic conditions  | Severe hypoglycemia, kernicterus, hyperbilirubinemia, mitochondrial disorders   |
| Cerebral palsy  | A catch-all diagnostic term for individuals with motor impairments acquired during the perinatal period or early childhood.   |
| Chromosomal disorders   | e.g., chromosomal translocations, chromosomal deletions & certain syndromes   |

| ACQUIRED CVI   | ETIOLOGY OF BRAIN DAMAGE  |
|--|---|
| Acquired hypoxia   | e.g., near-drowning, near-SIDS.   |
| Blow to head/gunshot wound                                       | Brain damage located in areas affected by trauma.   |
| Head injury related to vehicular accidents/ shaken baby syndrome | Contusions, hemorrhaging in multiple locations of the brain secondary to closed head injury.                        |
| Infection  | e.g., meningitis, encephalitis  |
| Tumor  | Growth that can affect brain function. Surgical removal of brain tissue in treating tumor could also result in CVI. |
| Stroke   | Brain damage secondary to cerebral vascular accident/CVA, etc.  |

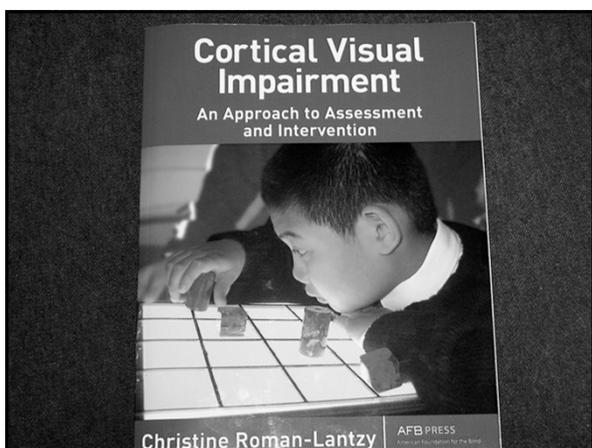
It's important to READ the medical record

### 3. CVI Characteristics: Visual and Behavioral

**HANDOUT**

The key to understanding children with CVI - CVI behaviors

- Attraction to color
- Light gazing & non-purposeful gaze
- Movement (dorsal stream)
- Visual complexity (ventral stream)
- Lack of visual motor match
- Visual latency
- Visual field differences
- Difficulties with distance viewing
- Visual reflex differences
- Difficulties with visual novelty



### The CVI Range

- Used to measure degree of CVI over time
- Developed by Roman-Lantzy, based on the constructs by Jan, Hoyt, Groenfeld
- Reliable and valid instrument (Newcomb, 2009), published, JVIB, October, 2010
- Does not address other forms of visual processing disorders (e.g., autism, dyslexia, etc.)

## Intervention

- Based on principles of visual plasticity and critical visual periods (Hubel, Weisel & others)

**NEW NEURAL PATHWAYS CAN BE DEVELOPED AND VISUAL FUNCTION CAN BE INCREASED**

## Interventions for CVI

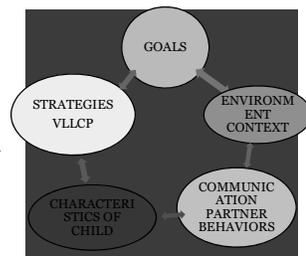
- **An Approach**, not a “therapy”
- Vision improvements occur via the eyes
- Interventions must be paired with functional, meaningful routines
- Must create adaptations and activities that incorporate the CVI characteristics at, not above or below child’s assessed level

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## Strategies: Supporting development, function and participation across domains

- Vision
- Learning
- Language
- Communication
- Participation



## Goals

1. Build stable visual responses
2. Provide multiple learning opportunities for children to
  - > use their vision
  - > learn – explore, develop concepts, language, communication skills
  - > participate in meaningful ways in activities throughout the day (people, activities, objects, contexts, routines)

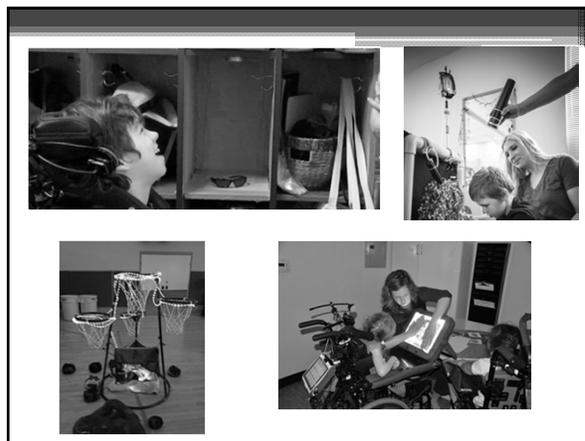
## HANDOUT

## Characteristics of Child

- Interests and preferences
- Scores on CVI Range: Phase I, II, III
- Mobility and stability: supporting child’s ability to explore environment independently
- Access to language
- Ability to communicate effectively and efficiently and to participate

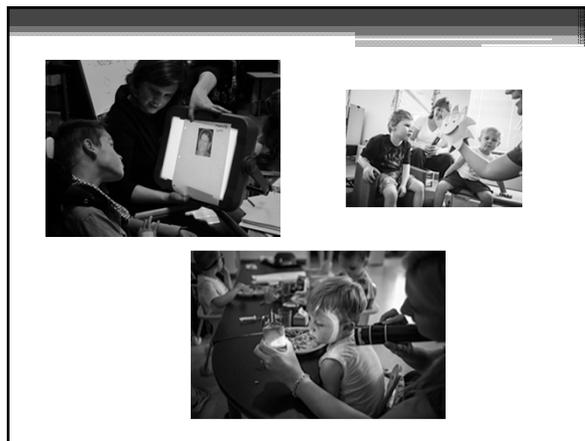
## Environment

- Providing access (positioning, mobility)
- Choice of materials and how displayed
- Types of activities and accommodations
- Controlling visual complexity of the environment
  - Sensory input (visual, auditory, smell, taste, touch) (e.g., clothing people are wearing)
- Controlling other features of context, (e.g., language input, objects, activities, etc.)



## Communication Partners

- Expectations of child
- Trained vs. untrained
- Ability to read child's signals
- "What should I wear?"
- Language used during interactions with child
- Language used with others when child is present
- Accommodations



At The Bridge School everyone SHARES!!!

**Teacher-in-Residence**



At The Bridge School everyone SHARES!!!



Join us for the AAC By the Bay Conference!



Check our web site:  
[www.bridgeschool.org](http://www.bridgeschool.org)



Welcome to The Bridge School



What's New at The Bridge School