ENSURING MEANINGFUL ACCESS FOR STUDENTS WITH CVI

CVICONNECT

Stephanie Steffer

STEPHANIES@CVICONNECT.CO

Presenter Background

Ensuring Meaningful Access for Students with CVI

Stephanie Steffer is the Business Director at CViConnect and one of the founding teachers for the platform. Before this role, Stephanie was Teacher Consultant serving children with visual impairments in Michigan for ten years. She earned her degree from Eastern Michigan University for Special Education for the Visually Impaired and Early Childhood Education. Additionally, Stephanie is a Perkins-Roman CVI Range Endorsed professional. Beyond her role as a TCVI, Stephanie has been the Program Coordinator for the Visually Impaired Youth Camp at Lions Bear Lake Camp for 11 years.

WHO IS HERE TODAY?

Please answer the poll as it appears on your screen.

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ENSURING MEANINGFUL ACCESS FOR STUDENTS WITH CVI

- **Learning Objectives:**
  - **When given an activity, participants will identify what CVI Phase it is most appropriate for.**
  - **When given an activity within each CVI phase and a student profile, participants will identify which activities are most appropriate for a warm-up and for access to curriculum.**
  - **When given an IEP goal, with a visual learning modality, participants identify factors to consider when creating visual targets.**

UNDERSTAND IDEA

Ensuring Meaningful Access for Students with CVI

Eligibility Determinations for Children Suspected of Having a Visual Impairment Including Blindness under the Individuals with Disabilities Education Act

When determining a child's vision status, the LEA's evaluation should be thorough and rigorous. Such evaluations should include a data-based media assessment, be based on a range of learning modalities (including auditory, tactile, and visual), and include a functional visual assessment. In previously-issued guidance, OSEP has noted that an assessment of a child's vision status generally would include the nature and extent of the child's visual impairment and its effect on the child's ability to learn to read, write, do mathematical calculations, and use computers and other assistive technology, as well as the child's ability to be involved in and make progress in the general curriculum offered to nondisabled students. Such an evaluation generally would be closely linked to the assessment of the child's present and future reading and writing objectives,

CEREBRAL VS CORTICAL

Ensuring Meaningful Access for Students with CVI

Cerebral

- encompasses all forms of visual processing disorders including those that have been associated with visual perceptual difficulties (Jan, 2011 as cited in Roman, 2018)

Cortical

- brain damage or conditions that affect the part of the brain known as the posterior visual system (Huo, Burden, Hoyt, & Good, 1999 as cited in Roman, 2018)

THREE ELEMENTS

Ensuring Meaningful Access for Students with CVI

1. An eye exam that does not explain the individual's functional use of vision

2. A history of a brain condition, trauma, or damage associated with CVI

3. The presence of certain visual and behavioral characteristics

Three Elements of Identification for CVI from Roman-Lantzy (2018)

“THE WORK OF THOSE WHO TEACH CHILDREN WITH CVI IS TO SYSTEMATICALLY PROVIDE ADAPTATIONS AND SPECIFICALLY DESIGN INSTRUCTION THAT WILL DEVELOP AND BROADEN THE CHILD’S REPRESENTATIONS”

Roman 2018

DATA DRIVEN INSTRUCTION

Ensuring Meaningful Access for Students with CVI

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THE CVI RANGE

Ensuring Meaningful Access for Students with CVI

- Functional Vision Evaluation
- 3 parts
  - Observation
  - Parent Interview
  - Direct assessment

CVI Range 1–2: Student functions with minimal visual response

0	1	2	3	4	5	6	7	8	9	10
No functional vision										Typical or near-typical visual functio

e fixations

	Consistently attentive to lights or perhaps fans
	Prolonged periods of latency in visual tasks
	Responds only in strictly controlled environr
	Objects viewed are a single color

CVI Range from Roman-Lantzy

DATA DRIVEN INSTRUCTION

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THE CVI RANGE

Ensuring Meaningful Access for Students with CVI

Rating II: Within-CVI Characteristics Assessment

Determine the level of CVI present or resolved in the 10 categories below and add to obtain a total score.

☑ Show Details

		Not Specified	Not Resolved 0.0	0.25	Resolving 0.5	0.75	Resolved 1.0	Comment
1	Color	●	○ Attends to a single, preferred color	○ Preferred color dominates, additional 1-2 colors may also elicit /promote visual attention	○ Highly saturated colors, fluorescent colors promote visual attention Specific color preference is fading Color highlighting of salient 3-D or 2-D features is necessary	○ Color highlighting of materials or environment is occasionally necessary	○ Color is no more important for visual attention than for other individuals of the same age	
2	Movement	●	○ Attends only to objects that are moving or that have reflective properties May notice ceiling fan	○ Movement is necessary to elicit attention and almost always necessary to maintain visual attention May be distracted by unintended movement at near	○ Movement is necessary to elicit attention but not to sustain visual attention May begin to notice the movement of people at distances up to 8-10 feet away May be distracted by unintended movement at distances up to 8 feet away	○ Movement occasionally necessary to elicit visual attention	○ Movement is not necessary to elicit or hold visual attention Movement will alert the individual but not "captivate"	
3	Latency	●	○ Prolonged periods of latency each time an object is	○ Latency is frequent but slightly decreases during periods of consistent viewing	○ Latency occurs about half of the time the individual is attempting to visually attend Latency may be a sign of visual fatigue or over stimulation	○ Latency occurs primarily when the individual is hungry, tired, over stimulated, post seizure. Latency	○ No latency in visual response. The individual visually regards a target without	

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e is the child's

he child's need

CVI Range and Visual and Behavioral CVI Characteristics from Roman-Lantzy

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THE CVI RANGE

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- **Phase I (Range 0-3): the goal is to build consistent visual behavior**
- **Phase II (Range 3+-7): the goal is to integrate vision with function**
- **Phase III (Range 7+-10): the goal is to facilitate refinement of the characteristics**

CVI Range and Phases from Roman-Lantzy

CVI CHARACTERISTICS IN PHASE I

Ensuring Meaningful Access for Students with CVI

Goal: Building Visual Behavior

CVI Progress Chart-

FIGURE 5.6 CVI Progress Chart

CVI Progress Chart

Use the following chart to help develop areas of needs for development of IEP goals and objectives.

	Phase I: ■ *Building visual behavior*, primarily dorsal stream visual function ■ Level I environmental considerations		Phase II: ■ *Integrating vision with function*, dorsal and beginning ventral stream visual function ■ Level II environmental considerations	P ■ ■
CVI Characteristics	*Range 1–2 (0)*	*Range 3–4 (.25)*	*Range 5–6 (.50)*	*Range 7–8*
Color preference	Attends to a single, preferred color	Preferred color dominates; additional one to two colors may also elicit or promote visual attention	Highly saturated and fluorescent colors promote visual attention	Color highlight materials or e ment is occasi necessary
Need for movement	Objects viewed generally have movement or reflective properties	Localization is more consistent; brief fixations on movement and reflective materials	Movement continues to be an important factor to initiate visual attention	Movement is quired for att near
Visual latency	Prolonged periods of visual latency	Latency slightly decreases after periods of consistent viewing	Latency is present only when student is tired, stressed, or overstimulated	Latency is rar present
Visual field preferences	Displays distinct field dependency	Shows visual field preferences	Field preferences decreasing with familiar inputs	May alternate right and left Lower visual fi may continue safety and loca targets

Roman-Lantzy, C. (2018). Cortical Visual Impairment: An Approach to Assessment and Intervention. 2nd ed., New York, NY: AFB Press.

PHASE I

Ensuring Meaningful Access for Students with CVI

- **Single color (learner's preferred color)**
- **Movement (or movement properties)**
- **Familiar object**
- **Paired with light**
- **Extend from eye to hand**

“SOME STUDENTS WITH CVI MAY SEEM TO ENJOY LOOKING AT SCENES OUTSIDE THE WINDOW OR A NOVEL PICTURES IN BOOKS. BUT IT IS CRITICAL TO RECOGNIZE THAT LOOKING AT A TARGET CANNOT BE EQUATED WITH INTERPRETING WHAT IS SEEN”

Roman 2018

CVI CHARACTERISTICS IN PHASE II

Ensuring Meaningful Access for Students with CVI

Goal: Integrating vision with function

CVI Progress Chart Early Phase II-

CVI Progress Chart Late Phase II-

FIGURE 5.6 CVI Progress Chart

CVI Progress Chart

Use the following chart to help develop areas of needs for development of IEP goals and objectives.

	Phase I: ■ ***Building visual behavior,*** primarily dorsal stream visual function ■ Level I environmental considerations		Phase II: ■ ***Integrating vision with function,*** dorsal and beginning ventral stream visual function ■ Level II environmental considerations		Phase III: ■ ***Refinement of CVI characteristics,*** primarily refinement of ventral stream visual function ■ Level III environmental considerations
CVI Characteristics	***Range 1–2 (0)***	***Range 3–4 (.25)***	***Range 5–6 (.50)***	***Range 7–8 (.75)***	***Range 9–10 (1)***
Color preference	Attends to a single, preferred color	Preferred color dominates; additional one to two colors may also elicit or promote visual attention	Highly saturated and fluorescent colors promote visual attention	Color highlighting of materials or environment is occasionally necessary	No color or pattern preferences; color is no more important than for others of the same age
Need for movement	Objects viewed generally have movement or reflective properties	Localization is more consistent; brief fixations on movement and reflective materials	Movement continues to be an important factor to initiate visual attention	Movement is not required for attention at near	Typical responses to moving targets
Visual latency	Prolonged periods of visual latency	Latency slightly decreases after periods of consistent viewing	Latency is present only when student is tired, stressed, or overstimulated	Latency is rarely present	Latency is no longer present
Visual field preferences	Displays distinct field dependency	Shows visual field preferences	Field preferences decreasing with familiar inputs	May alternate use of right and left fields Lower visual fields may continue to affect safety and location of targets	Visual fields are unrestricted

Roman-Lantzy, C. (2018). Cortical Visual Impairment: An Approach to Assessment and Intervention. 2nd ed., New York, NY: AFB Press.

PHASE II

Ensuring Meaningful Access for Students with CVI

EARLY

- Use characteristics from Phase I
- Can view more than one color
- Movement (or movement properties) to initiate and occasionally sustain attention
- 3D preferred may begin to demonstrate eye to object contact with photograph of familiar toy
- Lighting paired with target

LATE

- Highly saturated colors may begin to use color highlighting
- Simple realistic 2-dimensional images
- Movement continues to be important to initiate
- Lighted targets or Backlit

WHAT DO YOU SEE?

2-Dimensional Image Assessment

Matt Tiejten presents this visual and explains the progression:

- **Color Photograph**
- **Realistic Color**
- **Abstract Color**
- **Realistic Black and White**
- **Abstract Black and White**

IMAGE SELECTION

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CVI CHARACTERISTICS IN PHASE III

Ensuring Meaningful Access for Students with CVI

Goal: Refinement of CVI Characteristics

CVI Progress Chart Phase III-

FIGURE 5.6 CVI Progress Chart

CVI Progress Chart

Use the following chart to help develop areas of needs for development of IEP goals and objectives.

	Phase I: ■ *Building visual behavior*, primarily dorsal stream visual function ■ Level I environmental considerations		Phase II: ■ *Integrating vision with function*, dorsal and beginning ventral stream visual function ■ Level II environmental considerations		Phase III: ■ *Refinement of CVI characteristics*, primarily refinement of ventral stream visual function ■ Level III environmental considerations
CVI Characteristics	***Range 1–2 (0)***	***Range 3–4 (.25)***	***Range 5–6 (.50)***	***Range 7–8 (.75)***	***Range 9–10 (1)***
Color preference	Attends to a single, preferred color	Preferred color dominates; additional one to two colors may also elicit or promote visual attention	Highly saturated and fluorescent colors promote visual attention	Color highlighting of materials or environment is occasionally necessary	No color or pattern preferences; color is no more important than for others of the same age
Need for movement	Objects viewed generally have movement or reflective properties	Localization is more consistent; brief fixations on movement and reflective materials	Movement continues to be an important factor to initiate visual attention	Movement is not required for attention at near	Typical responses to moving targets
Visual latency	Prolonged periods of visual latency	Latency slightly decreases after periods of consistent viewing	Latency is present only when student is tired, stressed, or overstimulated	Latency is rarely present	Latency is no longer present
Visual field preferences	Displays distinct field dependency	Shows visual field preferences	Field preferences decreasing with familiar inputs	May alternate use of right and left fields Lower visual fields may continue to affect safety and location of targets	Visual fields are unrestricted

Roman-Lantzy, C. (2018). Cortical Visual Impairment: An Approach to Assessment and Intervention. 2nd ed., New York, NY: AFB Press.

PHASE III

Ensuring Meaningful Access for Students with CVI

- **Color highlighting**
- **Movement not required at near**
- **Symbol books and pictures regarded**
- **Novel objects/images discriminated based on salient features**
  - **Comparative thought**
- **Backlit**

Sample of using Color, Movement

to build fluency for readers

The dog ran in the park and chased after the ball.

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SALIENT FEATURES

Ensuring Meaningful Access for Students with CVI

It's an elephant

But why?

How did you know?

Salient Feature Dictionary

https://cvicollaborative.wixsite.com/salientfeatures

COMPARATIVE THOUGHT

Ensuring Meaningful Access for Students with CVI

- **Compare and contrast familiar targets for the child**
- **Build on the child's thought**
- **Venn diagram**

4:14 PM Fri Mar 12 100%

<Activities Edit Help toothbrush vs spoon ...

Your activity is ready to begin. Please note the following instructions:

present iPad without prompt
After 15 seconds, say “This is a picture of your toothbrush, It has a long thin handle and small bristles”
Wait without further prompts
After an additional 15 seconds draw the long handle and say “here is the long handle”
Wait another 15 seconds without additional prompts
Say “At the top are the small bristles in the shape of a circle” then draw a circle around the bristles
Wait another 15 seconds without additional prompts

Your toothbrush is similar to your spoon. They both have long thin handles but your toothbrush has bristles and your spoon has a curved scoop at the top.

OK

nodes:8 52.7 fps

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WHAT PHASE?

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Phase I

Phase II

Phase III

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

Phase I

Phase II

Phase III

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

Phase I

Phase II

Phase III

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

Phase I

Phase II

Phase III

CVI Phases from Roman-Lantzy

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WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

WHAT PHASE?

Ensuring Meaningful Access for Students with CVI

Phase I

Phase II

Phase III

CVI Phases from Roman-Lantzy

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DATA DRIVEN INSTRUCTION

Ensuring Meaningful Access for Students with CVI

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“BUT MERE EXPOSURE TO VISUAL INPUT IS NOT SUFFICIENT FOR INDIVIDUALS WITH CVI”

Roman 2018

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ASSIGNED TASK

Align Content to meet student need by
modifying curriculum

Align Visual Input to meet student need by
accommodating images and text

SENSORY BALANCE

Ensuring Meaningful Access for Students with CVI

Considering how the 10 characteristics impact the students ability to access materials at different parts of the day

CVI Sensory Balance: Learning Media Profile

Visual Learning Media

- **Approximations for each Phase**

Compensatory Learning Media

Multi-Sensory Input

Technology

Learning Media Goals

Roman-Lantzy, C. and Tietjen, M. (2020). Sensory Balance: An Approach to Learning Media Planning for Students with CVI. Watertown, MA: Perkins School for the Blind.

SENSORY BALANCE

Ensuring Meaningful Access for Students with CVI

Activity Planning Form:

- **Activity**
- **Lead modality**
- **Supporting modality**
- **Technology/Tools required**
- **Environment**

FIGURE 3

Learning Modalities by Phase

PHASE I	PHASE II	PHASE II
Tactual & Auditory		Vision
Vision Now: Visual behavior is just emerging.	**Vision Now:** Integrating vision with function.	**Vision Now:** Most reliable way to interact with the world.
Vision Goal: Build visual behavior.	**Vision Goal:** Increase opportunities to use vision; teach salient features.	**Vision Goal:** Increase stability of functional vision; handle increasingly complex visual demands.
Tactual & Auditory Now: Most reliable way to interact with the world.	**Tactual & Auditory Now:** Used often to supplement visual tasks and substitute when necessary.	**Tactual & Auditory Now:** Used occasionally to supplement visual tasks and substitute when necessary—mostly to avoid visual fatigue.

Roman-Lantzy, C. and Tietjen, M. (2020). Sensory Balance: An Approach to Learning Media Planning for Students with CVI. Watertown, MA: Perkins School for the Blind.

“WHAT’S THE COMPLEXITY” FRAMEWORK

Ensuring Meaningful Access for Students with CVI

ENVIRONMENT RATING GUIDE

Figure 4

	Complexity of Array	Complexity of Sensory Input	Visual Movement	Impact of Lighting	Visual Novelty	Examples
Extreme	extreme amount of competing background information in student’s visual field	intense, constant level of competing sensory input	intense level of movement in visual field	lighting in this environment prevents student from attending to task.	setting and/ or characteristics of setting may be highly unfamiliar	*Array, sensory, and/or movement **greater than in typical, un-adapted general education classroom** (i.e. School cafeteria; gymnasium; crowded hallway)*
High	high amount of competing background information in student’s visual field	high level of steady, competing sensory input	frequent background movement in visual field	lighting in this environment is consistently distracting for student.	setting and/ or characteristics of setting may be unfamiliar	*Array, Sensory and/or Movement **similar to or slightly less than that of a typical, un-adapted general education classroom***
Moderate	low to moderate amount of competing background information in student’s visual field	low to moderate amount of competing sensory input at somewhat regular intervals	occasional background movement in visual field	lighting in this environment is occasionally distracting for student.	setting and/ or characteristics of setting are basically familiar	*Array, sensory and/or movement **far less than in typical, un-adapted general education classroom** (i.e. generally quiet resource room with some competing visual information in child’s field)*
Minimal	no, or very little, competing background information in student’s visual field	quiet; no, or very infrequent, competing sensory input	no background movement in visual field	lighting in this environment does not seem to be distracting for student.	setting and/or characteristics of setting are very familiar	*Array, sensory and/or movement **eliminated or nearly eliminated** (i.e. Quiet one-to-one setting with visual complexity reduced using black trifold boards or plain wall)*

What’s the Complexity?

Circle the complexity level for each of the 5 components that make up the environment. The highest circle determines the overall complexity level of the environment.

Characteristics from Roman-Lantzy, 2007

TASK RATING GUIDE

Figure 5

	Complexity of Object	Complexity of Array	Complexity of Sensory Inputs	Distance of Materials	Visual-Motor Demands	Visual Latency	Visual Novelty
Frustrational	Targets are **outside student’s ability** to look at and interpret.	Array of materials **outside student’s ability** to look at, interpret and interact with.	Sensory demands of materials are **outside student’s ability** to look at, interpret, and maintain visual attention.	Distance of materials is **outside student’s ability** to look at, interpret, and maintain visual attention.	Visual-motor demands are **outside student’s ability.**	Pacing of task is **outside student’s ability** to engage visually	Novelty of materials is **outside student’s ability** to look at and interpret.
Challenging	Targets are **at upper end of student’s ability** to look at and interpret.	Array of materials **at upper end of student’s ability** to look at, interpret and interact with.	Sensory demands of materials are **at the upper end of student’s ability** to look at, interpret, and maintain visual attention.	Distance of materials is **at upper end of student’s ability** to look at, interpret, and maintain visual attention.	Visual-motor demands are **at upper end of student’s ability.**	Pacing of task is **at upper end of student’s ability** to engage visually	Novelty of materials is **at upper end of student’s ability** to look at and interpret.
Comfortable	Targets are **well-within student’s ability** to look at and interpret.	Array of materials **well-within student’s ability** to look at, interpret and interact with.	Sensory demands of materials are **well-within student’s ability** to look at, interpret, and maintain visual attention.	Distance of materials or target is **well-within student’s ability** to look at, interpret, and maintain visual attention.	Visual-motor demands are **well within student’s abilities.**	Pacing of task is **well within student’s ability** to engage visually	Novelty of materials is **well-within student’s ability** to look at and interpret.
Low Visual Demands	**Low visual demands**	**Low visual demands**	**low visual demands**	**Low visual demands**	**Low visual demands**	**low visual demands**	**low visual demands**

What’s the Complexity?

Circle the level for each of the 7 components that make up the task. The highest circle determines the overall complexity level of the task.

Characteristics from Roman-Lantzy, 2007

“What’s the Complexity” Framework from Matt Tietjen

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“WHAT’S THE COMPLEXITY” FRAMEWORK

Ensuring Meaningful Access for Students with CVI

ENVIRONMENT RATING GUIDE

Figure 4

	Complexity of Array	Complexity of Sensory Input	Visual Movement	Impact of Lighting	Visual Novelty	Examples
Extreme	extreme amount of competing background information in student’s visual field	intense, constant level of competing sensory input	intense level of movement in visual field	lighting in this environment prevents student from attending to task.	setting and/ or characteristics of setting may be highly unfamiliar	*Array, sensory, and/or movement **greater than in typical, un-adapted general education classroom** (i.e. School cafeteria; gymnasium; crowded hallway)*
High	high amount of competing background information in student’s visual field	high level of steady, competing sensory input	frequent background movement in visual field	lighting in this environment is consistently distracting for student.	setting and/ or characteristics of setting may be unfamiliar	*Array, Sensory and/or Movement **similar to or slightly less than that of a typical, un-adapted general education classroom***
Moderate	low to moderate amount of competing background information in student’s visual field	low to moderate amount of competing sensory input at somewhat regular intervals	occasional background movement in visual field	lighting in this environment is occasionally distracting for student.	setting and/ or characteristics of setting are basically familiar	*Array, sensory and/or movement **far less than in typical, un-adapted general education classroom** (i.e. generally quiet resource room with some competing visual information in child’s field)*
Minimal	no, or very little, competing background information in student’s visual field	quiet; no, or very infrequent, competing sensory input	no background movement in visual field	lighting in this environment does not seem to be distracting for student.	setting and/or characteristics of setting are very familiar	*Array, sensory and/or movement **eliminated or nearly eliminated** (i.e. Quiet one-to-one setting with visual complexity reduced using black trifold boards or plain wall)*

What’s the Complexity?

Circle the complexity level for each of the 5 components that make up the environment. The highest circle determines the overall complexity level of the environment.

Characteristics from Roman-Lantzy, 2007

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‘What’s the Complexity’ Framework from Matt Tietjen

“WHAT’S THE COMPLEXITY” FRAMEWORK

Ensuring Meaningful Access for Students with CVI

TASK RATING GUIDE Figure 5

	Complexity of Object	Complexity of Array	Complexity of Sensory Inputs	Distance of Materials	Visual-Motor Demands	Visual Latency	Visual Novelty
Frustrational	Targets are **outside student’s ability** to look at and interpret.	Array of materials **outside student’s ability** to look at, interpret and interact with.	Sensory demands of materials are **outside student’s ability** to look at, interpret, and maintain visual attention.	Distance of materials is **outside student’s ability** to look at, interpret, and maintain visual attention.	Visual-motor demands are **outside student’s ability**.	Pacing of task is **outside student’s ability** to engage visually	Novelty of materials is **outside student’s ability** to look at and interpret.
Comfortable	**student’s ability** to look at and interpret.	**within student’s ability** to look at, interpret and interact with.	**well-within student’s ability** to look at, interpret, and maintain visual attention.	target is **well-within student’s ability** to look at, interpret, and maintain visual attention.	**well within student’s abilities.**	**student’s ability** to engage visually	**well-within student’s ability** to look at and interpret.
Low Visual Demands	**Low visual demands**	**Low visual demands**	**low visual demands**	**Low visual demands**	**Low visual demands**	**low visual demands**	**low visual demands**

What’s the Complexity?

Circle the level for each of the 7 components that make up the task. The highest circle determines the overall complexity level of the task.

Characteristics from Roman-Lantzy, 2007

TASK RATING GUIDE Figure 5

	Complexity of Object	Complexity of Array	Complexity of Sensory Inputs	Distance of Materials	Visual-Motor Demands	Visual Latency	Visual Novelty
Frustrational	Targets are **outside student’s ability** to look at and interpret.	Array of materials **outside student’s ability** to look at, interpret and interact with.	Sensory demands of materials are **outside student’s ability** to look at, interpret, and maintain visual attention.	Distance of materials is **outside student’s ability** to look at, interpret, and maintain visual attention.	Visual-motor demands are **outside student’s ability**.	Pacing of task is **outside student’s ability** to engage visually	Novelty of materials is **outside student’s ability** to look at and interpret.

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ASSIGNED TASK

Align Content to meet student need by
modifying curriculum

Align Visual Input to meet student need by
accommodating images and text

Instruction

ACCESS FOR CVI LEARNER

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INSTRUCTION

- **EXPLICIT Instruction**
- **Specialized instruction to learn how to utilize the accessible materials**

STUDENT #1

Ensuring Meaningful Access for Students with CVI

Sample Student: Ahmed

- **Color: (.5) Highly saturated colors, fluorescent colors promote visual attention Specific color preference is fading Color highlighting of salient 3-D or 2-D features is necessary**
- **Movement: (.75) Movement occasionally necessary to elicit visual attention**
- **Latency: (.5) Latency occurs about half of the time the individual is attempting to visually attend Latency may be a sign of visual fatigue or over stimulation**
- **Fields: (.5) Visual fixations occur in two lateral fields + emerging or actual visual fixation in one additional lateral field**
- **Complexity**
  - **Object (.75) Visual fixations (and object recognition or identification) on objects/images that have 4+ colors/patterns on surface 2-dimensional images without backlighting are now accessible**
  - **Array: (.5) Visual fixations occur on objects presented against backgrounds with 2-3 color pattern backgrounds Simple 2-dimensional images detected against a background of 3-4 additional elements**
  - **Sensory (.5) Visual fixations occur even when average intensity familiar or novel sensory inputs exist. At times, more than one sensory input may be tolerated without loss of visual attention**
  - **Faces (.75) Eye to eye contact with most people. May be less attention to the faces of new or unfamiliar people Typical responses to mirror image**
- **Light: (.75) Attention on primary sources of light occurs only when the individual is tired, stressed, over-stimulated, or ill**
- **Distance: (.5) Visually locates and fixates on any target at distances up to 6 feet. Occasional visual attention on large moving targets (including people) may occur at 10 feet**
- **Reflexes: (1.0) Blink to touch at the bridge of the nose consistently present. Blink to the visual threat present commensurate with the age of the individual**
- **Novelty: (.5) Visual fixations on familiar objects, objects that are visually similar to familiar objects, and with novel objects after several exposures to the new object Visual attention may occur with novel 3 dimensional or some 2 dimensional materials but the individual is unable to "interpret" the visual display Occasional visual curiosity occurs in novel environments**
- **Visually Guided Reach: (.5) Look and reach occur as a single action when background is controlled and/or the target is 3 dimensional + shiny or moving**

WHICH ACTIVITY?

Ensuring Meaningful Access for Students with CVI

A. No visual accommodations needed, he will participate using auditory and tactile input.

B. Multiple occasions before the trip, show Ahmed toy animals that he may see at the zoo. Present on a Lightbox with a highly controlled background. Bring toy animals to the zoo to hand to Ahmed throughout the day.

C. Multiple occasional prior to the zoo field trip day, present real photographs to highlight salient features of different animals. Present on a tablet and add movement as necessary. Bring tablet to the zoo the day of the field trip.

D. Show printed pictures of various animals. Bring device to the zoo; take pictures of animals and zoom in.

WHICH ACTIVITY?

Ensuring Meaningful Access for Students with CVI

C. Multiple occasional prior to the zoo field trip day, present real photographs to highlight salient features of different animals. Present on a tablet and add movement as necessary. Bring tablet to the zoo the day of the field trip.

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STUDENT #2

Ensuring Meaningful Access for Students with CVI

Sample Student: Isabella

- **Color: (.0) Attends to a single, preferred color (yellow)**
- **Movement: (.0) Attends only to objects that are moving or that have reflective properties May notice ceiling fan**
- **Latency: (.0) Prolonged periods of latency each time an object is presented or each time the individual attempts to visually regard a target**
- **Fields: (.25) Localization or brief fixations in original "preferred" field of view + emerging or actual visual attention in one additional lateral field**
- **Complexity**
  - **Object (.0) Visual attention/brief localizations on single-color objects**
  - **Array: (.25) Visual localizations or brief fixations occur when objects are presented against a black background in a naturally lit or near naturally lit room**
  - **Sensory (.25) Visual localizations or brief fixations occur even when low intensity, familiar sounds or other single sensory inputs are present**
  - **Faces (.0) No visual attention on faces**
- **Light: (.25) Visual localization or fixation primarily begins with attention to lighted properties of objects. May orient to primary sources of light but can be redirected to other targets when environmental lighting is reduced or adjusted May defend by closing eyes briefly or latently to direct input of intense light Visual attention occurs with objects paired with light**
- **Distance: (.0) Visually localizes on targets presented within 12" of face**
- **Reflexes: (.25) Intermittent or latent blink to touch at the bridge of the nose. No blink in response to the visual threat**
- **Novelty: (.0) Visual attention, brief localization occurs with highly familiar objects No visual curiosity**
- **Visually Guided Reach: (.0) Look and reach always completes as separate actions; look-look away-reach**

WHICH ACTIVITY?

Ensuring Meaningful Access for Students with CVI

A. No visual accommodations are necessary, she will participate in school with either tactile or auditory modalities

B. The team should provide a schedule for each positioning opportunity. Select a yellow, moving, visual target and present on Isabella's right side.

C. Use yellow or gold shiny material on the switch. Shine a flashlight (gently move) from behind the student onto the switch to encourage her use her vision to locate the switch before hitting.

D. Use yellow letters with glitter on them to teach her the letter of the week with her peers.

WHICH ACTIVITY?

Ensuring Meaningful Access for Students with CVI

B. The team should provide a schedule for each positioning opportunity. Select a yellow, moving, visual target and present on Isabella's right side.

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STUDENT #3

Ensuring Meaningful Access for Students with CVI

Sample Student: Alex

- **Color: (1.0) Color is no more important for visual attention than for other individuals of the same age**
- **Movement: (1.0) Movement is not necessary to elicit or hold visual attention Movement will alert the individual but not "captivate"**
- **Latency: (.75) Latency occurs primarily when the individual is hungry, tired, over stimulated, post seizure. Latency occurs rarely**
- **Fields: (.75) Visual fixations occur and are stable in three visual field positions. Lower visual field function may be atypical**
- **Complexity**
  - **Object (.75) Visual fixations (and object recognition or identification) on objects/images that have 4+ colors/patterns on surface 2-dimensional images without backlighting are now accessible**
  - **Array: (.75) Visual fixations occur on 3-dimensional targets against highly patterned backgrounds Two-dimensional target images detected against a background of up to 20 additional elements**
  - **Sensory (.75) Visual fixations occur even when multiple, competing familiar sensory inputs exist. Visual attention or the ability to locate a single target may be compromised when the individual is in a novel setting with multiple, competing sensory inputs**
  - **Faces (1) Visual attention (with eye to eye contact) on the human face is present in all social interactions.**
- **Light: (.75) Attention on primary sources of light occurs only when the individual is tired, stressed, over-stimulated, or ill**
- **Distance: (.75) Visually locates and fixates on a specific target in a familiar or novel setting at distances up to 10 feet May demonstrate visual attention on large moving targets at distances as great as 15-20 feet**
- **Reflexes: (1) Blink to touch at the bridge of the nose consistently present. Blink to the visual threat present commensurate with the age of the individual**
- **Novelty: (.75) New objects or images are visually discriminated, recognized, or identified based on salient, defining features Visual curiosity occurs in most new environments**
- **Visually Guided Reach: (1) Visually direct reach occurs commensurate with the age of the individual If upper-extremity motor limitations, look + reach occur together even if motor planning requires additional time**

WHICH ACTIVITY?

Ensuring Meaningful Access for Students with CVI

A. No visual accommodations are necessary. Alex will participate with only auditory and tactile modalities.

B. Isolate the goal word and teach Alex the salient features. Begin to integrate the word into sentences, only highlight the goal word. Eventually removing all highlight accommodations when Alex is ready.

C. Present text on a backlit device with movement and highly controlled environment. Utilize Dr Roman's word bubbling to highlight every word in the sentence.

D. Provide Alex with a hard copy of a book that addresses the goal word. Words may be presented with pictures in the background without additional modifications.

WHICH ACTIVITY?

Ensuring Meaningful Access for Students with CVI

B. Isolate the goal word and teach Alex the salient features. Begin to integrate the word into sentences, only highlight the goal word. Eventually removing all highlight accommodations when Alex is ready.

CViCONNECT

IMPLEMENTATION

Ensuring Meaningful Access for Students with CVI

Have you considered:

	Does the activity require modifications?
	What are the goals of your student's CVI Phase?
	What are your student's IEP goals?
	What learning media is most appropriate?
	Does the accommodation match the CVI Range score?
	"What's The Complexity" of the environment and the task?
	Who on the team is responsible for accommodating materials?
	Is specialized instruction (pre-teaching) needed: Who is responsible? When will it take place?
	What does the environment look like where the instruction will take place? (Noises, textures, lights, etc)
	Where is your student sitting in regard to presentation of material?
	Does positioning impact the student?

CVI Range, Visual and Behavioral Characteristics, and Phases from Roman-Lantzy
"What's the Complexity" Framework from Matt Tietjen

ACTIVITY PURPOSE

Ensuring Meaningful Access for Students with CVI

- **What would you do for a Phase I student?**

	Does the activity require modifications?
	What are the goals of your student's CVI Phase?
	What are your student's IEP goals?
	What learning media is most appropriate?
	Does the accommodation match the CVI Range score?
	"What's The Complexity" of the environment and the task?
	Who on the team is responsible for accommodating materials?
	Is specialized instruction (pre-teaching) needed: Who is responsible? When will it take place?
	What does the environment look like where the instruction will take place? (Noises, textures, lights, etc)
	Where is your student sitting in regard to presentation of material?
	Does positioning impact the student?

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CVI Range, Visual and Behavioral Characteristics, and Phases from Roman-Lantzy
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ACTIVITY

Ensuring Meaningful Access for Students with CVI

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ACTIVITY PURPOSE

Ensuring Meaningful Access for Students with CVI

- **What would you do for a Early Phase II student?**

	Does the activity require modifications?
	What are the goals of your student's CVI Phase?
	What are your student's IEP goals?
	What learning media is most appropriate?
	Does the accommodation match the CVI Range score?
	"What's The Complexity" of the environment and the task?
	Who on the team is responsible for accommodating materials?
	Is specialized instruction (pre-teaching) needed: Who is responsible? When will it take place?
	What does the environment look like where the instruction will take place? (Noises, textures, lights, etc)
	Where is your student sitting in regard to presentation of material?
	Does positioning impact the student?

Name _____

Create a Constellation!

The sky is filled with stars tonight. Connect stars to make your own constellation. It can be any shape that you would like! You don't have to use all of the stars.

My constellation is called _____.

It is in the shape of a _____.

I chose this shape for my constellation because _____

_____

_____

_____.

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CVI Range, Visual and Behavioral Characteristics, and Phases from Roman-Lantzy
"What's the Complexity" Framework from Matt Tietjen

ACTIVITY

Ensuring Meaningful Access for Students with CVI

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ACTIVITY PURPOSE

Ensuring Meaningful Access for Students with CVI

- **What would you do for a Late Phase II student?**

	Does the activity require modifications?
	What are the goals of your student's CVI Phase?
	What are your student's IEP goals?
	What learning media is most appropriate?
	Does the accommodation match the CVI Range score?
	"What's The Complexity" of the environment and the task?
	Who on the team is responsible for accommodating materials?
	Is specialized instruction (pre-teaching) needed: Who is responsible? When will it take place?
	What does the environment look like where the instruction will take place? (Noises, textures, lights, etc)
	Where is your student sitting in regard to presentation of material?
	Does positioning impact the student?

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ACTIVITY

Ensuring Meaningful Access for Students with CVI

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ACTIVITY PURPOSE

Ensuring Meaningful Access for Students with CVI

- **What would you do for a Late Phase II student?**

	Does the activity require modifications?
	What are the goals of your student's CVI Phase?
	What are your student's IEP goals?
	What learning media is most appropriate?
	Does the accommodation match the CVI Range score?
	"What's The Complexity" of the environment and the task?
	Who on the team is responsible for accommodating materials?
	Is specialized instruction (pre-teaching) needed: Who is responsible? When will it take place?
	What does the environment look like where the instruction will take place? (Noises, textures, lights, etc)
	Where is your student sitting in regard to presentation of material?
	Does positioning impact the student?

CVI Range, Visual and Behavioral Characteristics, and Phases from Roman-Lantzy
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ACTIVITY

Ensuring Meaningful Access for Students with CVI

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ACTIVITY PURPOSE

Ensuring Meaningful Access for Students with CVI

- **What would you do for a Phase III student?**

	Does the activity require modifications?
	What are the goals of your student's CVI Phase?
	What are your student's IEP goals?
	What learning media is most appropriate?
	Does the accommodation match the CVI Range score?
	"What's The Complexity" of the environment and the task?
	Who on the team is responsible for accommodating materials?
	Is specialized instruction (pre-teaching) needed: Who is responsible? When will it take place?
	What does the environment look like where the instruction will take place? (Noises, textures, lights, etc)
	Where is your student sitting in regard to presentation of material?
	Does positioning impact the student?

CVi Range, Visual and Behavioral Characteristics, and Phases from Roman-Lantzy
"What's the Complexity" Framework from Matt Tietjen

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ACTIVITY

Ensuring Meaningful Access for Students with CVI

CViCONNECT

REDUCE COMPLEXITY OF IMAGES

Ensuring Meaningful Access for Students with CVI

- Search PNG images
- remove.bg
- Eraser app

ACTIVITIES

Ensuring Meaningful Access for Students with CVI

ACTIVITIES

Ensuring Meaningful Access for Students with CVI

tap
tad

cat
bat
fat

A a
/a/
apple

ACTIVITIES

Ensuring Meaningful Access for Students with CVI

ACTIVITY DESIGNER

- **Individualize:**
  - **Images**
  - **Videos**
  - **Drawing Board**
  - **Particles**
  - **Labels**
  - **Speech Labels**
- **Interact**
  - **Touching**
  - **Looking**
  - **Speech**
- **Engage**
  - **Movement**
  - **Audio**
  - **Color**
  - **Link to Activities**
  - **Keep Score**

REFERENCES

- Dutton, Gordon, N. “Assessment of Functional Vision: History Taking for Children with CVI”. Contained in A. Lueck & G. Dutton: Editors, *Vision and the Brain: Understanding Cerebral Visual Impairment in Children*. 2015, New York, New York: American Foundation for the Blind Press. Chapter 11
- Helping children with cvi. (2020, January 20). Retrieved February 19, 2021, from https://pcvis.vision/
- Roman-Lantzy, C. (2018). Cortical Visual Impairment: An Approach to Assessment and Intervention. 2nd ed., New York, NY: AFB Press.
- Roman-Lantzy, C. (2019). Cortical Visual Impairment: An Advanced Principles, Louisville, KY: APH Press.
- Roman-Lantzy, C. and Tietjen, M. (2020). Sensory Balance: An Approach to Learning Media Planning for Students with CVI. Watertown, MA: Perkins School for the Blind.
- Ryder, R. E. (2017, May 22). Eligibility Determinations for Children Suspected of Having a Visual Impairment Including Blindness under the Individuals with Disabilities Education Act. Retrieved from https://sites.ed.gov/idea/files/letter-on-visual-impairment-5-22-17.pdf
- Teach CVI (2017). Screening lists for children with suspicion of CVI. Retrieved from: https://www.teachcvi.net/screening-tools
- Tietjen, M. (2019). The “What’s the Complexity?” Framework. In Roman-Lantzy, Christine. (2019) *Cortical Visual Impairment: Advanced Principles* (pp. 92-150). Louisville, KY: APH Press

RESOURCES

- Bridge School- CVI: https://cvi.bridgeschool.org
- CViConnect (website and iPad software) CViConnect.co
- CVI Paths to Literacy https://www.pathstoliteracy.org/blog/category/cvi
- Eraser iPad App
- Everyday CVI https://everydaycvi.com
- Pediatric Cortical Visual Impairment Society https://pcvis.vision
- Perkins; CVI for the TVI https://www.pathstoliteracy.org/resources/cvi-tvi-webinar-series
- Remove.bg
- Roman Word bubbling https://roman-word-bubbling.appspot.com

CVI ASSESSMENTS

Ensuring Meaningful Access for Students with CVI

Functional Vision Assessments

- The CVI Range (Dr Roman Lantzy)

Learning Media Assessments

- Sensory Balance (Dr Roman-Lantzy and Matt Tietjen)

Additional Assessments/Inventory tools

- What's the Complexity?(Matt Tietjen)
- 2-D Image Assessment (Matt Tietjen)

THANK YOU!

Stephanie Steffer
stephanies@cviconnect.co
CViConnect.co
CViConnect YouTube Channel

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