

A Comprehensive Model for Specific Learning Disability Evaluations



**Using the *Building Blocks Brain Model* of
Development to Understand and Assess Learning
Disabilities**

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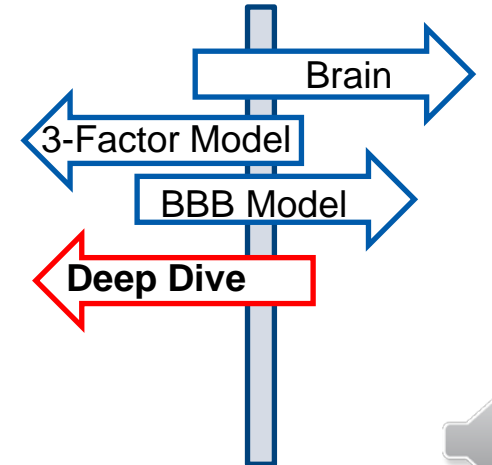




Module 3.3 Guidepost 4

The Building Blocks Brain Model

**A DEEPER DIVE: Intermediate Processes
Visual-Spatial**



Important Note

The information, concepts, and models provided in this presentation are intended to give practitioners a framework when conducting special education evaluations. It is emphasized that nothing in this presentation is meant to be directive or prescriptive. Professionals are free to use some, or all of the information presented, but they are not required to do so in their practice. **Always consult with your special education director for clarity around district policies and expectations for special education evaluations.**



IMPORTANT 

Learning Outcomes

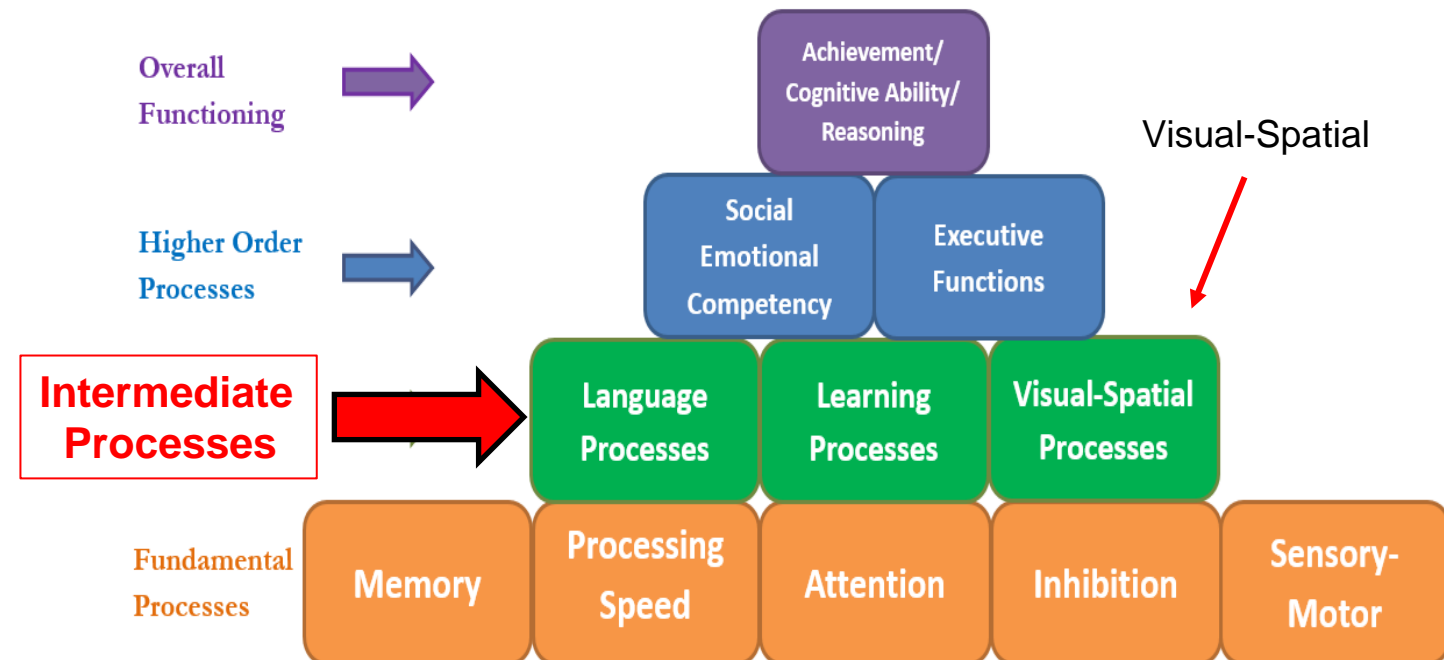
- What are visual-spatial processes?
- What are the “Look-Fors” for students that have difficulty with visual-spatial processes?
- How to properly assess visual-spatial deficits



What Are Intermediate Processes? Impact on Learning and SLD

- Success within this level is based on proper functioning of fundamental processes
- Critical difference is the integration of functions to process complex information
- Acquisition of specific information and broad knowledge-critical for later use-(skills)

Building Blocks of Brain Development ©



The Hierarchy of Neurocognitive Functioning © - created by Peter Thompson, Ph.D. 2013, adapted from the works of Miller 2007; Reitan and Wolfson 2004; Hale and Fiorello 2004.

The Building Blocks of Brain Development © – further adapted by the CO Brain Injury Steering Committee, 2016.



Intermediate Processes: Visual-Spatial and SLD

- Visual system orients our visual world, makes sense of complex visual material, understands “space, and solve visual problems with the use of nonverbal reasoning abilities.
- Visual-spatial abilities are a set of complex neurocognitive processes that needs the successful integration of several brain-based functions. Quantitative problem solving may rely on brain areas associated with visual-spatial functions (e.g. understand spatial magnitude between objects and numbers)
- Visual-Spatial processes are related to several types of reasoning, novel problem solving, and may involve visual-motor functions.
- Ability to put smaller details together to see the “big picture” or main point.



Visual-Spatial Processes in the Brain

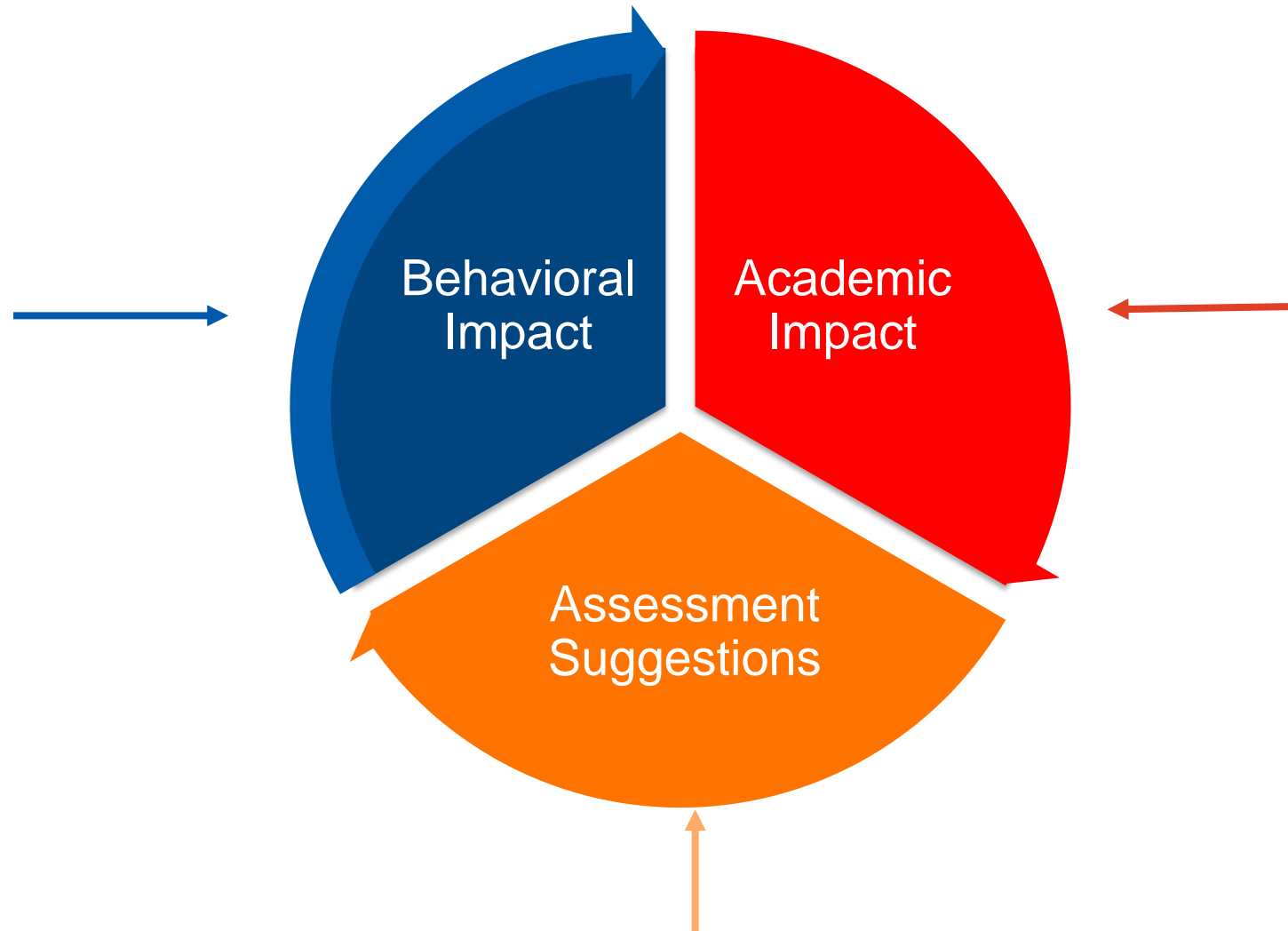
- Influenced by back of brain and right hemisphere
- New visual-problems uses novel problem solving processes
- Related to “creativity”
- Takes place with help of other brain areas-frontal, parietal, temporal lobe



Right and Posterior regions



Visual-Spatial: 3 key Aspects to Consider in SLD Evaluations



Behavioral Impacts (Look-Fors): **Visual-Spatial**

- Difficulty with reading social cues or facial expressions
- Can experience behavior issues due to frustration of not understanding visual materials
- Appears overwhelmed in visually laden contexts
- Complains that “it all blends together”



Behavioral Impacts (Look-Fors): **Visual-Spatial**

- Difficulty organizing materials / objects
- Difficulty with proprioception (knowing where body is in space)
- Gets lost / location problems
- Increased headaches during visual tasks



Academic Impacts (Look-Fors): **Visual-Spatial**

- Depth perception issues
- Difficulty with writing, spelling, notetaking
- Difficulty using charts, maps, and graphs
- Difficulty with mathematics/geometry



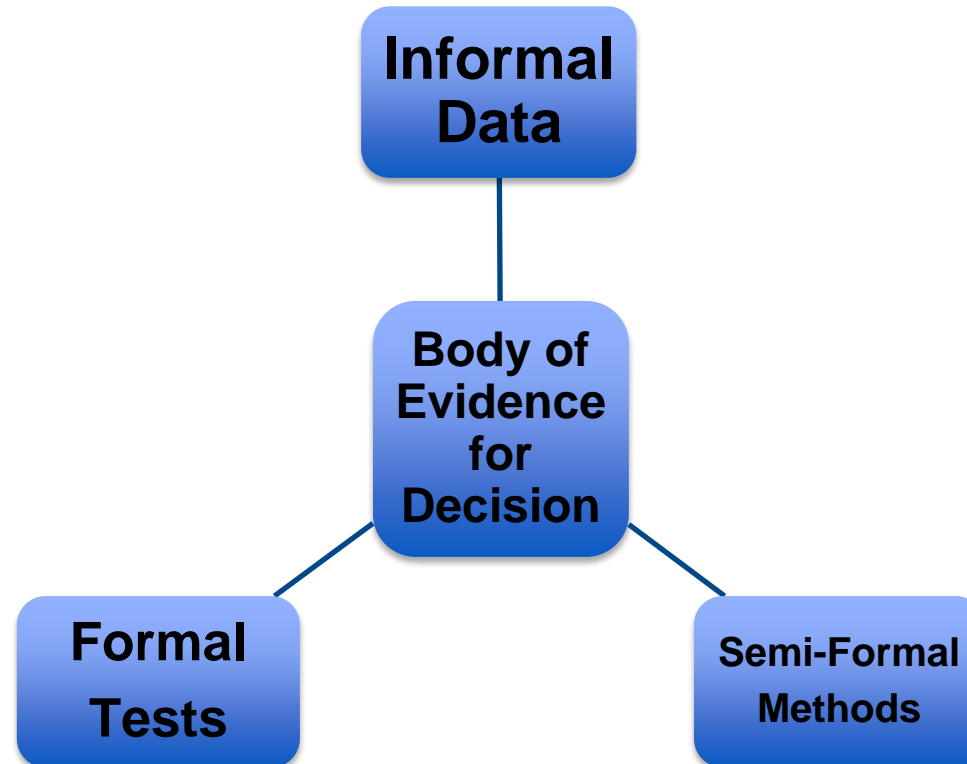
Academic Impacts (Look-Fors): **Visual-Spatial**

- Handwriting issues
- Struggles with mental rotation and object construction/visualizing
- Reading difficulty (orthographic dyslexia)
- Orientation difficulty



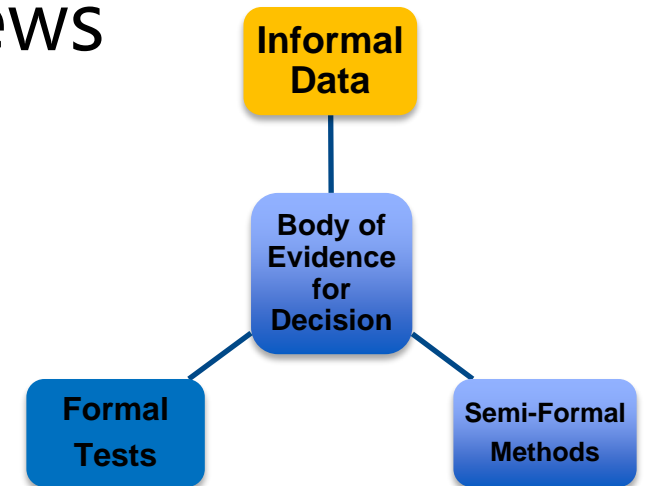
Assessment Suggestions: **Visual-Spatial**

- Use 3-Factor Model for Assessment
 1. Formal
 2. Informal
 3. Semi-Formal



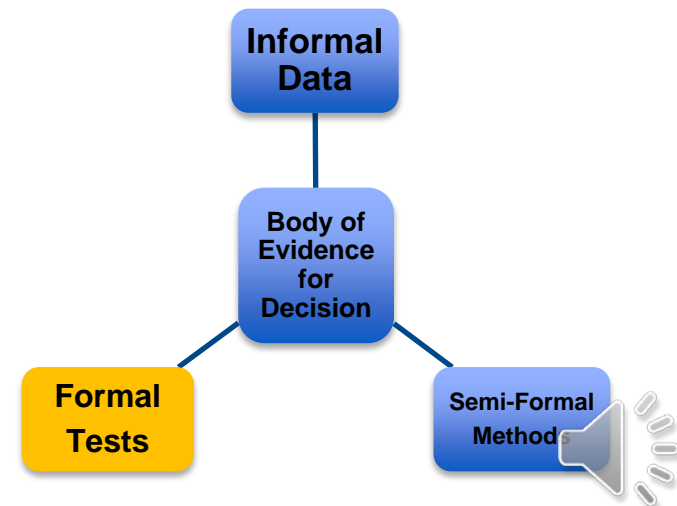
Informal Methods: Visual-Spatial

- Observations: (navigates environment, spatial issues)
- Records: Work samples (written work)
- Parent, teacher and student interviews
- History, TBI, ABI



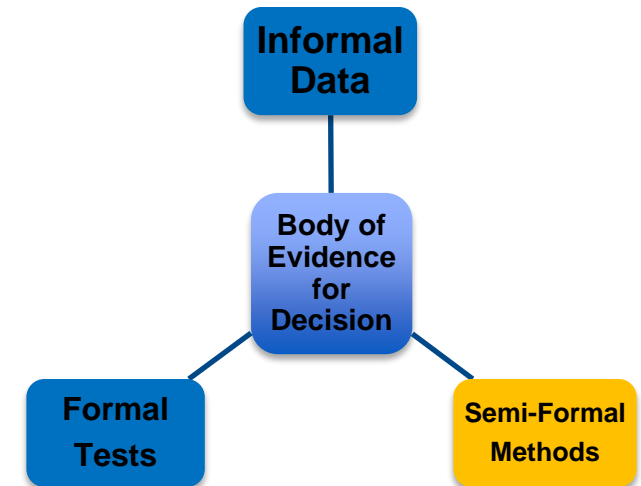
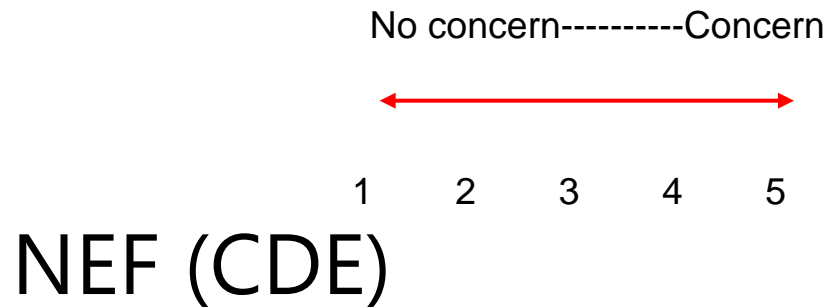
Formal Methods: Visual-Spatial

- Visual Subtests on Cognitive Assessments
 - Block Construction, Recall of Designs
 - Rey-Osterrieth Complex Figure Test
- Beery-Buktenica Developmental Test of Visual Motor Integration, 6th (BEERY VMI)
- Test of Visual Perceptual Skills, 3rd Ed. (TVPS-3)
- NEPSY-Visual-Spatial Subtests

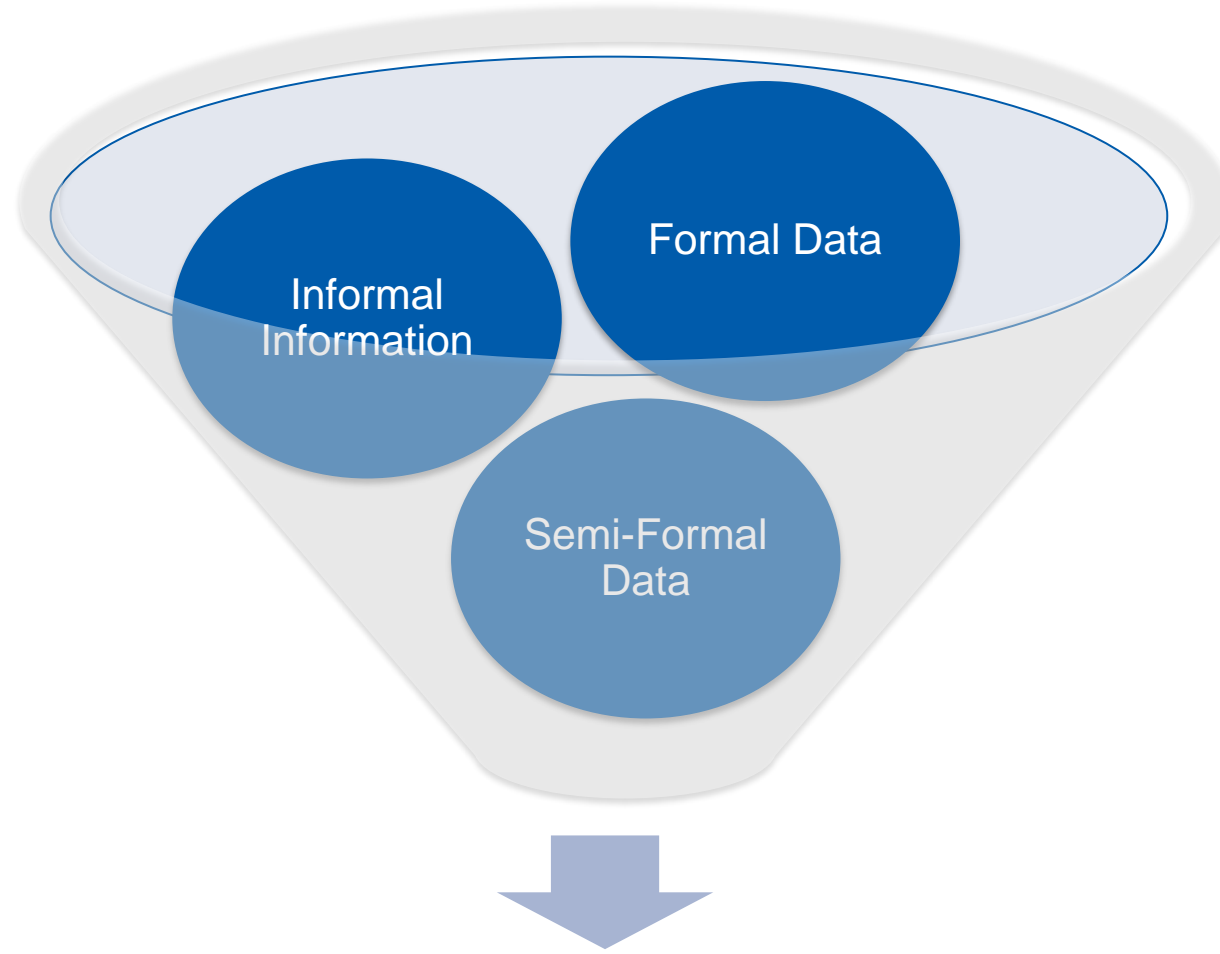


Semi-Formal Methods: Visual-Spatial

- Self-Created Rating Scale
 - To Staff
 - Ask questions related math and writing



Evaluating Visual-Spatial Difficulties



Integrated Body of Evidence



Summary: Intermediate Level: Visual-Spatial

- Visual-spatial processes involve the occipital lobe, which is in the back part of the brain. Also, spatial reasoning may involve brain functions within the right hemisphere that is needed in novel problem solving and new learning.
- Students that struggle with visual-spatial processes may have poor spelling, writing, and messy handwriting. They also have difficulty taking notes, understanding graphs, and problems with quantitative reasoning.
- Informal methods, such as a work sample analysis and observations in naturalistic settings, can be beneficial in your assessment of visual deficits.





End of Module 3.3

Visual-Spatial Processes



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