



BBBD Supports and Interventions



Using the *Building Blocks of Brain Development* to Support Students with Learning Disabilities

Peter Thompson, Ed.S., Ph.D.





Module 2.2

BBBD: Supports and Interventions

Supporting Students With Memory Problems



Important Note

The information, concepts, and models provided in this presentation are intended to give practitioners a framework when conducting special education evaluations and employing interventions. 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

- Understand why memory is an essential block of the BBBD and its role in learning
- Learn about effective memory supports to use with students



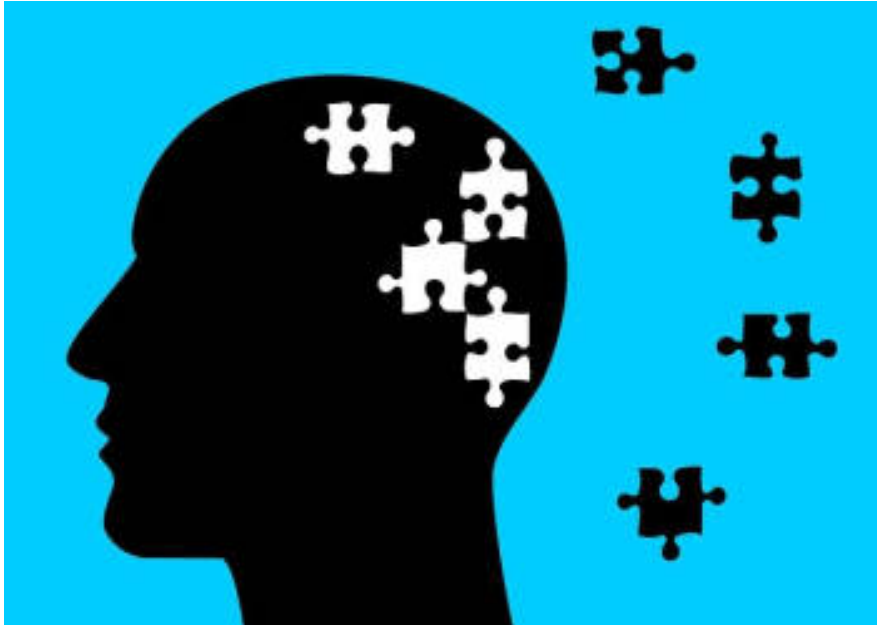
Presentation Organization

- I. Memory and Key Concepts

- II. Memory Supports and Interventions
 - A. Expert Guidance
 - B. Interventions
 - C. Accommodations



I. Memory Key Concepts



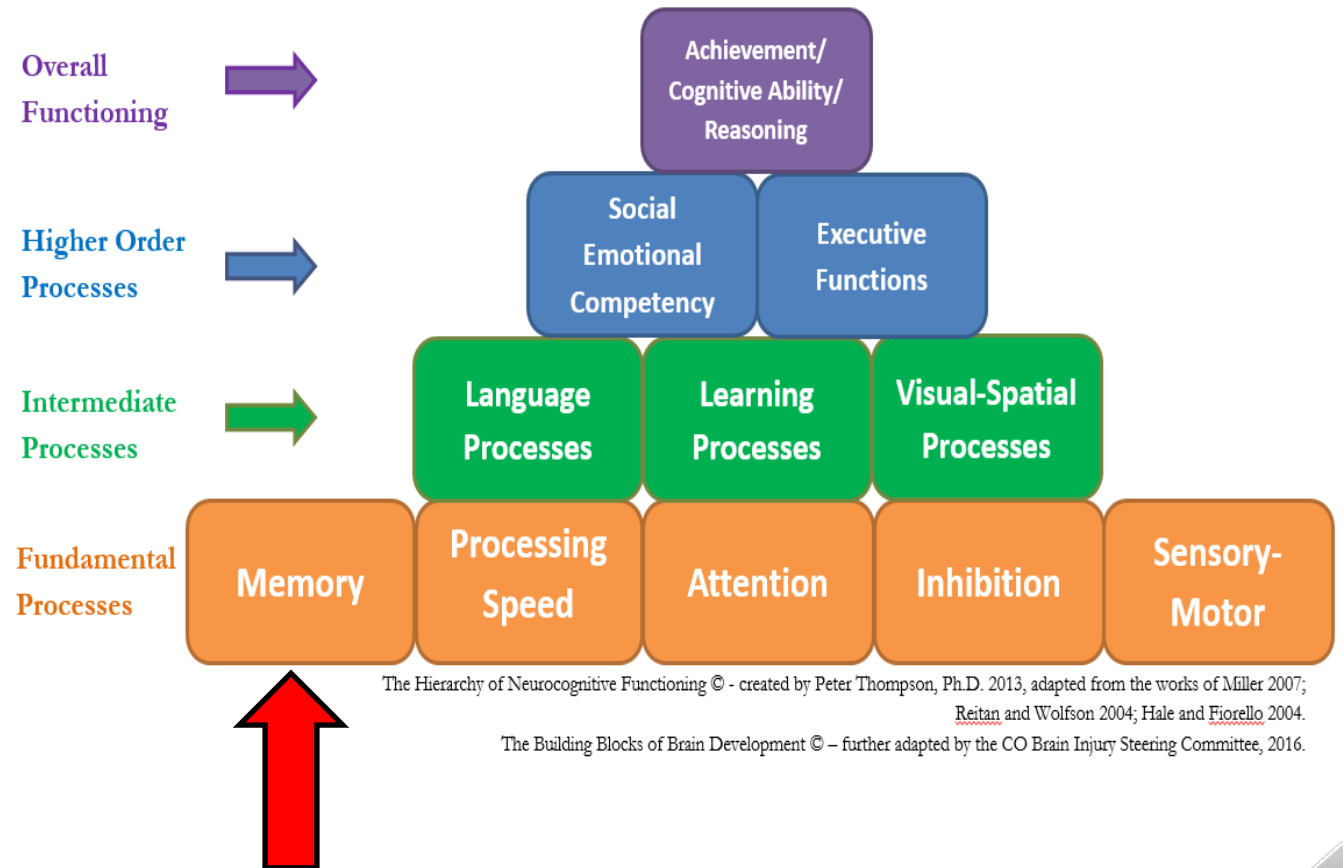
1. Review of Memory's Role in Learning
2. BBBD and Memory
3. Important Considerations
 - Attention
 - Confirmation of deficit
 - Research cautions



Key Points: Memory's Impact in Learning Disabilities

- Memory is the storage room for experience and knowledge.
- Important: There are many types of memory.
- Without memory, the application of what is learned will NOT take place.
- Understanding and comprehension, will be greatly hampered by memory deficits.

Building Blocks of Brain Development ©



Memory: An Important View



"The purpose of memory is not to let us recall the past, but to let us anticipate the future. Memory is a tool for prediction." - Alain Berthoz



While memory is our storehouse of past experiences and previous knowledge, it is a cognitive function that makes navigating life possible.



Memory and Impact on Learning

- Neurocognitive Perspective: “Learning” takes place in the brain when we merge what we “know” with new information. (What we “know” is memory.)
- Learning involves linking our existing paradigms into new information--which is why we activate “prior knowledge” as an effective teaching technique.
- Memory is “what we know”--letters, sounds, facts, sequences--all necessary parts of learning, especially reading, math, and writing. Memory is NECESSARY for all learning!





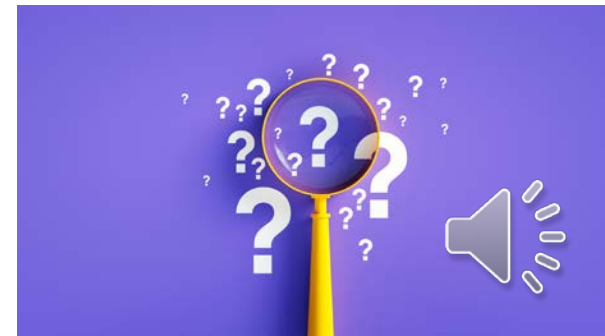
The Doorway to Memory: Attention

- Attention and memory have a dependent relationship.
- Without attention, information cannot be placed or encoded into memory in the first place.
- Many memory problems may actually be attention problems.



Is It Really a Memory Problem?

- Validate true memory deficits; May take several subtests or memory battery
- Standardize Scores 85 and below- Use 3 factor model
- Remember types of memory—LTM, WM, Verbal, Visual etc. WM: a critical type, but it is not LTM
- Rule out attention or determine co-morbidity



Research: Be Critical of Claims

- Research and scientific community not conclusive on the effect of “interventions,” to improve memory; Many biased claims, but not replicated in scientific literature
- “Near-transfer” effects, not “far-transfer” effects (not always generalizable; domain specific)
- Accommodations useful and practical, but use with caution not to make very young students overly-dependent (memory aids)
- Use research-backed supports to the extent possible



II. Memory: Supports and Interventions

1. Expert Guidance
2. Interventions
3. Accommodations

Note: Not for WM, but LTM
More severe case, rely on
accommodations



1. Expert Guidance



1. Memory Supports: Expert Guidance

- Not necessarily scientific in a strict sense of RCT or correlational studies, but widely employed and accepted by experts as effective.
- ✓ Attention orientation is key—memory + attention
- ✓ Student Motivation—use metamemory strategies; provide the “why” memory strategies are important for the student-make it personal to the student’s needs.



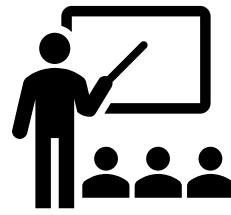
1. Memory Supports: Expert Guidance

- ✓ Reduce memory demands-reduce memorization
- ✓ Make learning emotional and personal (associations)
- ✓ Organize information so it makes sense (timelines, categories)



2. Intervention





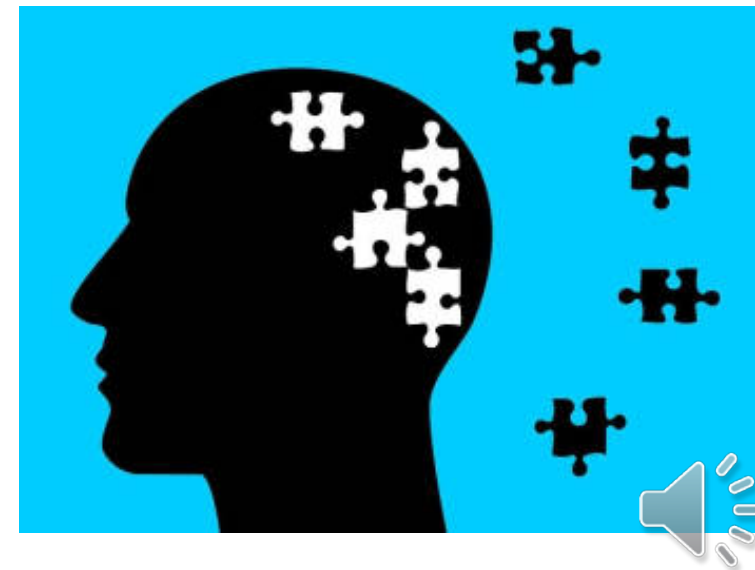
2. Intervention: Memory Evidence Based

I. Retrieval Based Learning

- *Karpickle, J. (2016). A Powerful Way to Improve Learning and Memory. (American Psychological Association)*

II. Direct Instruction

- *Dehn (2008).*



Three Processes for Memory Creation



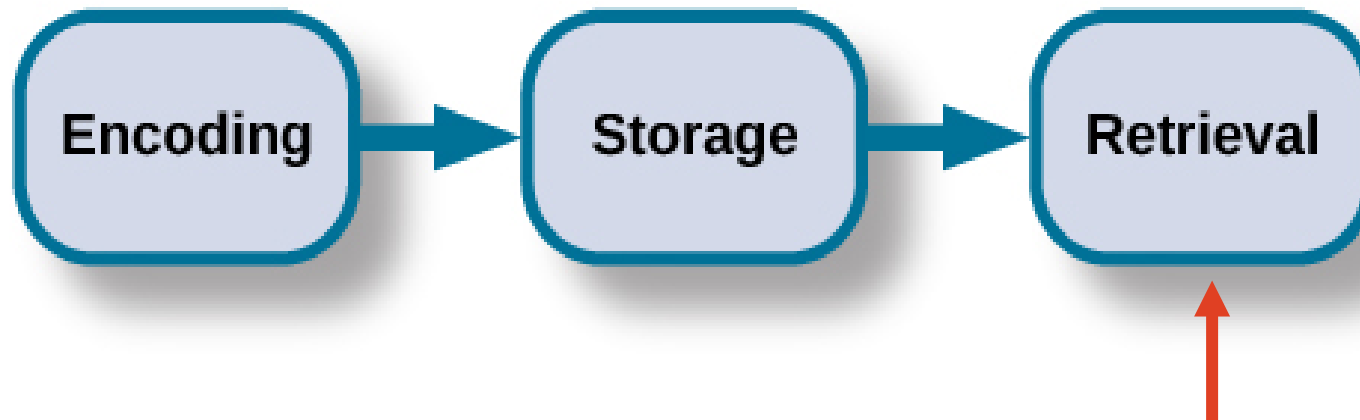
Common Intervention area





New Research: Focus on Retrieval

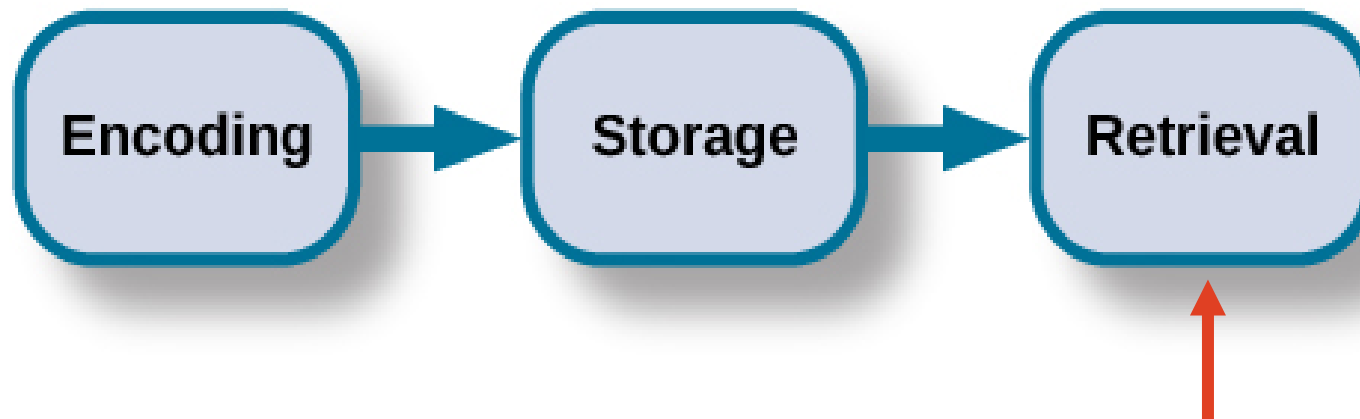
- Retrieval is critical for robust, durable, long-term learning. Every time a memory is retrieved, that memory becomes more accessible in the future.
- Practicing retrieval has been shown to produce more learning than engaging in other effective encoding techniques (Karpicke & Blunt, 2011).



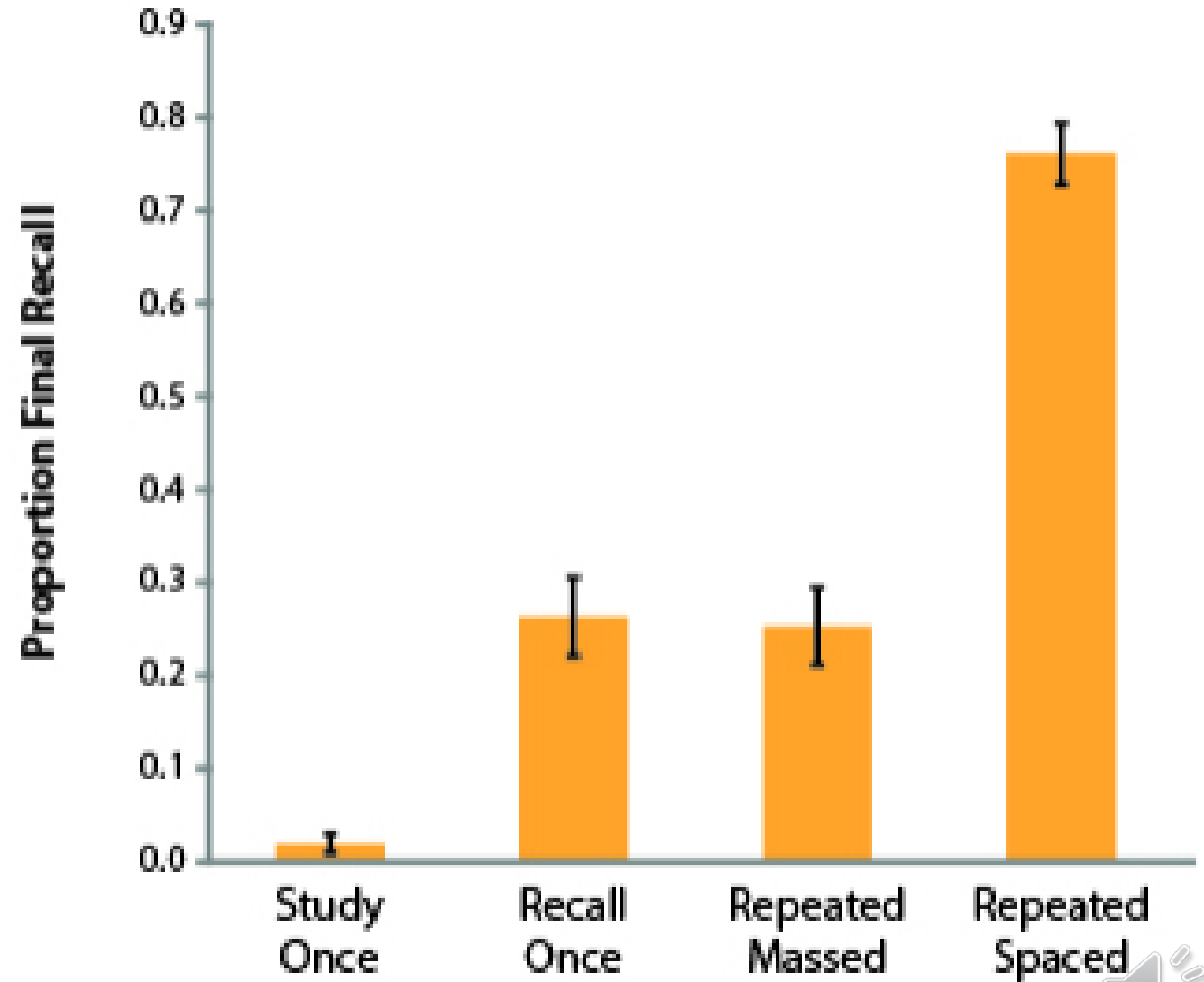
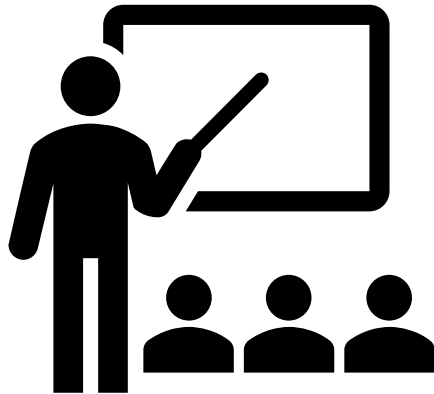


Intervention: Retrieval-Based Learning

This recent research has established that repeated retrieval enhances learning with a wide range of materials, in a variety of settings and contexts, and with learners ranging from preschool ages into later adulthood (Balota, Duchek, Sergent-Marshall & Roediger, 2006; Fritz, Morris, Nolan & Singleton, 2007).



Retrieval Learning Promotes LTM





Retrieval Learning in Practice

1. Study information and practice recalling it.
2. Practice recalling information 3 more times.
3. Key: It's important to space recalling throughout practice sessions. Do not to recall all at once—no mass recall—space it out.
 - Study-recall-space-recall-space—recall
 - Repeat as necessary





Intervention: Direct Instruction

6 Aspects of Effective Instruction (Helps All)

1. Daily review and checking of homework, along with review of relevant past learning and reteaching when necessary
2. Presentations that are clear and structured with several demonstrations, examples, and questions
3. Main points are highlighted, and detailed, redundant instruction is provided as necessary





Direct / Effective Instruction

4. Guided practice until a success rate of 80% is reached. Teacher asks questions to check for understanding, and additional explanations are provided. Corrective feedback continues until student is independent.
5. Teacher supervises independent practice / rehearsal.
6. Weekly and monthly reviews are conducted that include systematic review of previously learned material.



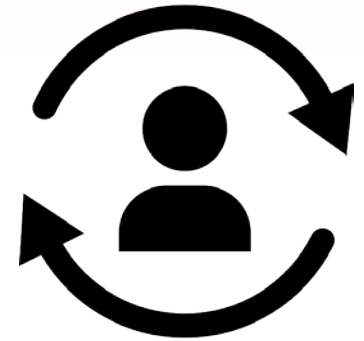


Intervention: Moderately Researched

- Mnemonics
- Keyword (High effect size)
- Visualization-especially for reading
- You teach me strategy- “Ask Why” Elaboration
- Experiential learning –learn and remember by doing-make learning personal and engaging
- Chunking-reduces WM demands



3. Accommodations





3. Accommodations

- Reduce memory demands
- Use of visuals / pictures to help cue memory
- Memory aides (with caution)
- Recognition test, not recall tests
- Provide copies of notes, with keywords highlighted

SUPPORT



Summary



- Memory is a fundamental neuro-cognitive function of the BBBD. Without it, application of knowledge and learned skills cannot be employed. Memory is simply essential and necessary for all learning.
- Depending on the degree of the memory deficit, accommodations are emphasized, but some interventions to improve the functional effectiveness of memory may be used in mild cases.
- We can support students' memory issues through the use of retrieval-based learning, direct instruction, and accommodating their needs by reducing memorization demands.





Thank You For Listening End of Module 2.2



**Using the *Building Blocks of Brain Development* to
Support Students with Learning Disabilities**

Peter Thompson, Ed.S., Ph.D.

