

A Teacher's Guide to the Learning Brain: Working Memory

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Memory Overview

Declarative memory:

true or false, can be said out loud

Procedural memory:

how to do something (muscle memory, grammar of native language)

Working memory:

A short-term memory system that selects, holds, reorganizes, and combines information from many sources. (Shrek!)

1

- Working memory is **CRUCIAL** for academic learning.

2

- Working memory capacity is **LIMITED**.

3

- Working memory capacity **DEVELOPS NATURALLY** ... but cannot otherwise be improved.



- These facts fundamentally shape our understanding of effective teaching.

Strategies to Manage Working Memory

| Anticipate WM Problems | Identify WM Problems |
|--|---|
| <ol style="list-style-type: none">1. Information overload:<ul style="list-style-type: none">• new, un/related, combined*2. The Dark Side of the Force:<ul style="list-style-type: none">• Instructions/Choices/Technology3. WM variety during the day | <ol style="list-style-type: none">1. Holding while processing2. Atypical distractibility/zoning out3. “Catastrophic Failure”: surprising cognitive collapse |
| Solve/Mitigate WM Problems | |
| <ol style="list-style-type: none">0. Take WM perspective1. Build LTM: Routines, prior knowledge, “chunking”2. Redistribute WM demands...<ul style="list-style-type: none">• ...over time: content, rules/exceptions, homework• ...across mode: visual & verbal (n.b.: instructions, notes)3. Reduce WM Demands (n.b.: teach strategies)4. Manage emotional environment: “normalize” struggle, reduce “pressure”5. Manage physical environment: minimize distractions | |