

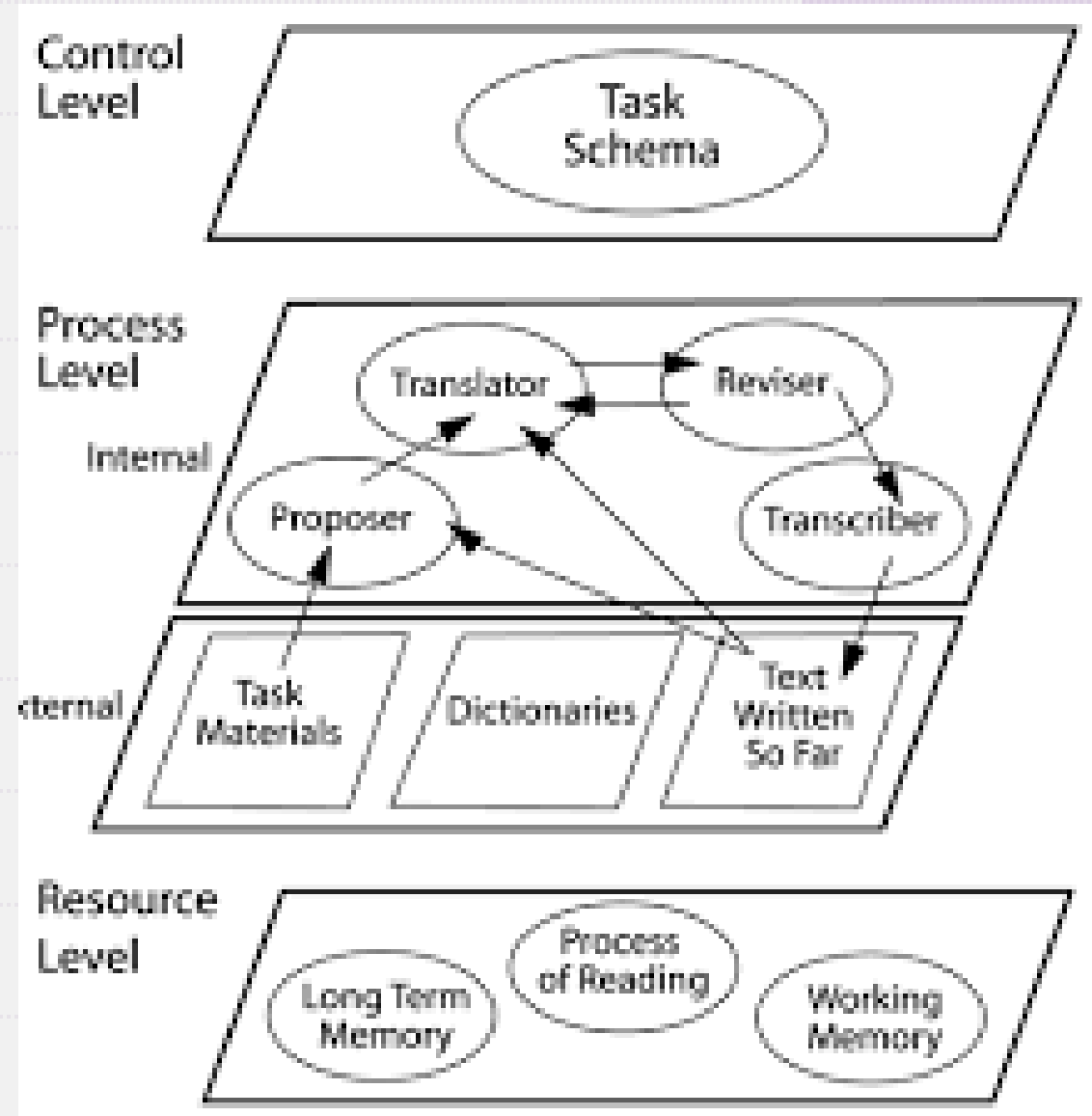
Assessing a Specific Learning Disability in Writing



Cognitive Basis of Writing

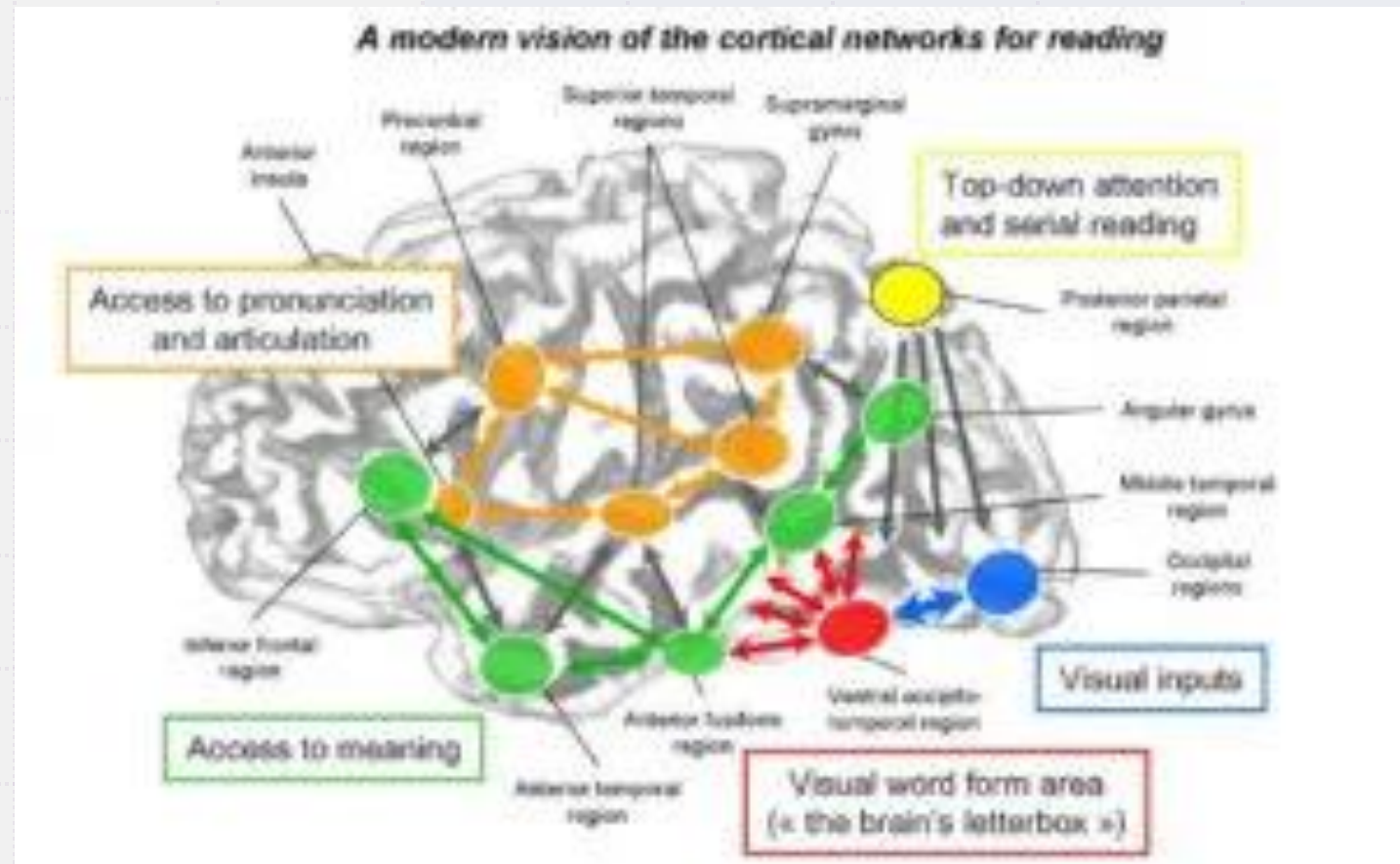
"Writing is a complex and challenging task requiring a considerable amount of instructional time to master." - Graham, 2019

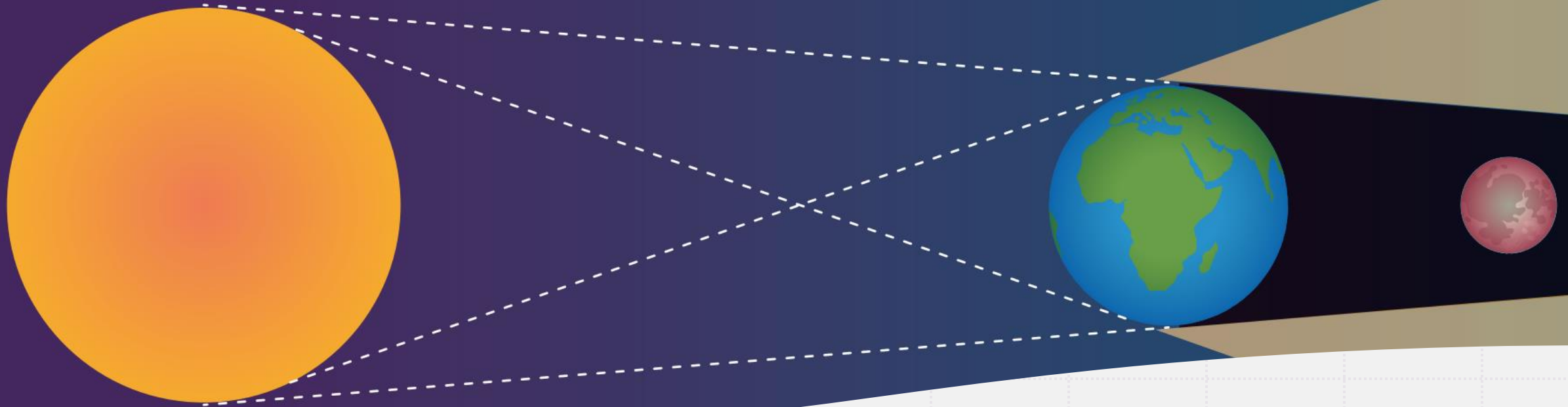
Three Levels of Process Involved in Writing - Control Level, Process Level, and Resource Level - Flower and Hayes Cognitive Model of Writing (2012)



Why does this matter?

Working Memory is the heart of all writing production and processes. It is the key executive functioning skill that is required and impacted.



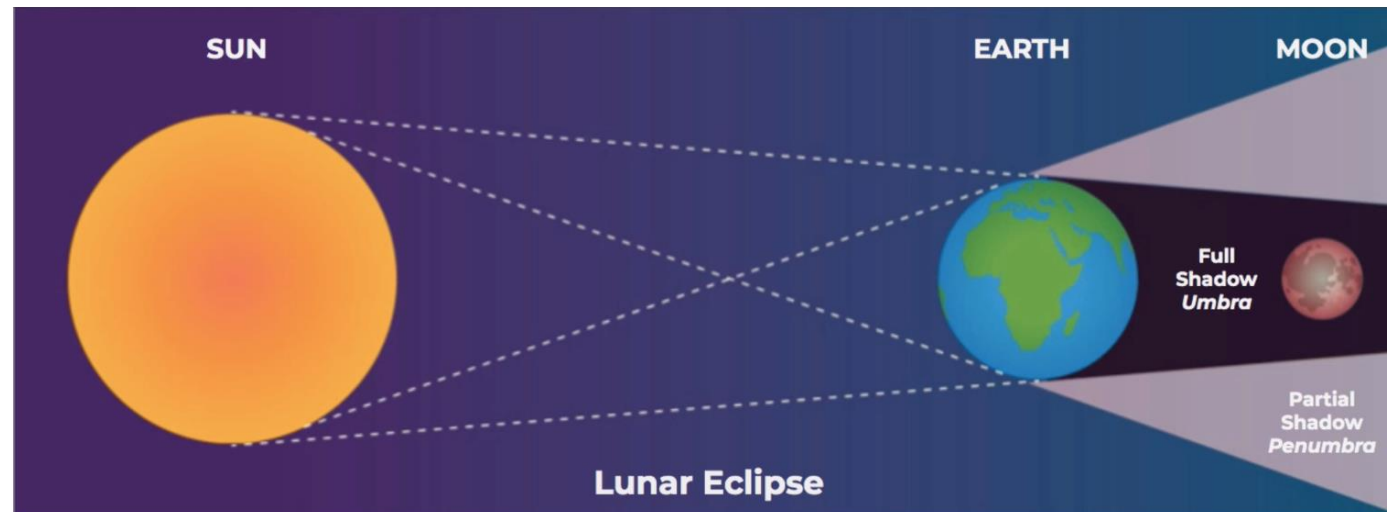


Simulated Writing Activity

- Formulate a declarative sentence that begins with:
- When...
- You have two minutes.

Simulated Writing Activity Continued:

- Declarative Sentences:
- Statements meant to convey information.
- Typically end in a period.
- Examples:
- There are many objects in the solar system.
- The moon orbits the sun.



eclipse moon sun shadow lunar Earth

What is a Specific Learning Disability in Writing?

The DSM-V defines an SLD as a neurologically based disorder with learning difficulties in acquiring academic skills markedly below grade level and manifested in the early school years.

Impairment in Written Expression

Prevalence

- Experts predict around 8-15% of students have a written expression disorder.
- It is likely that it goes unrecognized and undiagnosed in many students . It often gets "lumped in" with an SLD in reading because the two closely feed into each other.





Written Expression Disorder/Dysgraphia

1. Students with a written expression disorder often have difficulty expressing their ideas in writing. They may have the best ideas and verbally produce great stories and arguments, but their writing is full of incomplete thoughts, incorrect verb tense, grammar, and punctuation mistakes.

Types of Dysgraphia

Graphomotor dysgraphia relates to deficits in the physical output of writing due to fine motor skill deficits. These students will demonstrate illegible handwriting during both spontaneous writing and copying due to a difficulty maneuvering a writing utensil.

Executive dysgraphia relates to deficits in production linked to executive function deficits. These students will demonstrate difficulties planning, organizing, writing, and self-monitoring due to a variety of written language deficits.

Types Continued – Dyslexic Dysgraphia

The dysphonetic subtype relates to deficits that stem from the phonological processor. Students' abilities to segment, manipulate, and blend sounds in words when spelling is impacted.

The surface subtype relates to deficits linked to difficulty with orthographic representations. This inefficiency impacts students' abilities to map orthographic spelling patterns when phonemes can be represented by more than one grapheme. These students are able to represent every sound with a plausible spelling option. However, they will have considerable difficulty choosing the correct spelling pattern or spelling irregular words that do not contain direct 1:1 correspondences.

The mixed subtype relates to deficits in both phonological processing and orthographic knowledge.

How do I diagnose this?

WISC-V

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graph TD; A[WISC-V] --> B[Working Memory]; B --> C[Verbal Comprehension];
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Working Memory

Verbal Comprehension

Woodcock-Johnson IV COG



Long-Term Retrieval



Short-Term Working
Memory



Comprehension/Knowledge

WRAML-3

General Delayed Index



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graph TD; A[General Delayed Index] --> B[Visual Delayed Index]; B --> C[Verbal Delayed Index]; C --> D[Visual Immediate Memory]; D --> E[Verbal Immediate Memory]
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Visual Delayed Index

Verbal Delayed Index

Visual Immediate Memory

Verbal Immediate Memory

Feifer Assessment of Writing (FAW)

Graphomotor Index

Dyslexic Index

Executive Index

FAW Total Index

Executive Functioning Measures

| Executive Function | Observable Characteristics During Writing |
|--|---|
| <p>Working Memory: the ability to hold onto and manipulate temporarily-stored information</p> | <ul style="list-style-type: none">• Spells accurately and/or phonetically• Manipulates ideas from long term memory to plan and compose• Constructs syntactically correct sentences• Applies oral rehearsal before drafting |
| <p>Inhibition: the ability to control one's impulses</p> | <ul style="list-style-type: none">• Produces complete sentences• Writes at length and for a sustained period of time |
| <p>Shifting Attention: the ability to think flexibly and shift between multiple tasks</p> | <ul style="list-style-type: none">• Connects multiple events or produces clear sequences in writing• Produces cohesive, well-sequenced text |

Executive Functioning Measures Cont.

| | |
|--|---|
| Task Initiation: the ability to get started with a task | <ul style="list-style-type: none">• Generates ideas and brainstorms on topic• Initiates a writing task without additional prompting |
| Planning & Goal Setting: the ability to create a plan and set goals | <ul style="list-style-type: none">• Uses knowledge of genre-specific text structure, audience and transition words• Conducts research |
| Organizing: the ability to organize tasks | <ul style="list-style-type: none">• Takes notes in a graphic organizer or outline• Sequences ideas appropriately |
| Self-Monitoring: the ability to keep track of progress throughout the process and evaluate one's work | <ul style="list-style-type: none">• Revises and edits according to the pre-established mastery criteria• Reflects during and after writing on ability to reach goals |

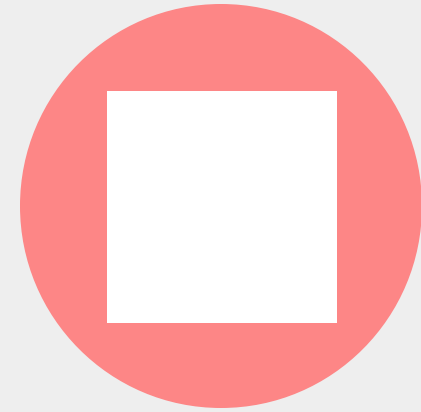
Academic Measures



KTEA-3



WIAT-4



CBM-W

Case Study 1: Peter

Peter has an outside diagnosis of autism and a slow processing speed. His teachers report that writing is very difficult from him and he will only produce small sentences and single words. Writing frequently makes him cry.

What more would you like to know? What kind of testing would you do?



Case Study 1: Peter

FAW Results

| Subtest/Index | Standard Score | Percentile |
|--------------------------|----------------|------------|
| Alphabet Fluency | 104 | |
| Motor Sequencing | 68 | |
| Copying Speed | 80 | |
| Motor Planning | 103 | |
| Graphomotor Index (GI) | 85 | 16 |
| Homophone Spelling | 84 | |
| Isolated Spelling | 51 | |
| Dyslexic Index (DI) | 65 | 1 |
| Executive Working Memory | 89 | |
| Sentence Scaffolding | 129 | |
| Retrieval Fluency | 86 | |
| Expository Writing | 101 | |
| Executive Index (EI) | 105 | 55 |
| FAW Total Index (TI) | 83 | 13 |

Case Study 2: Wendy

1. Wendy is in 4th grade. She currently reads at a mid kindergarten level. She has great ideas for writing and does well with a scribe. She struggles to consistently recognize and remember her letters and numbers. She is on grade level for math.

What would you like to know about Wendy?



FAW Results – What does it say about her writing abilities?

| Subtest/Index | Standard Score | Percentile |
|--------------------------|----------------|------------|
| Alphabet Fluency | 91 | 27 |
| Motor Sequencing | 100 | 50 |
| Copying Speed | 63 | 1 |
| Motor Planning | 78 | 7 |
| Graphomotor Index (GI) | 77 | 6 |
| Homophone Spelling | 50 | <0.1 |
| Isolated Spelling | 50 | <0.1 |
| Dyslexic Index (DI) | 50 | <0.1 |
| Executive Working Memory | 61 | 0.5 |
| Sentence Scaffolding | 78 | 8 |
| Retrieval Fluency | 97 | 42 |
| Expository Writing | 100 | 50 |
| Executive Index (EI) | 78 | 7 |
| FAW Total Index (TI) | 63 | 1 |

Recommendations

All writing disorders: SRSD (Self-Regulated Strategy Development) is the strongest evidence-based intervention. Students need to be taught explicit writing instruction in all areas including genre, grammar, and spelling.

Graphomotor Dysgraphia - Use of a scribe or speech to text, access to a computer, reduction in timed work, limiting expectation of written production, explicit teaching of adaptive technology, grade based on what the student knows and not spelling or handwriting, allow the use of an audio recorder/provide notes.

Executive Dysgraphia - reduce working memory load by providing graphic organizers, activating prior knowledge before writing, break writing into smaller steps, offer alternatives to writing assignments, give examples of finished assignments.

Recommendations Continued

Dyslexic Dysgraphia – teach explicit spelling patterns and irregular spellings, provide word charts of commonly misspelled words, and provide explicit teaching of revision.

Other General Recommendations – Use a Sans Serif Font (size 12 or 14), Don't justify text!!, use visual aids, avoid forcing children to read or share work, provide memory cues, and schedule natural breaks.