



# Conducting a Comprehensive Dysgraphia Evaluation: Integration of Informal & Formal Measures

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*Special Thanks and Recognition to Dr. Carla Proctor, Virginia Gonzalez, and Dr. Sarah Holman for their input and contributions to this presentation.*

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# Agenda



Obtain a general understanding of dysgraphia



Understand the characteristics of dysgraphia



Gain an understanding of the informal measures that should be collected as part of a comprehensive dysgraphia evaluation



Gain an understanding of how assessments can be integrated into the comprehensive dysgraphia evaluation



Highlight dysgraphia resources

# Importance of Handwriting

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Handwriting is a basic tool used in many subjects — taking notes, taking tests, and doing classroom work and homework for almost every content area as well as in language arts classes — poor handwriting can have a pervasive effect on school performance.

Louise Spear-Swerling, 2006







# Handwriting is “language by hand”

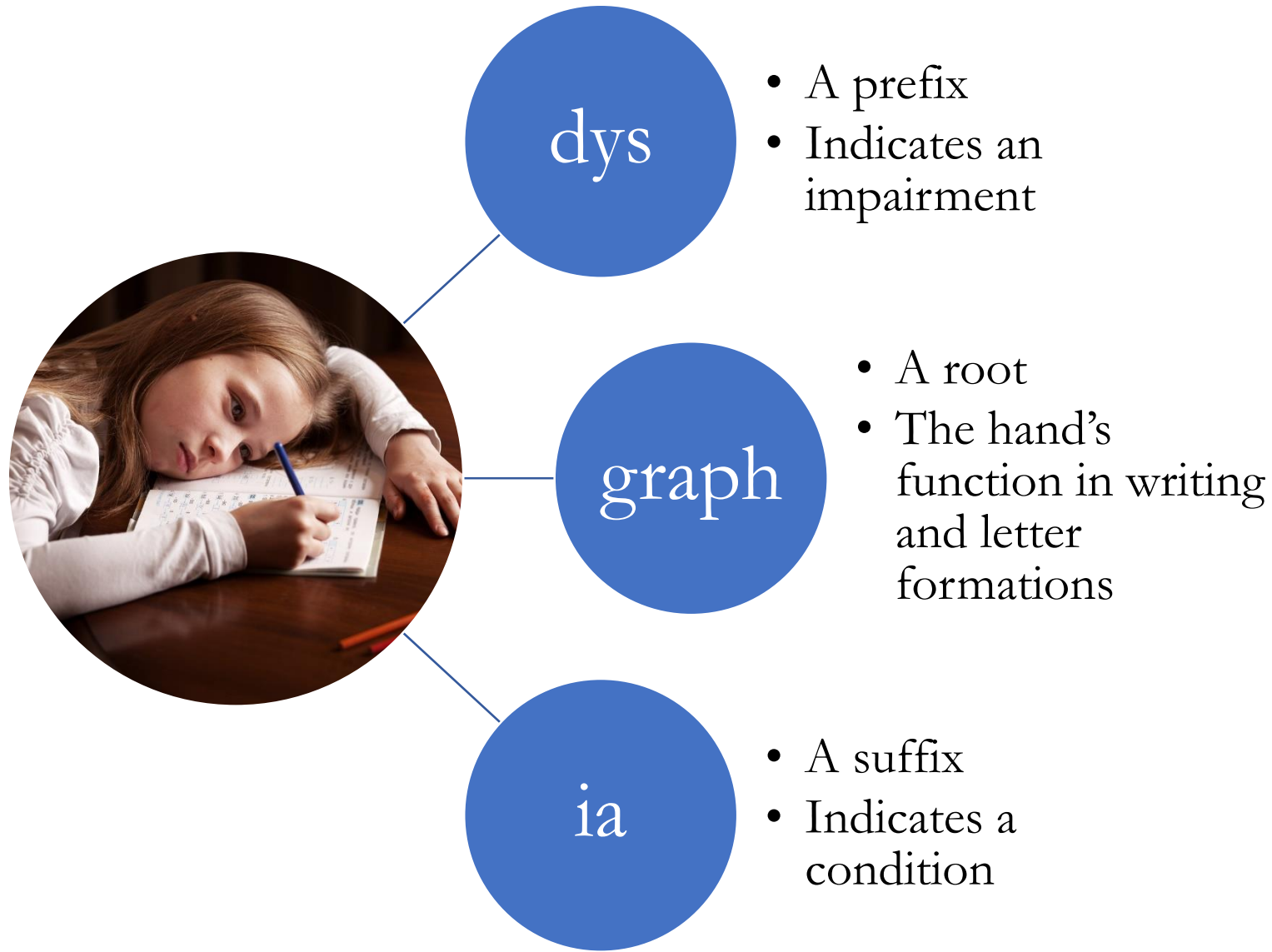
“The important point is that handwriting is “language by hand,” which uses the **graphomotor system** to produce visible language, but neither handwriting nor composing is merely a motor act. *Language by hand* relies greatly on internal representations of letter forms and written words that must be retrieved from memory during the writing process.”

Berninger, V. (2004)



# Understanding Dysgraphia

# What Do We Know about Dysgraphia?



# Dysgraphia is NOT....

- Evidence of a damaged motor nervous system
- Part of a developmental disability that has fine motor deficits (e.g., intellectual disability, autism, cerebral palsy)
- Secondary to a medical condition (e.g., meningitis, significant head trauma, brain trauma)
- Association with generalized developmental motor or coordination difficulties (Developmental Coordination Disorder)
- Impaired spelling or written expression with typical handwriting (legibility and rate)

(Berninger, 2004)



# What Do We Know About Dysgraphia?

- There is not one definitive definition for dysgraphia.
- Many research-based definitions of dysgraphia exist:



A School Wide Process for Dysgraphia Assessment, 2015

# Defining Dysgraphia

Dysgraphia is a **specific learning disability** that affects how *easily* children acquire written language and how well they use written language to express their thoughts. Thus, dysgraphia is the condition of impaired letter writing by hand, that is, disabled handwriting and sometimes spelling. Impaired handwriting can interfere with learning to spell words in writing. Occasionally, but not very often, children have just spelling problems and not handwriting or reading problems.

**International Dyslexia Association Definition, 2020**

# Defining Dysgraphia

Dysgraphia is defined as a **language based, neurological, written language disorder** manifested by *illegible and/ or inefficient handwriting due to difficulty with letter formation*.

This difficulty is the result of deficits in **graphomotor function** (hand movements used for writing) **and/or storing and retrieving orthographic codes** (letter forms).

*Secondary consequences* may include problems with **spelling and written expression**. The difficulty is not solely due to lack of instruction and is not associated with other developmental or neurological conditions that involve motor impairment.

Berninger, 2015; TEA, The Dyslexia Handbook, 2018

# Possible Causes of Dysgraphia



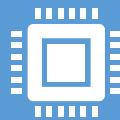
Impaired feedback the brain is receiving from the fingers



Weaknesses using visual processing to coordinate hand movement and organize the use of space



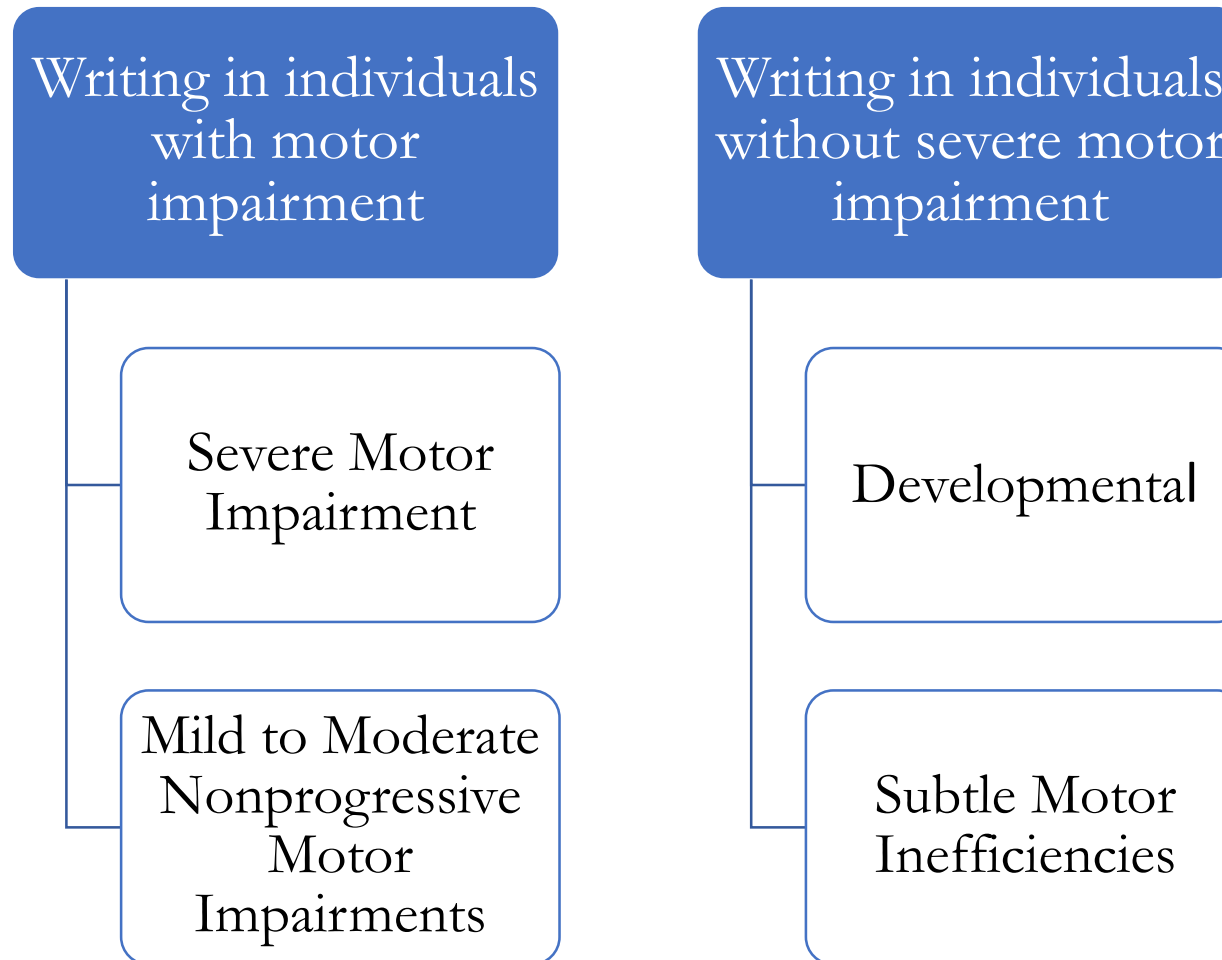
Problems with motor planning and sequencing



Difficulty with storage & retrieval of letter forms (Levine, 1999)

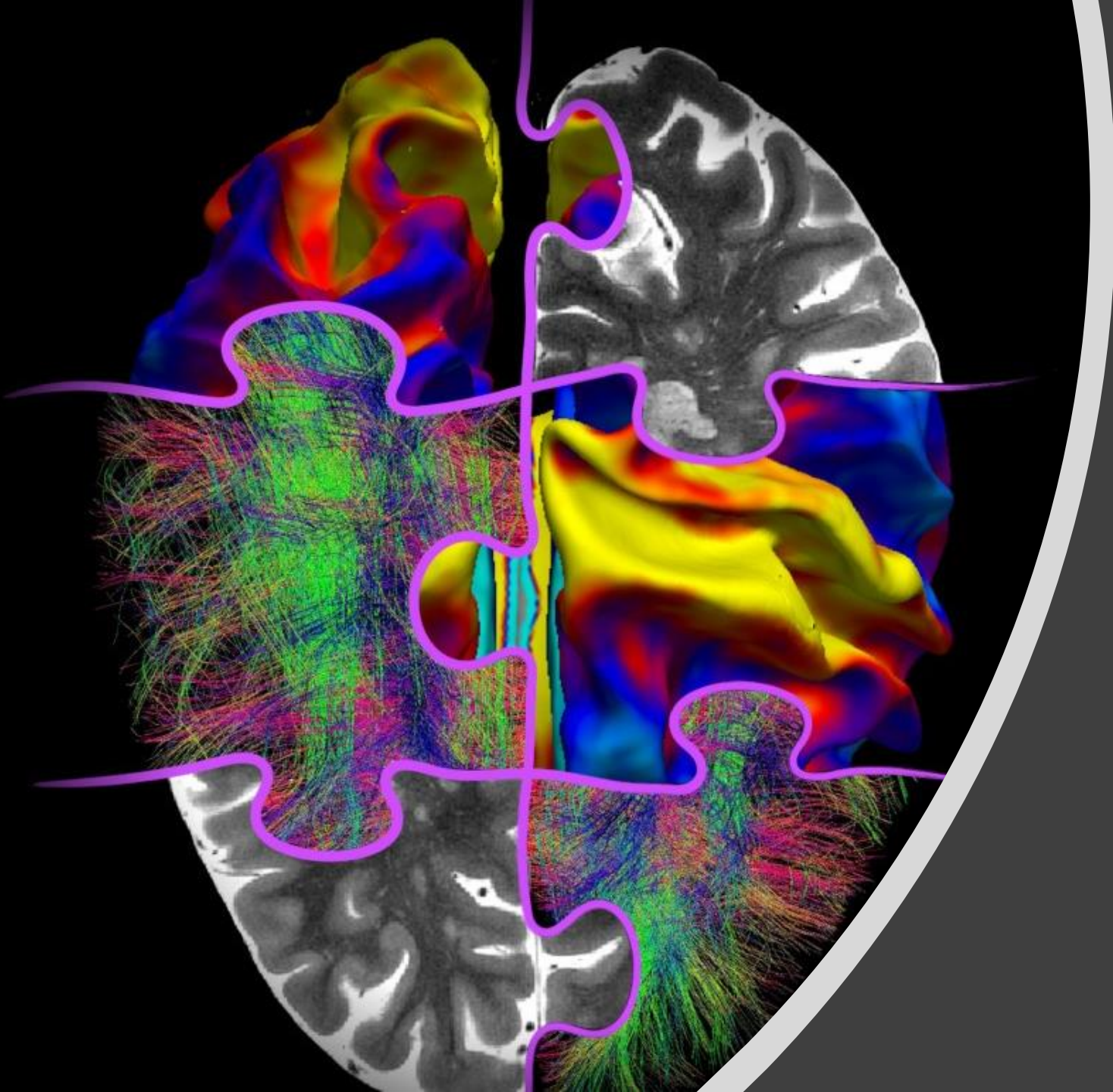


# What Do We Know About Dysgraphia?



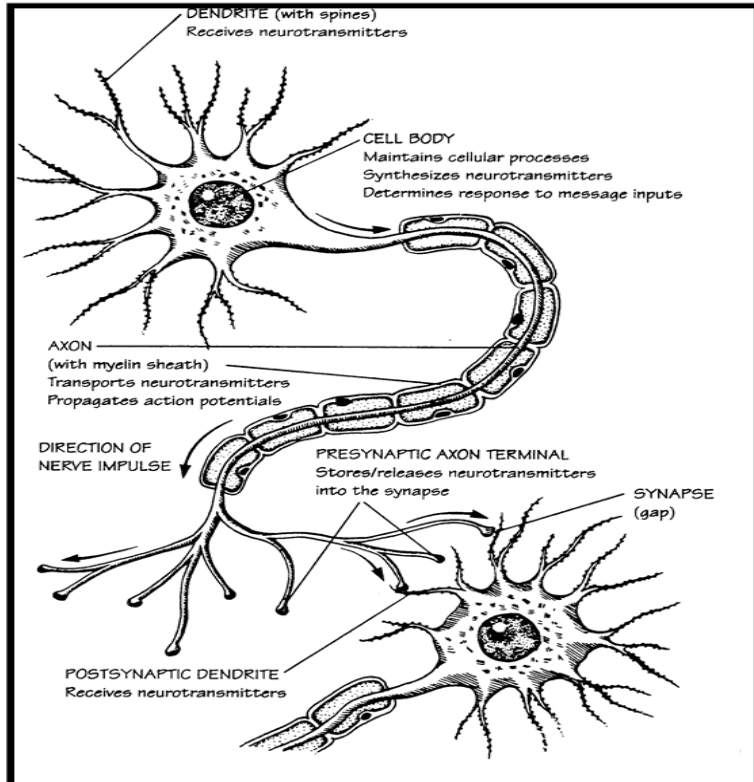
# Who is at Increased Risk of Dysgraphia?

- Family history
- Premature birth
- Comorbidity with ADHD
- Comorbidity with dyslexia

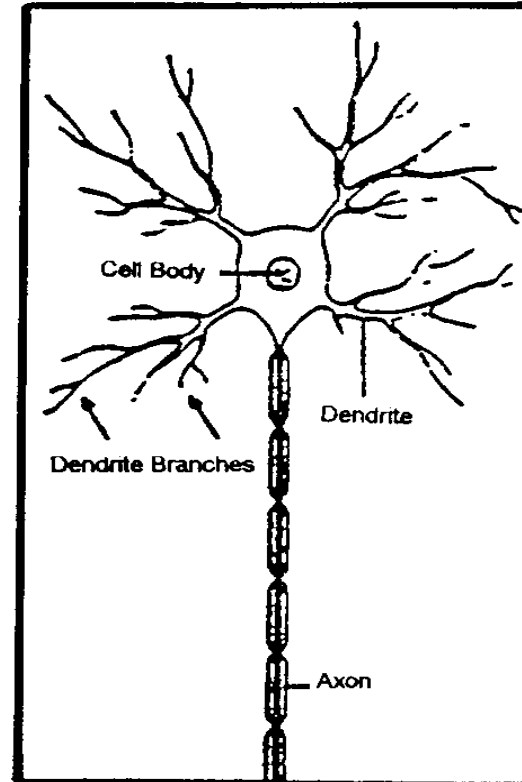


# Neurological Implications of Dysgraphia

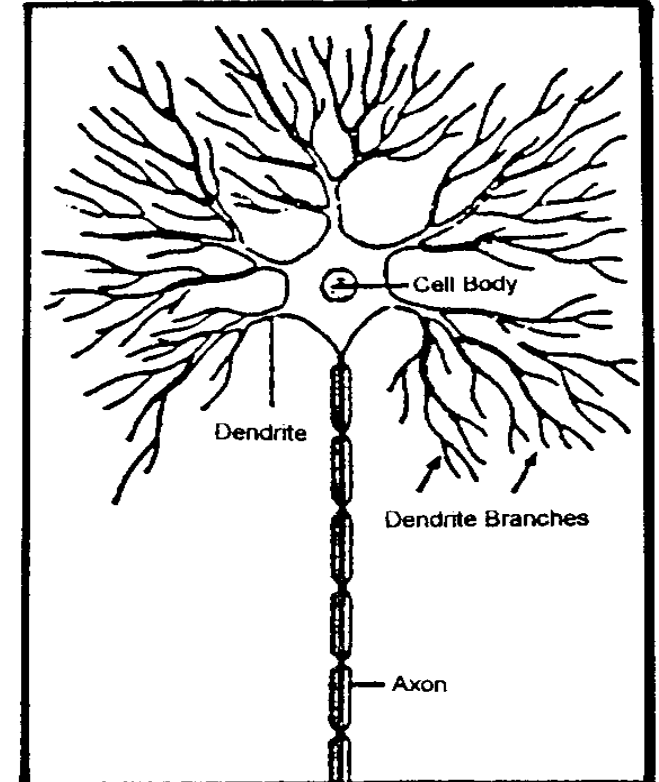
# Neurological Basis of Writing/Dysgraphia



Neuro-Network System



Natural Environment  
Dendritic Growth

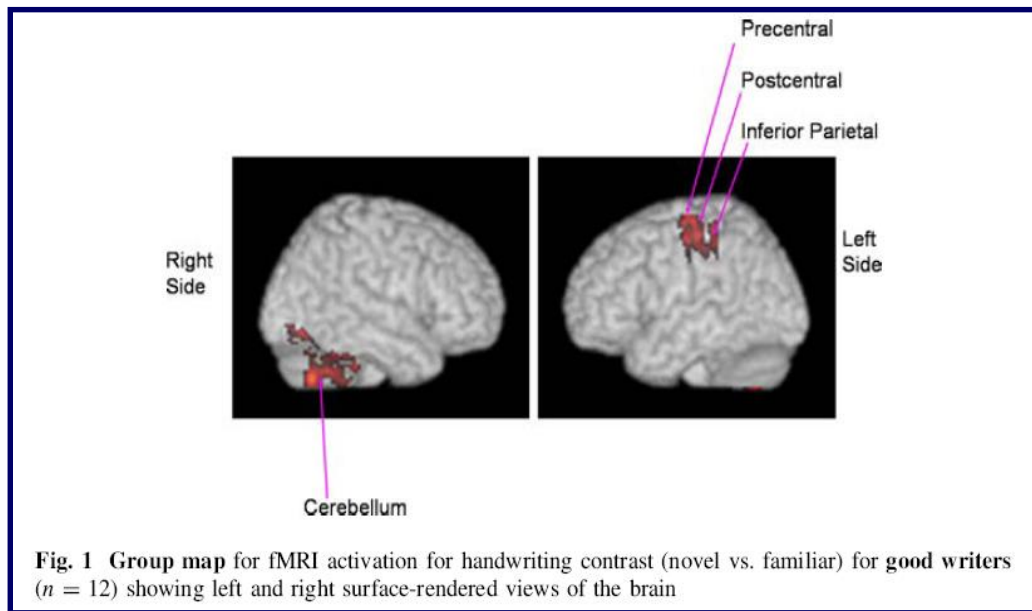


Enriched Environment  
Dendritic Growth



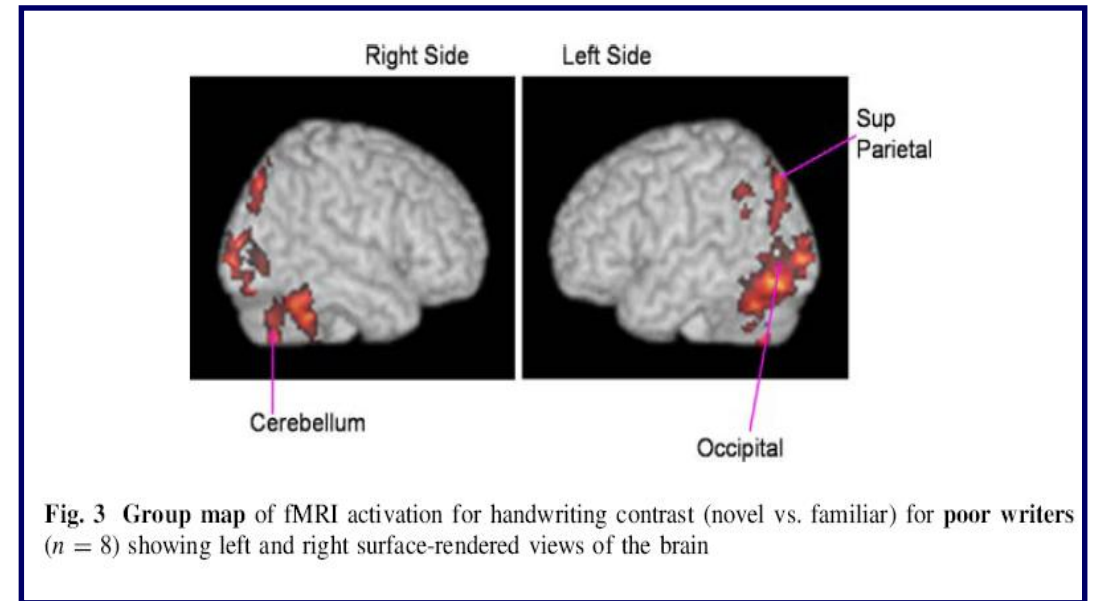
# Neurological Basis of Writing/Dysgraphia

## Good Writers



*Good writers* utilize specific left and right areas of the brain.

## Poor Writers

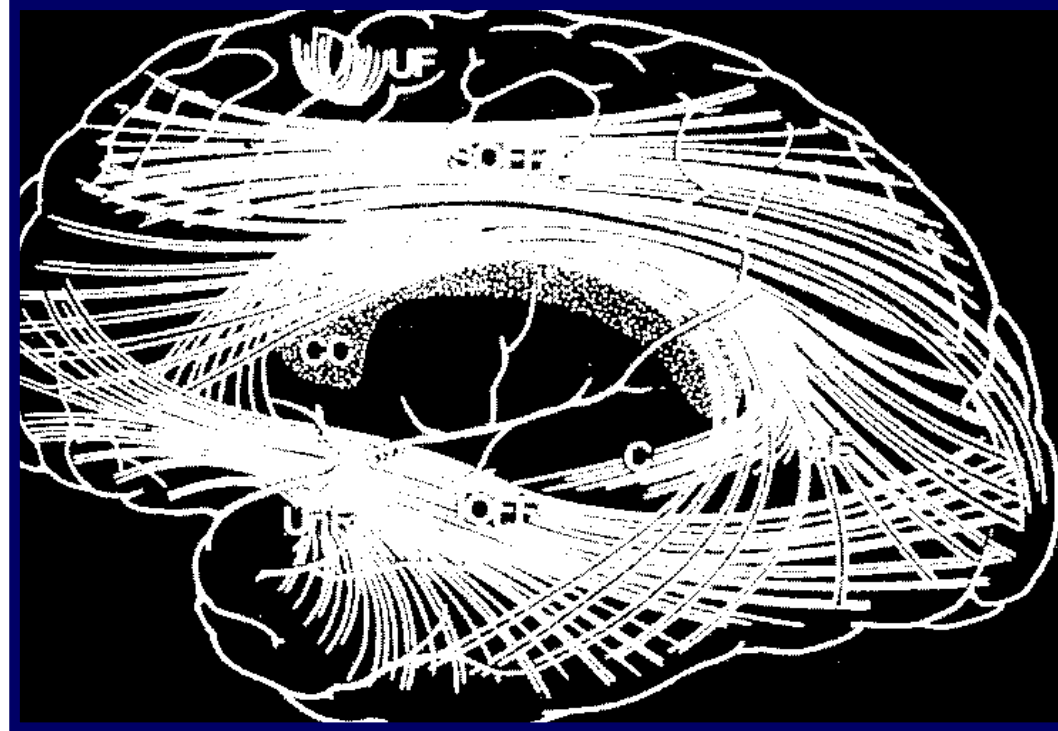


*Poor writers* have less activation in specific areas of the brain than good writers and more activation in both left and right hemispheric areas of the brain.

# Neurological Basis of Writing/Dysgraphia

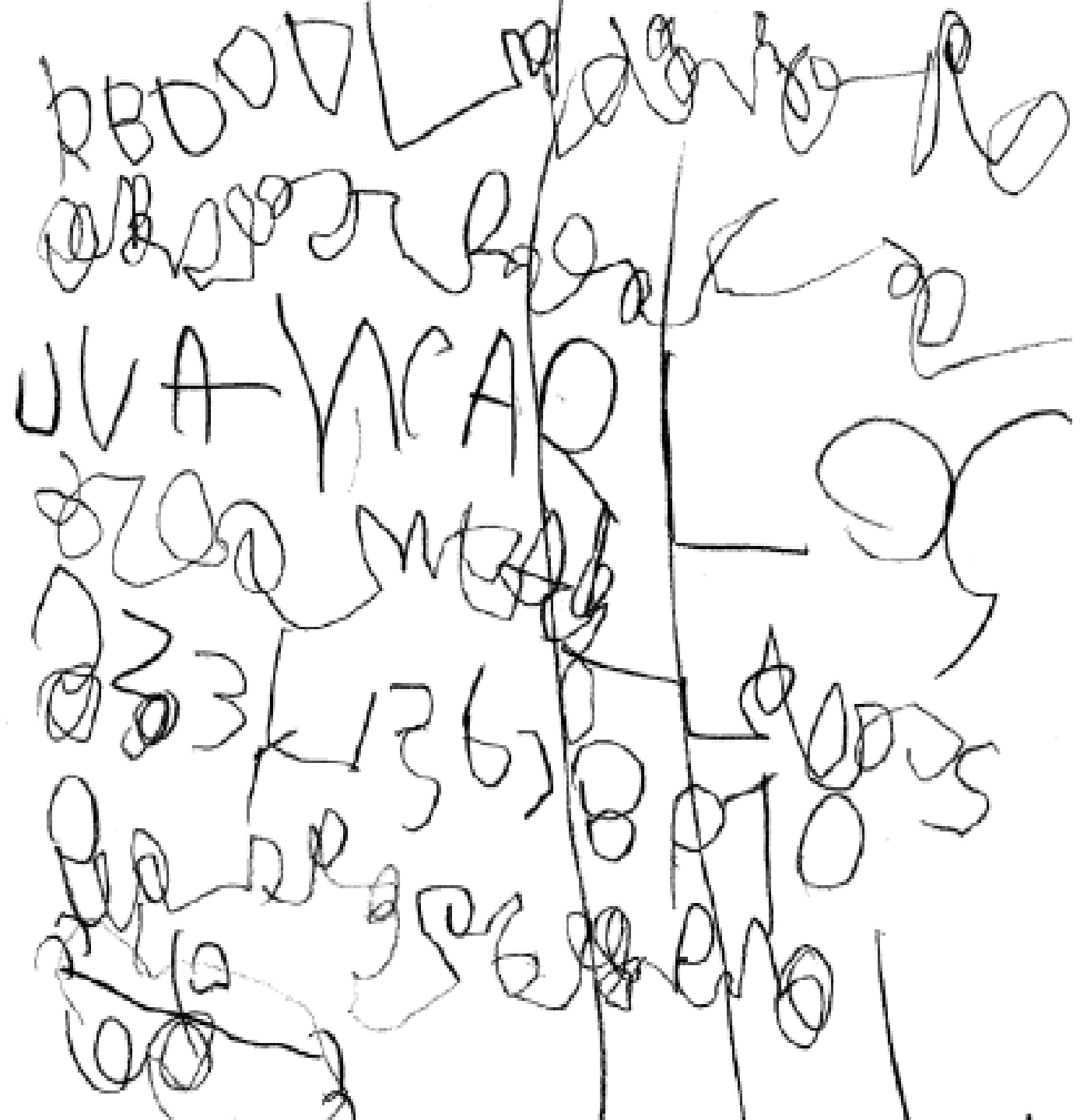
## Wiring the Brain for Written Composition

White Matter Tracts Correlate with Learning Disabilities

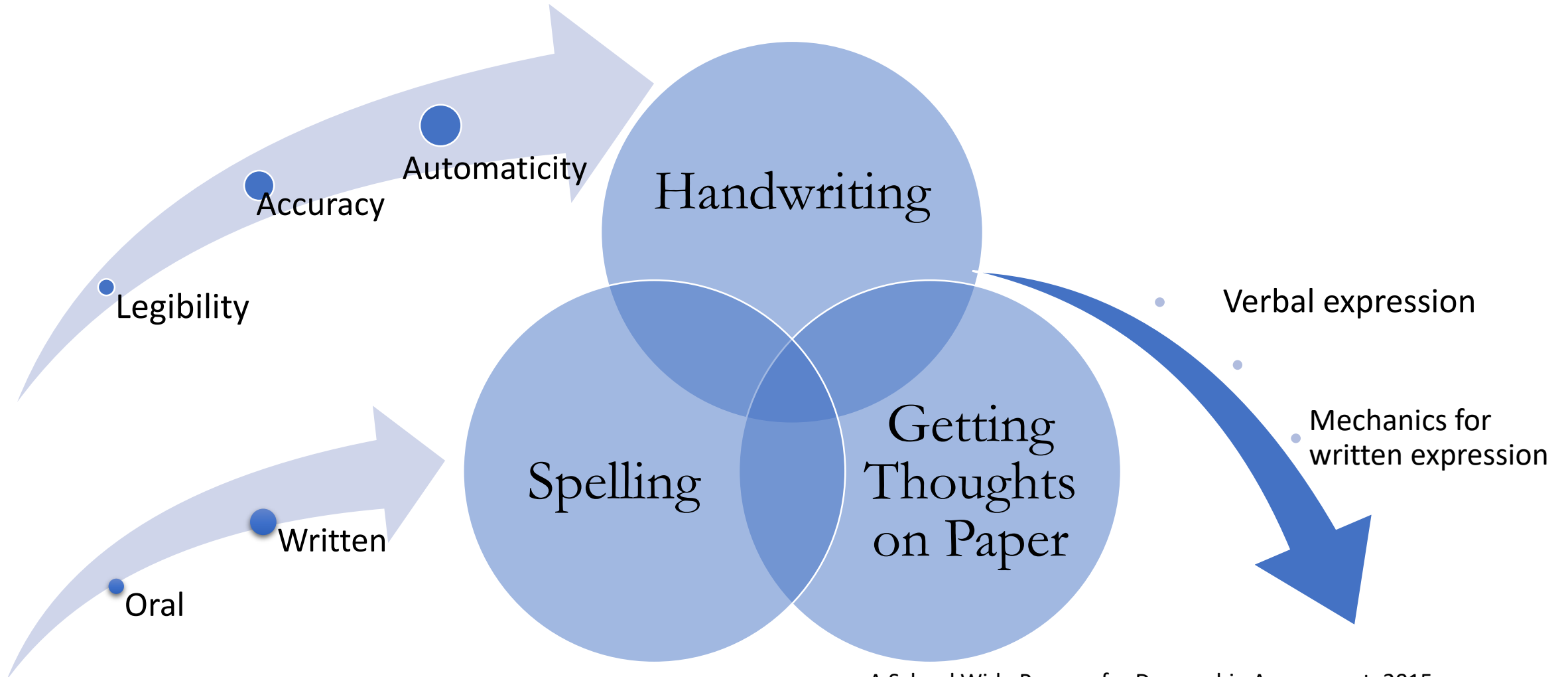


Hillis, 2005 ; Santangelo & Graham, 2016

# Characteristics of Dysgraphia



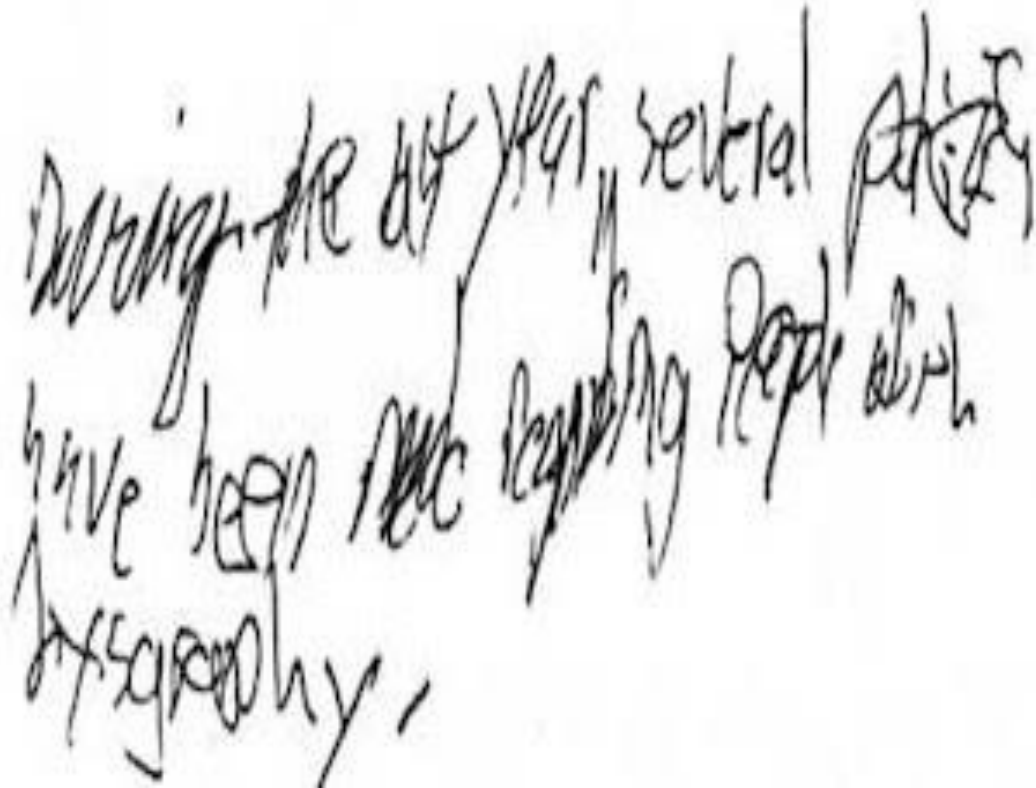
# Common Difficulties Found in the Research



A School Wide Process for Dysgraphia Assessment, 2015



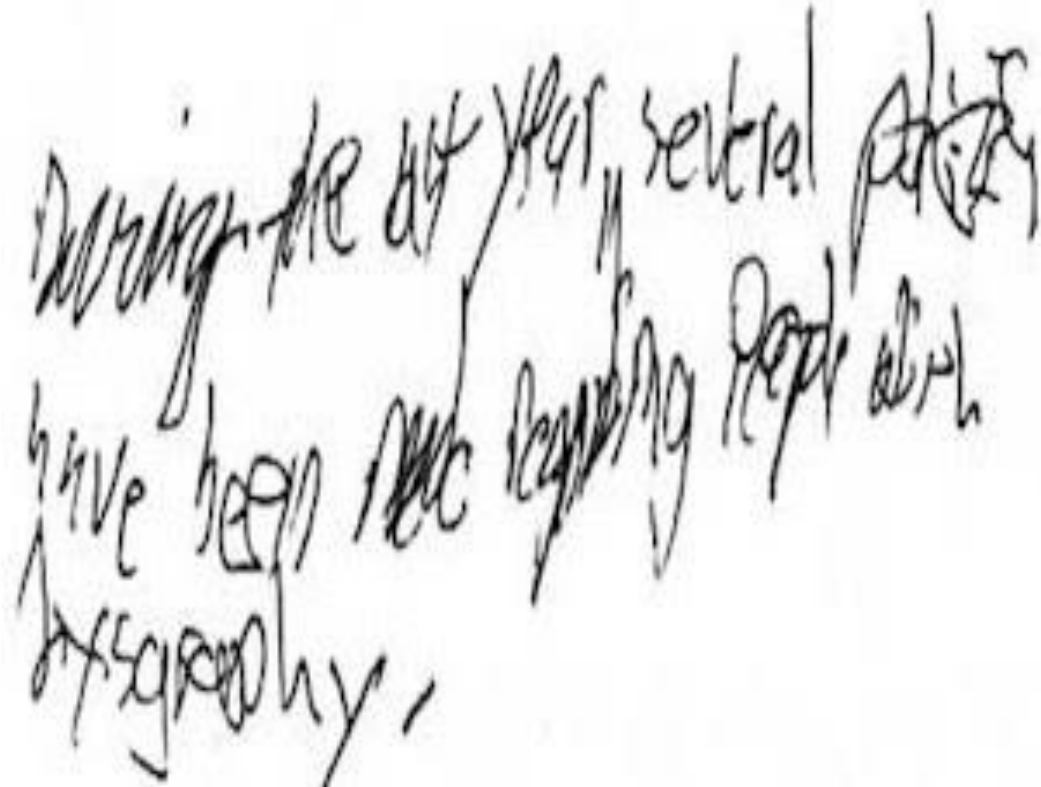
# Characteristics of Dysgraphia

A photograph of a piece of paper with handwritten text in cursive. The text is slanted and difficult to read, illustrating the characteristic of poor legibility in dysgraphia. The words appear to be "During the last year, several patients have been seen regarding their dysgraphia."

during the last year, several patients  
have been seen regarding their  
dysgraphia,

- Poor Legibility
- Graphomotor Difficulties
- Orthographic Coding Deficits

# Legibility



During the last year, several patients  
have been seen regarding their  
dysgraphia.

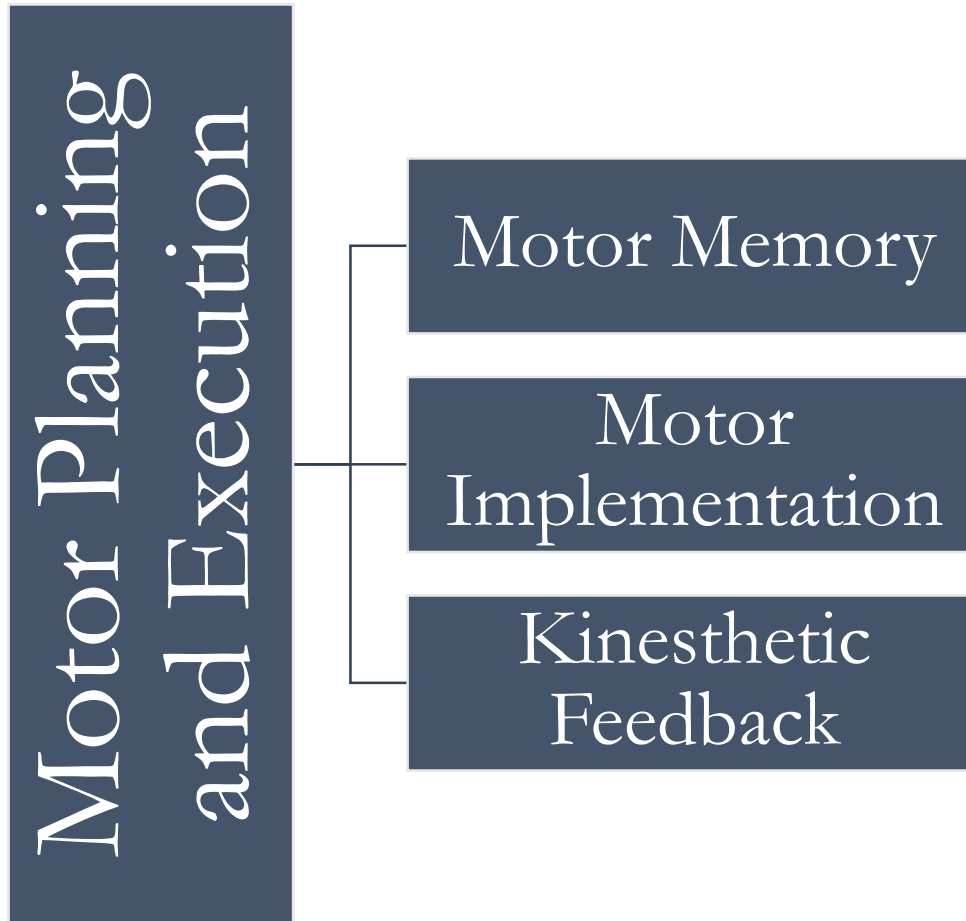
- Body posture
- Handedness
- Pencil grip
- Letter formation
- Controlled strokes
- Slant
- Size consistency
- Organization on the page
- Erasures

# Writing Related Processes

The *graphomotor system* monitors the serial motor movements required for handwriting, including the planning, controlling (monitoring/revising), and executing functions. This affects legibility, speed and volume of written output.

*Orthographic coding and memory retrieval* processes affect the automaticity of letter production and spelling. (Problems with orthographic coding in reading manifest in reading fluency).

# Common Graphomotor Difficulties





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# Motor Memory

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- Movement involved in writing leave a motor memory in the sensorimotor part of the brain, which helps us recognize letters.
- Rapid and accurate recall of letter shapes and the muscle movements needed to execute them.

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# Impairment in Motor Memory

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Weak connections between memory and fingers may manifest as:

- Writing is often slow, hesitant, and labored
- Inconsistent letter formations
- Frequent crossing out or erasures
- Reduced legibility
- Preference for printing

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# Motor Implementation

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- Involves assigning specific muscles in fingers to specific responsibilities during letter formation
- Different muscles have different writing assignments – some stabilize the pencil; others move the pencil to form symbols
- Writing is so effortful, quality of ideas and spelling are compromised.

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## Impairment in Motor Implementation

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Imprecise assignment and mobilization of specific muscle groups on demand may manifest as:

- Young students may have a feeble pencil hold and may keep dropping the pencil.
- Grip may be fist like or may hold the pencil close to the point and perpendicular to the page.
- Students may seem to be writing with their elbows rather than fingers.
- Writing may be slow and labored.
- Writing may be difficult to decipher.

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# Kinesthetic Feedback

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- Knowing where the writing utensil is during letter formation.
- May also be referred to as finger agnosia (lose track of where their fingers are).
- The need for feedback occurs throughout the entire writing process.

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# Ineffective Kinesthetic Feedback

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Ineffective attempts to gain sensory feedback on letter formation may manifest as:

- May compensate by keeping eyes very close to the page to visually monitor the pencil point.
- Some students start using their larger joints (wrist) - may demonstrate an awkward and uncomfortable pencil grip.
- May use excessive pressure — causes hand to get tired or cramped.
- May produce legible handwriting at a reduced rate.
- Poor spatial awareness.



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# Finger Sense

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- Finger Repetition and Succession contribute significantly to handwriting automaticity in grades 1-6.

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# Orthographic Coding

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- The ability to store written words in working memory while the letters in the word are analyzed.
- The ability to create permanent memory of written words linked to their pronunciation and meaning.
- Representation of letter forms in short-term and long-term memory, access to and retrieval of these representations in memory, and planning for letter production.

# Impairment in Orthographic Coding

Difficulties with letter form coding may manifest as:

- Difficulty picturing a letter before creating it.
- May cross out letters and words.
- May make letters different ways.
- May make frequent letter reversals.
- May leave as much space between letters as between words.
- Difficulty picturing whole words, which can lead to spelling delays.
- Difficulty copying text.

### Characteristics of Dysgraphia Checklist

- ☐ Slow or labored written work
- ☐ Poor formation of letters
- ☐ Improper letter slant
- ☐ Poor pencil grip
- ☐ Inadequate pressure during handwriting
  - ☐ too hard
  - ☐ too soft
- ☐ Excessive erasures
- ☐ Poor spacing between words
- ☐ Poor spacing inside words
- ☐ Inability to recall accurate orthographic patterns for words
- ☐ "b" and "d" reversals beyond developmentally appropriate time
- ☐ Inability to copy words accurately
- ☐ Inability of student to read what was previously written
- ☐ Overuse of short familiar words such as "big"
- ☐ Avoidance of written tasks
- ☐ Difficulty with visual-motor integrated sports or activities
- ☐ Impaired handwriting
- ☐ Illegible handwriting
- ☐ Impaired handwriting that interferes with
  - ☐ spelling
  - ☐ written expression
- ☐ Difficulty with unedited written spelling
- ☐ Low volume of written output

# Characteristics of Dysgraphia Checklist

The Dyslexia Handbook, 2018 & Proctor, 2020

# THE DYSLEXIA HANDBOOK

2018 Update

Procedures Concerning  
Dyslexia and Related  
Disorders

TEXAS EDUCATION AGENCY • AUSTIN, TEXAS  
NOVEMBER 2018

# Dysgraphia Resource



# Assessing Dysgraphia



# Areas for Evaluation

*Texas Dyslexia Handbook (2018)*

## Academic Skills

- Letter formation
- Handwriting
- Word/sentence dictation (timed and untimed)
- Copying of text
- Written expression
- Writing fluency (both accuracy and fluency)

## Cognitive Processes

- Memory for letter or symbol sequences (orthographic processing)

## Possible Additional Areas

- Phonological awareness
- Phonological memory
- Working memory
- Letter retrieval
- Letter matching

# C-SEP Framework – Dysgraphia Evaluation



Review

Gather and  
organize  
existing data



Plan

Establish a  
targeted  
assessment plan



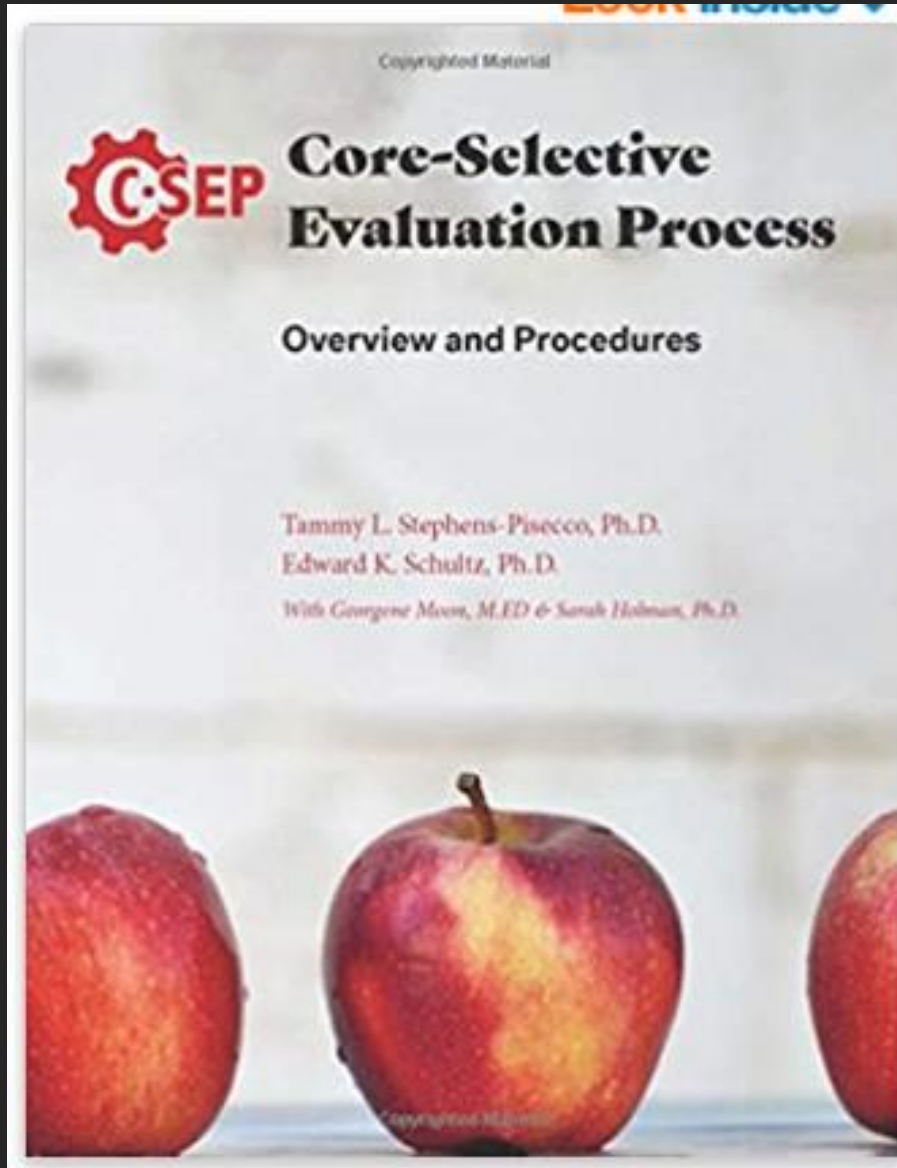
Assess

Conduct the  
assessment



Decide

Triangulate and  
merge all data



# C-SEP Manual – Resource

[Amazon.com](https://www.amazon.com)

# REVIEW

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First Step of C-SEP: Dysgraphia Assessment

- Vision screening
- Teacher reports of classroom concerns
- Parent reports of concerns about handwriting, spelling, or written expression
- Classroom handwriting assessments
- Classroom spelling assessments
- Samples of written work (e.g., journal, story responses, writing samples, etc.)
- Accommodations or interventions provided
- Academic progress reports (report cards)
- Gifted/talented assessments
- Samples of written schoolwork (both timed and untimed)
- State student assessment program results as described in TEC §39.022
- Observations of instruction provided to the student
- Full Individual and Initial Evaluation
- Outside evaluations
- Speech and language assessment
- School attendance
- Curriculum-based assessment measures
- Instructional strategies provided and student's response to the instruction
- Universal screening
- Parent survey

## Review of Data: Informal Data

*Texas Dyslexia Handbook, 2018*

# C - SEP REVIEW STEP:

## Multiple Sources of Data Worksheet (MSDW)

<b>Student Name:</b> LEP, AT RISK, Other:		<b>DOB/Age:</b> Campus:		<b>Initial/ Re-eval</b> PEIMS Ethnicity:		<b>Area(s) of Eligibility:</b> Grade Level:					
<b>Retention</b> Never been retained <b>OR</b> Years retained ____ Grade(s) repeated:	<b>Total Days Absent</b>  <b>Total Days Tardy</b>	<b>Health Information</b>		<b>Language</b> Home: OLPT Eng.: Dominant: OLPT Sp.: Instruction:		<b>Parent Information</b> Strengths: Concerns: Family History: Y N					
<b>STAAR Results</b>		<b>Reading</b>					<b>Math</b>				
		<b>Grade</b>	<b>DNM/L I</b>	<b>App</b>	<b>Meets/L II</b>	<b>Masters/L III</b>	<b>Grade</b>	<b>DNM/L I</b>	<b>App</b>	<b>Meets/L II</b>	<b>Masters/ L III</b>
<b>Observation/Interview Notes</b>											
<b>Report Card Grades:</b>		<b>Report Card Grades:</b>		<b>Other Assessment Results</b>							
<b>Math:</b> <b>Reading:</b> <b>Writing:</b> <b>Science:</b> <b>Social Studies:</b>		<b>Math:</b> <b>Reading:</b> <b>Writing:</b> <b>Science:</b> <b>Social Studies:</b>		<b>Curriculum Assessments:</b> <b>Math:</b> ____, ____, ____ <b>Reading:</b> ____, ____, ____ <b>DRA:</b> _____ <b>ISIP:</b> _____ <b>Writing:</b> ____, ____, ____ <b>Science:</b> ____, ____, ____ <b>DMA:</b> _____ <b>TELPAS:</b> Lis: ____ Sp: ____ Rdg: ____ Wr: ____ Com: ____							
<b>Teacher Information</b>	<b>Teacher Concerns</b>		1) Basic Reading/Decoding (1, 2, 3, 4) 2) Oral Reading/Fluency (1, 2, 3, 4) 3) Reading Comprehension (1, 2, 3, 4) 4) Math Calculation (1, 2, 3, 4) 1=poor, 2=below average, 3=average, 4=above average				5) Math Problem Solving (1, 2, 3, 4) 6) Listening Comprehension (1, 2, 3, 4) 7) Oral Expression (1, 2, 3, 4) 8) Written Expression (1, 2, 3, 4)				
<b>RTI</b>	<b>Intervention(s) Implemented/Subject:</b> <b>Frequency:</b> <b>Duration:</b> <b>Results</b>				<b>Intervention(s) Implemented/Subject:</b> <b>Frequency:</b> <b>Duration:</b> <b>Results:</b>						
<b>Review of Educational Records</b>	<b>Outcome of RTI</b>		<b>Strengths/Weaknesses</b>		<b>Exclusionary Factors</b>				<b>Failure to Meet Grade Level Standards</b>		
	Adequate ROI (instructional casualty?)		Reading	S W	Visual, hearing, or motor	Y N	Y N Area(s): _____				
	Slow but Rising ROI (general low ach.?)		Math	S W	Limited English proficiency	Y N					
	Minimal ROI (SLD?)		Writing	S W	Intellectual disability	Y N					
			Behavior	S W	Emotional disturbance	Y N					
			Oral Language	S W	Cultural diff. or eco. Disadvantage	Y N					
					Inadequate instruction	Y N					



# PLAN

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Second Step of C-SEP: Dysgraphia Assessment



# Creating a Targeted Assessment Plan

# Building an Assessment Battery

## Primary Characteristics

- Difficulties with handwriting
- Difficulties with spelling
- Difficulties getting thoughts on paper

## Associated Processes

- Graphomotor processing
- Orthographic processing
- Phonological processing

## Unexpected in Relation to ...

- Other cognitive abilities
- Effective classroom instruction

# Dysgraphia Assessment Profile

(Proctor, 2020)

DYSGRAPHIA PROFILE			
Name _____	Date of Birth _____	ID _____	
School _____	Grade _____	Date _____	
<b>The Texas Education Code (TEC) §38.003 includes Dysgraphia as a Related Disorder:</b> 1) Dyslexia means a disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell, despite conventional instruction, adequate intelligence, and sociocultural opportunity. 2) Related disorders include disorders similar to or related to dyslexia such as developmental auditory imperception, dysphasia, specific developmental dyslexia, developmental dysgraphia, and developmental spelling disability.			
<b>Texas Education Agency defines Dysgraphia in The Dyslexia Handbook (2018) the following way:</b> <i>Dysgraphia is defined as a language based, neurological, written language disorder manifested by illegible and/or inefficient handwriting due to difficulty with letter formation. This difficulty is the result of deficits in graphomotor function (hand movements used for writing) and/or storing and retrieving orthographic codes (letter forms). Secondary consequences may include problems with spelling and written expression. The difficulty is not solely due to lack of instruction and is not associated with other developmental or neurological conditions that involve motor impairment.</i> <div style="text-align: right; font-size: small;">Berninger, 2015; TEA, The Dyslexia Handbook, 2018</div>			
<b>International Dyslexia Association Definition (2020)</b> <i>Dysgraphia is a specific learning disability that affects how easily children acquire written language and how well they use written language to express their thoughts. Dysgraphia is a Greek word. The base word graph refers both to the hand's function in writing and to the letters formed by the hand. The prefix dys indicates that there is impairment. Graph refers to producing letter forms by hand. The suffix ia refers to having a condition. Thus, dysgraphia is the condition of impaired letter writing by hand, that is, disabled handwriting and sometimes spelling. Impaired handwriting can interfere with learning to spell words in writing. Occasionally, but not very often, children have just spelling problems and not handwriting or reading problems.</i>			
<b>Authors' note:</b> Dysgraphia affects letter formation, word/sentence dictation, and writing fluency. In turn, these deficits cause difficulties with spelling and written expression. According to research, the major cognitive correlates of dysgraphia include weaknesses in orthographic awareness and graphomotor function. Other cognitive and linguistic possible contributing factors include phonological awareness, memory, rapid automatized naming, and processing speed. Other abilities, such as general intelligence, reasoning, oral language, reading, mathematics, and knowledge, that do not require writing, are often unimpaired. In other words, the writing and spelling difficulties are often unexpected in relation to the student's other abilities.			
<b>Section I: Summary</b> <b>A. Primary and Secondary Spelling and Writing Difficulties</b> Check the areas of concern.			
<b>Primary Writing Difficulties</b> <input type="checkbox"/> Letter formation <input type="checkbox"/> Handwriting <input type="checkbox"/> Size <input type="checkbox"/> Spacing <input type="checkbox"/> Legibility <input type="checkbox"/> Dictation <input type="checkbox"/> Timed <input type="checkbox"/> Untimed <input type="checkbox"/> Writing Fluency <input type="checkbox"/> Accuracy <input type="checkbox"/> Fluency		<b>Secondary Spelling and Writing Difficulties</b> <input type="checkbox"/> Spelling <input type="checkbox"/> in isolation <input type="checkbox"/> in context <input type="checkbox"/> Spelling letter sounds <input type="checkbox"/> Written expression	
<b>B. Cognitive and Linguistic Abilities: Possible Contributing Factors</b> Check the areas that are possible contributing factors.			
<input type="checkbox"/> Orthographic awareness <sup>1</sup> <input type="checkbox"/> Graphomotor Function <sup>2</sup>		<input type="checkbox"/> Phonological awareness <sup>3</sup> <input type="checkbox"/> Blending <input type="checkbox"/> Segmentation	
<input type="checkbox"/> Memory <input type="checkbox"/> Working memory <input type="checkbox"/> Associative memory		<input type="checkbox"/> Rapid automatized naming <input type="checkbox"/> Processing speed	
<b>C. Ability to Learn When Writing is Not Required</b> Check the areas that are significantly higher than the individual's spelling and writing skills.			
<b>Cognitive Abilities</b> <input type="checkbox"/> General intelligence <input type="checkbox"/> Reasoning	<b>Oral Language</b> <input type="checkbox"/> Oral expression <input type="checkbox"/> Listening comprehension <input type="checkbox"/> Vocabulary <sup>3</sup>	<b>Reading</b> <input type="checkbox"/> Basic Reading <input type="checkbox"/> Reading Comprehension	<b>Mathematics</b> <input type="checkbox"/> Calculation <input type="checkbox"/> Problem solving
<b>Knowledge</b> <input type="checkbox"/> General knowledge <input type="checkbox"/> Academic knowledge			
<b>Committee Consideration</b> <input type="checkbox"/> Data demonstrate characteristics of dysgraphia. <input type="checkbox"/> Data demonstrate characteristics of dysgraphia; however, these characteristics would not be consistent with TEA guidelines for the identification of dysgraphia.			
Evaluator(s) _____ Date: _____			

## Section II: Scores

Area Tested		Battery	Test Date	Cluster/Test	Low/Below Average SS <40-89 PR <1-24	Average SS 90-110 PR 25-75	High/Above Average SS 111+ PR 76+
Primary Writing Difficulties	Letter Formation	Informal		Letter Formation Case: Lower ____/26 Upper ____/26 <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
	Dictation Skills			Word Dictation Timed			
				Word Dictation Untimed			
				Sentence Dictation Timed			
				Sentence Dictation Untimed			
	Writing Fluency	Informal		Dictation Timed			
				Dictation Untimed			
				Writing Fluency			
				Writing Accuracy <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
				Writing Rate <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
				Copying Text <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
Secondary Spelling and Writing Difficulties	Spelling			Spelling in Isolation			
				Spelling of Sounds			
		Informal		Spelling Letter Sounds: Consonants ____ Vowels ____ <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
				Spelling in Context <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
	Written Expression	Informal		Written Expression			
				Writing Samples <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			

# DYSGRAPHIA PROFILE

Name \_\_\_\_\_ Date of Birth \_\_\_\_\_ ID \_\_\_\_\_  
 School \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_

## The Texas Education Code (TEC) §38.003 includes Dysgraphia as a Related Disorder:

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## Section I: Summary

### A. Primary and Secondary Spelling and Writing Difficulties

Check the areas of concern.

Primary Writing Difficulties	Secondary Spelling and Writing Difficulties
<input type="checkbox"/> Letter formation <input type="checkbox"/> Handwriting <input type="checkbox"/> Size <input type="checkbox"/> Spacing <input type="checkbox"/> Legibility <input type="checkbox"/> Dictation <input type="checkbox"/> Timed <input type="checkbox"/> Untimed <input type="checkbox"/> Writing Fluency <input type="checkbox"/> Accuracy <input type="checkbox"/> Fluency	<input type="checkbox"/> Spelling <input type="checkbox"/> in isolation <input type="checkbox"/> in context <input type="checkbox"/> Spelling letter sounds <input type="checkbox"/> Written expression

### B. Cognitive and Linguistic Abilities: Possible Contributing Factors

Check the areas that are possible contributing factors.

<input type="checkbox"/> Orthographic awareness <sup>1</sup> <input type="checkbox"/> Graphomotor Function <sup>2</sup>	<input type="checkbox"/> Phonological awareness <sup>3</sup> <input type="checkbox"/> Blending <input type="checkbox"/> Segmentation	<input type="checkbox"/> Memory <input type="checkbox"/> Working memory <input type="checkbox"/> Associative memory	<input type="checkbox"/> Rapid automatized naming <input type="checkbox"/> Processing speed
--	--	---	--

### C. Ability to Learn When Writing is Not Required

Check the areas that are significantly higher than the individual's spelling and writing skills.

Cognitive Abilities	Oral Language	Reading	Mathematics	Knowledge
<input type="checkbox"/> General intelligence <input type="checkbox"/> Reasoning	<input type="checkbox"/> Oral expression <input type="checkbox"/> Listening comprehension <input type="checkbox"/> Vocabulary <sup>3</sup>	<input type="checkbox"/> Basic Reading <input type="checkbox"/> Reading Comprehension	<input type="checkbox"/> Calculation <input type="checkbox"/> Problem solving	<input type="checkbox"/> General knowledge <input type="checkbox"/> Academic knowledge

## Committee Consideration

- ☐ Data demonstrate characteristics of dysgraphia.
 ☐ Data demonstrate characteristics of dysgraphia; however, these characteristics would not be consistent with TEA guidelines for the identification of dysgraphia.
- ☐ Data do not demonstrate characteristics of dysgraphia.

Evaluator(s) \_\_\_\_\_ Date: \_\_\_\_\_

# Dysgraphia Assessment Profile – Page 1 (Proctor, 2020)

# Dysgraphia Assessment Profile – Page 2 (Proctor, 2020)

Section II: Scores						
Area Tested	Battery	Test Date	Cluster/Test	Low/Below Average SS <40-89 PR <1-24	Average SS 90-110 PR 25-75	High/Above Average SS 111> PR 76>
Letter Formation	Informal		Letter Formation Case: Lower ____ /26 Upper ____/26 <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
Dictation Skills			Word Dictation Timed			
			Word Dictation Untimed			
			Sentence Dictation Timed			
			Sentence Dictation Untimed			
	Informal		Dictation Timed			
			Dictation Untimed			
Writing Fluency			Writing Fluency			
			Writing Accuracy <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
			Writing Rate <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
	Informal		Copying Text <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
	Informal		Writing Fluency <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
Spelling			Spelling in Isolation			
			Spelling of Sounds			
	Informal		Spelling Letter Sounds: Consonants ____ Vowels ____ <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
			Spelling in Context <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
Written Expression			Written Expression			
	Informal		Writing Samples <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			

# Dysgraphia Assessment Profile

(Proctor, 2020)

Area Tested		Battery	Test Date	Cluster/Test	Low/Below Average SS <40-89 PR <1-24	Average SS 90-110 PR 25-75	High/Above Average SS 111> PR 76>
Cognitive and Linguistic Abilities: Possible Contributing Factors	Orthographic Awareness <sup>1</sup>			Reading nonsense words			
				Spelling nonsense words			
	Graphomotor Function <sup>2</sup>	Informal		Motor planning and execution <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
				Kinesthetic feedback (Knowledge of position and movement of the writing hand) <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
				Motor memory <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
	Phonological Awareness <sup>3</sup>			Blending			
				Segmenting			
	Memory			Working Memory			
				Associative Memory			
	Rapid Automatized Naming			Rapid Automatized Naming (RAN)			
	Processing Speed			Processing Speed			

Area Tested		Battery	Test Date	Cluster/Test	Low/Below Average SS <40-89 PR <1-24	Average SS 90-110 PR 25-75	High/Above Average SS 111> PR 76>
Ability to Learn When Writing is Not Required	General Intelligence			General Intelligence			
	Reasoning			Reasoning			
	Oral Language			Oral Expression			
				Listening Comprehension			
				Vocabulary			
	Reading			Basic Reading			
				Reading Comprehension			
	Mathematics			Math Calculation			
				Math Problem Solving			
	Knowledge			General Knowledge			
				Academic Knowledge			



# Dysgraphia Assessment Profile - Page 3

*(Proctor, 2020)*

				Low/Below Average SS <40-89 PR <1-24	Average SS 90-110 PR 25-75	High/Above Average SS 111> PR 76>
Area Tested	Battery	Test Date	Cluster/Test			
Cognitive and Linguistic Abilities: Possible Contributing Factors	Orthographic Awareness <sup>1</sup>		Reading nonsense words			
			Spelling nonsense words			
	Graphomotor Function <sup>2</sup>	Informal	Motor planning and execution <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
			Kinesthetic feedback (Knowledge of position and movement of the writing hand) <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
			Motor memory <input type="checkbox"/> Poor <input type="checkbox"/> Typical <input type="checkbox"/> Advanced			
	Phonological Awareness <sup>3</sup>		Blending			
			Segmenting			
	Memory		Working Memory			
			Associative Memory			
	Rapid Automatized Naming		Rapid Automatized Naming (RAN)			
	Processing Speed		Processing Speed			

# Dysgraphia Assessment Profile – Page 4

*(Proctor, 2020)*

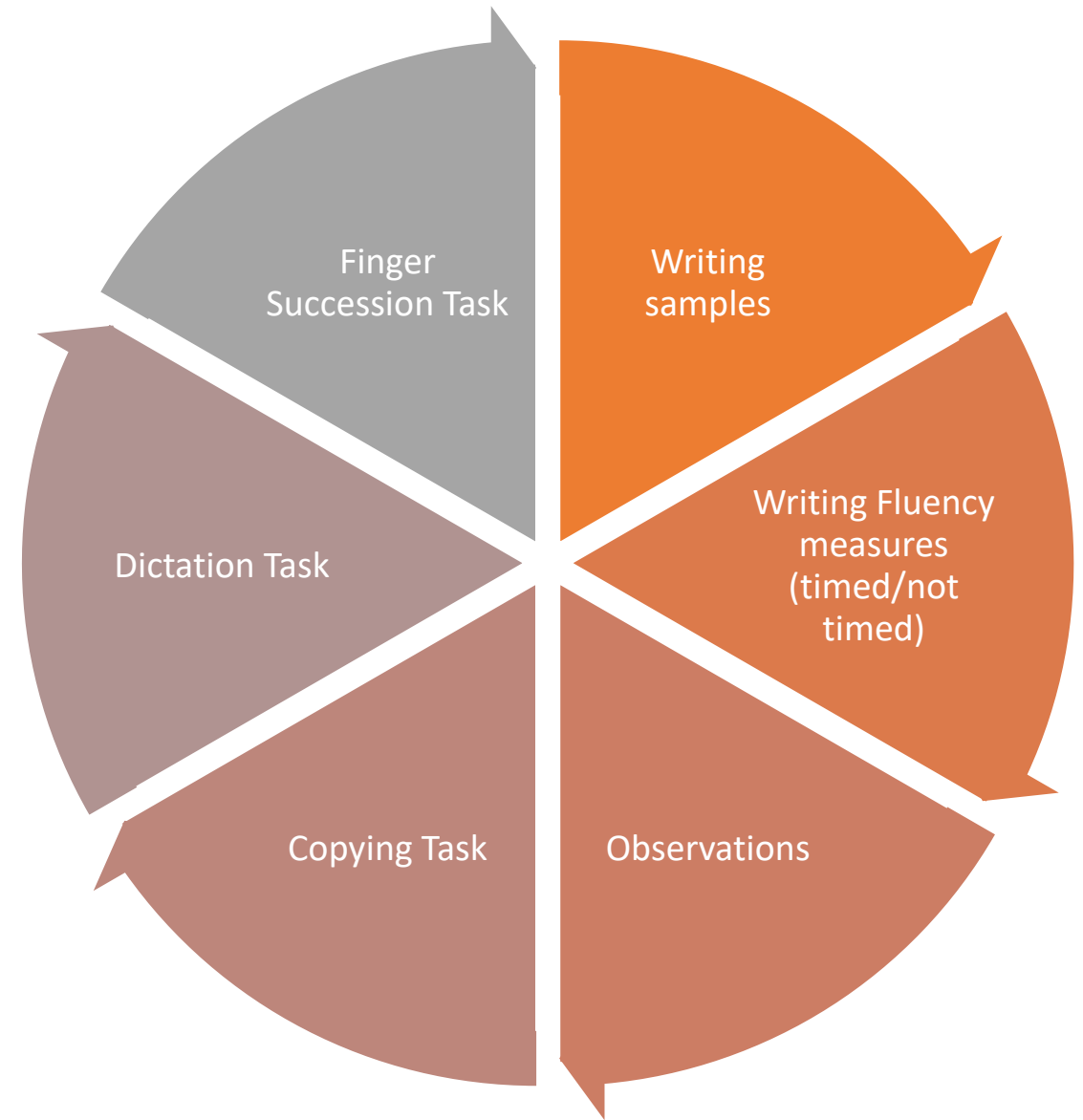
Area Tested		Battery	Test Date	Cluster/Test	Low/Below Average SS <40-89 PR <1-24	Average SS 90-110 PR 25-75	High/Above Average SS 111> PR 76>
Ability to Learn When Writing is Not Required	General Intelligence			General Intelligence			
	Reasoning			Reasoning			
	Oral Language			Oral Expression			
				Listening Comprehension			
				Vocabulary			
	Reading			Basic Reading			
				Reading Comprehension			
	Mathematics			Math Calculation			
				Math Problem Solving			
	Knowledge			General Knowledge			
				Academic Knowledge			

# Formal Measures – Dysgraphia

MAJOR BATTERIES	SECONDARY BATTERIES
Woodcock Johnson IV ACH, OL, COG	Test of Written Spelling (TWS): Oral Spelling; Written Spelling
Woodcock Munoz Language Survey (WMLS-III)	Comprehensive Test of Phonological Processing (CTOPP-2): Phonological Processing, RAN
Woodcock Johnson IV Tests of Early Cognitive and Academic Development (ECAD)	Test of Orthographic Competence (TOC)- Orthographic Processing, Letter Choice, Word Scramble (Spelling Speed); Sight Spelling, Word Choice (Spelling Accuracy)
Bateria IV ACH, OL, COG	Test of Written Language (TOWL-4): Written composition
	EasyCBM: Fluency measures



# Informal Measures - Dysgraphia



# Informal - Alphabet Task

*The pencil you will use does not have an eraser. Whenever you want to make a correction, cross out and write the change above or below what you want to correct. With this pencil write the entire alphabet in order in lower-case, manuscript letters. Make sure you print and do not use cursive handwriting. [Once in a while I will make a red mark on your paper. Do not pay any attention to this. Keep going.] Work as quickly as you can without making mistakes. Remember to print in lower-case, not capital, letters. Ready? Go.*

(Start stopwatch. Note what letter the child has written at 15 seconds. Record total time.)

Alphabet (15 sec.)	Grade 1	Grade 2	Grade 3
Average [M(SD)]	4.6 (2.6)	6.8 (4.1)	8.7 (5.8)
Below Average	1.3	2.4	3.9

# Informal - Handwriting Rate

Have the student practice writing the sentence one time, and then ask the student to copy the sentence as quickly as possible in 3 minutes. Count the total number of letters the student has written in the 3-minute period and divide this number by 3 to get the total letters per minute (lpm).

- The quick brown fox jumped over the lazy dog.
- The five boxing wizards jump quickly.
- Few black taxis drive up major roads on quiet hazy nights.

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
25 lpm	30 lpm	38 lpm	45 lpm	60 lpm	67 lpm	74 lpm

# Informal - Finger Succession

*Please hold your hands up just like I am.* (Hold up both hands out of peripheral vision. Demonstrate for right hand first.) *First, watch what I do.* (Touch each finger with thumb working in succession: always little finger to ring to middle to index finger; repeat cycle twice.) *Now do it with me. Now try it on your own.* (Practice until the child gets the idea. Note if more than three sequences are needed.) *When I say 'go', touch your fingers together just like I did as quickly as possible using this hand* (Point - dominant hand.) *Keep doing it until I tell you to stop. Ready? Go.* (Tell child to stop after five successions.) Performance (completion of 5 successions or 20 touches) was timed by hand-held stopwatch (to nearest second) and commenced when the examiner pronounced the word, 'go'

Finger Succession (Dominant Hand)	Grade 1		Grade 2		Grade 3	
	M	LF	M	LF	M	LF
	15.9	24.3	13.5	20.4	10.9	16.7

Brenda Taylor, Ph.D. CALT, LDT

# ASSESS

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Third Step of C-SEP: Dysgraphia Assessment



Assess the  
student by  
administering  
the formal  
and informal  
measures

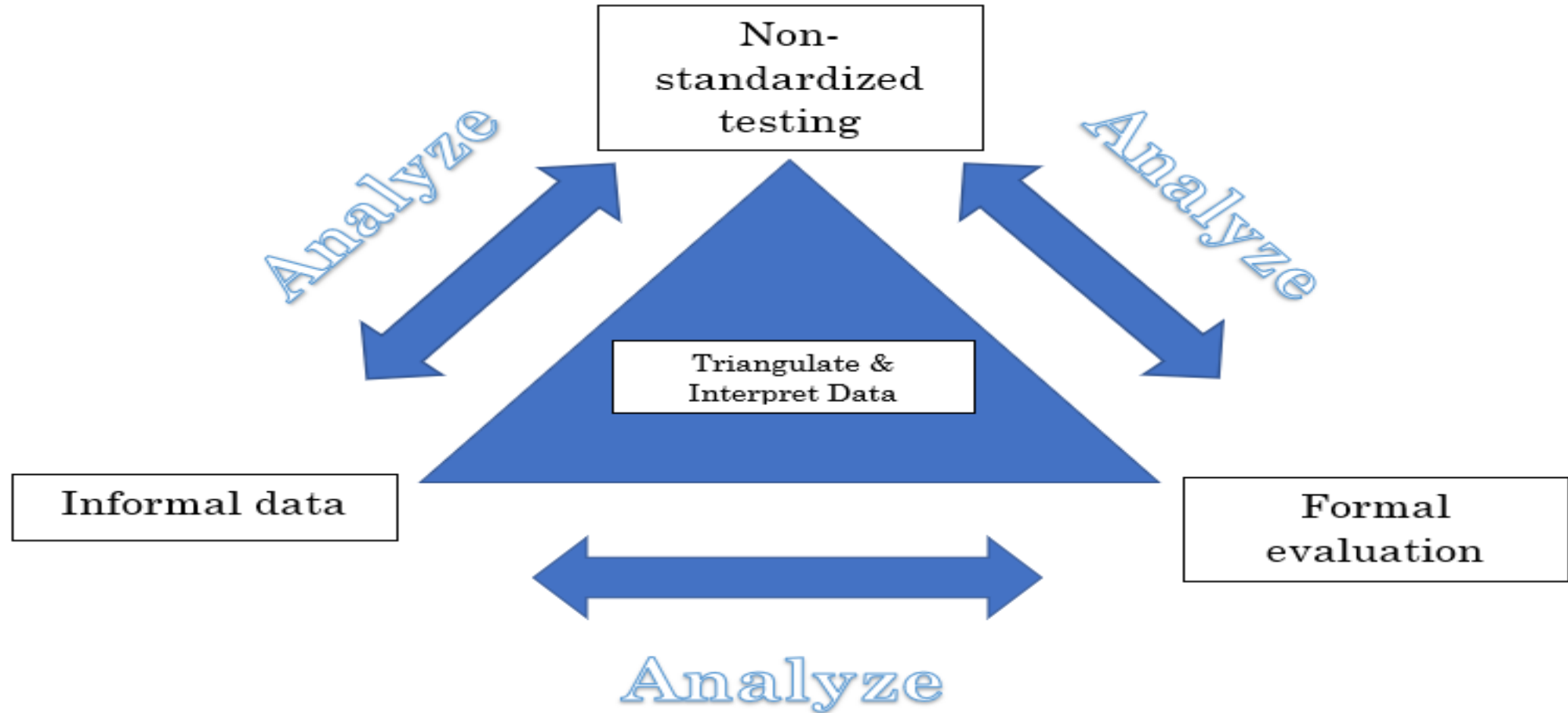


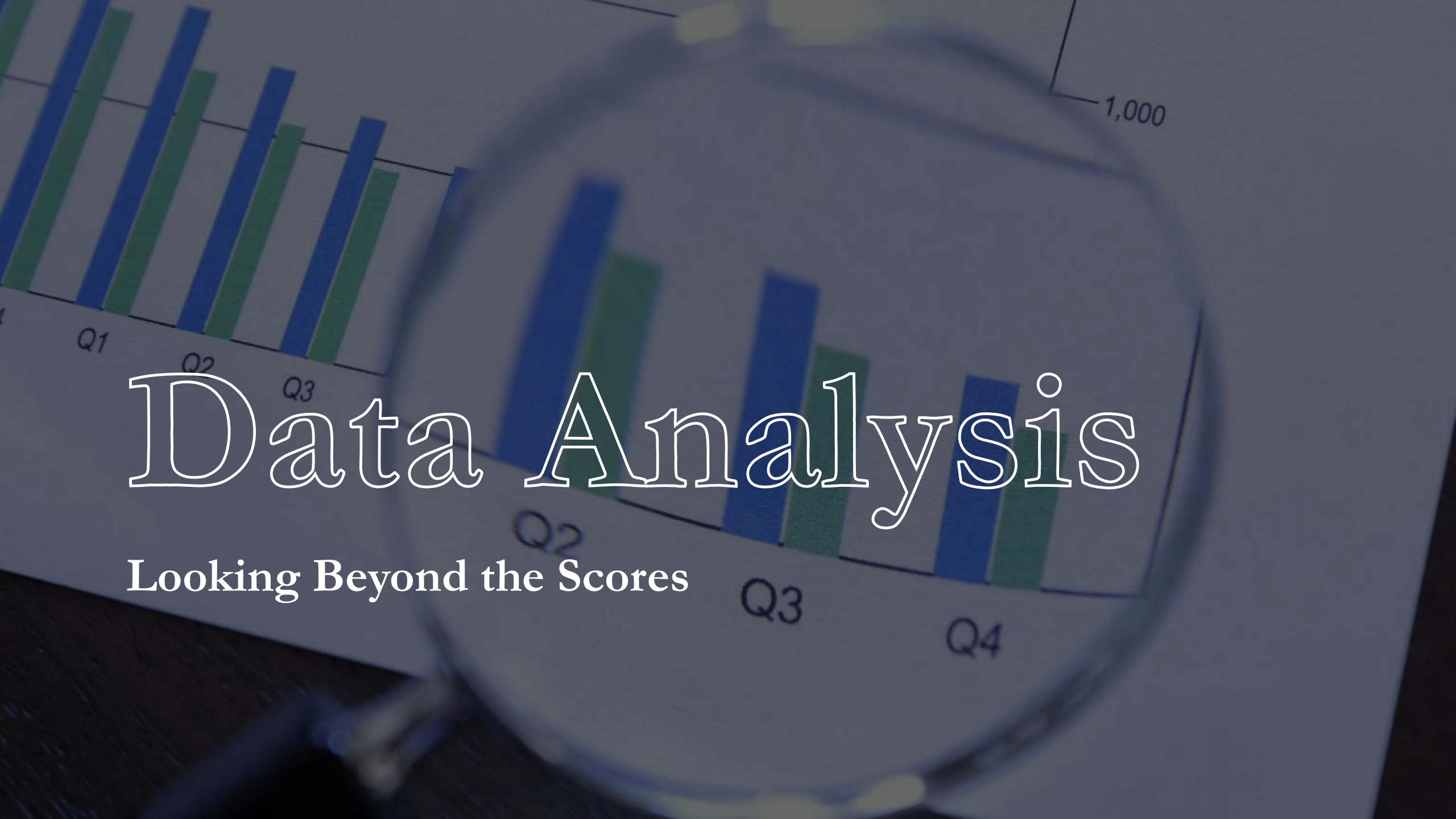
# DECIDE

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Fourth Step of C-SEP: Dysgraphia Assessment

# TRIANGULATION





# Data Analysis

Looking Beyond the Scores

# Legibility Analysis

## Letter Formations, Size, Proportion:

- Are letters recognizable out of context?
- Are letters consistently formed?
- Are there large fluctuations in the size of the letters?
- Are letters proportional to each other and to case?
- Are letters capitalized appropriately?

## Spacing & Alignment:

- Is there crowding of words, letters, or lines?
- Are lines of text reasonably straight?
- Are margins relatively balanced?

# Legibility Analysis

## 3. Line Quality:

- a. Is there uneven pressure?
- b. Is there pressure that is too heavy?
- c. Is there pressure that is too light?

## 4. Slant- Is the slant generally consistent?

## 5. General Appearance:

- a. Are there excessive erasures or strikeovers (messy)?
- b. Is the writing too small for reading?
- c. Is the writing too large for reading?

# Legibility Analysis

## Overall Scoring (Quality)

0-1: Very Poor

2: Poor

3: Satisfactory

4: Good

5: Very Good

Phelps, Stempel, & Speck (1984).  
Children's Handwriting Evaluation  
Scale

# Orthographic Processing- Analysis

Does the student:

- have difficulty reading or spelling irregular words?
- forget how letters look?
- confuse letters with similar appearance?
- misread little words in text?
- reverse letters when spelling?
- have trouble remembering basic sight words?
- have trouble copying from a book or board to paper?
- spell the same word in different ways?
- spell words how they sound rather than how they look?
- read at a slow rate?



Based on the  
Data, What is the  
Determination  
for Committee  
Consideration?



# DYSGRAPHIA PROFILE

Name \_\_\_\_\_ Date of Birth \_\_\_\_\_ ID \_\_\_\_\_  
 School \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_

## The Texas Education Code (TEC) §38.003 includes Dysgraphia as a Related Disorder:

- 1) Dyslexia means a disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell, despite conventional instruction, adequate intelligence, and sociocultural opportunity.
- 2) Related disorders include disorders similar to or related to dyslexia such as developmental auditory imperception, dysphasia, specific developmental dyslexia, developmental dysgraphia, and developmental spelling disability.

## Texas Education Agency defines Dysgraphia in The Dyslexia Handbook (2018) the following way:

*Dysgraphia is defined as a language based, neurological, written language disorder manifested by illegible and/or inefficient handwriting due to difficulty with letter formation. This difficulty is the result of deficits in graphomotor function (hand movements used for writing) and/or storing and retrieving orthographic codes (letter forms). Secondary consequences may include problems with spelling and written expression. The difficulty is not solely due to lack of instruction and is not associated with other developmental or neurological conditions that involve motor impairment.*

Berninger, 2015; TEA, The Dyslexia Handbook, 2018

## International Dyslexia Association Definition (2020)

*Dysgraphia is a specific learning disability that affects how easily children acquire written language and how well they use written language to express their thoughts. Dysgraphia is a Greek word. The base word graph refers both to the hand's function in writing and to the letters formed by the hand. The prefix dys indicates that there is impairment. Graph refers to producing letter forms by hand. The suffix ia refers to having a condition. Thus, dysgraphia is the condition of impaired letter writing by hand, that is, disabled handwriting and sometimes spelling. Impaired handwriting can interfere with learning to spell words in writing. Occasionally, but not very often, children have just spelling problems and not handwriting or reading problems.*

Authors' note: Dysgraphia affects letter formation, word/sentence dictation, and writing fluency. In turn, these deficits cause difficulties with spelling and written expression. According to research, the major cognitive correlates of dysgraphia include weaknesses in orthographic awareness and graphomotor function. Other cognitive and linguistic possible contributing factors include phonological awareness, memory, rapid automatized naming, and processing speed. Other abilities, such as general intelligence, reasoning, oral language, reading, mathematics, and knowledge, that do not require writing, are often unimpaired. In other words, the writing and spelling difficulties are often unexpected in relation to the student's other abilities.

## Section I: Summary

### A. Primary and Secondary Spelling and Writing Difficulties

Check the areas of concern.

Primary Writing Difficulties		Secondary Spelling and Writing Difficulties	
<input type="checkbox"/> Letter formation <input type="checkbox"/> Handwriting <input type="checkbox"/> Size <input type="checkbox"/> Spacing <input type="checkbox"/> Legibility <input type="checkbox"/> Dictation <input type="checkbox"/> Timed <input type="checkbox"/> Untimed <input type="checkbox"/> Writing Fluency <input type="checkbox"/> Accuracy <input type="checkbox"/> Fluency		<input type="checkbox"/> Spelling <input type="checkbox"/> in isolation <input type="checkbox"/> in context <input type="checkbox"/> Spelling letter sounds <input type="checkbox"/> Written expression	
<b>B. Cognitive and Linguistic Abilities: Possible Contributing Factors</b> Check the areas that are possible contributing factors.			
<input type="checkbox"/> Orthographic awareness <sup>1</sup> <input type="checkbox"/> Graphomotor Function <sup>2</sup>	<input type="checkbox"/> Phonological awareness <sup>3</sup> <input type="checkbox"/> Blending <input type="checkbox"/> Segmentation	<input type="checkbox"/> Memory <input type="checkbox"/> Working memory <input type="checkbox"/> Associative memory	<input type="checkbox"/> Rapid automatized naming <input type="checkbox"/> Processing speed
<b>C. Ability to Learn When Writing is Not Required</b> Check the areas that are significantly higher than the individual's spelling and writing skills.			
<b>Cognitive Abilities</b> <input type="checkbox"/> General intelligence <input type="checkbox"/> Reasoning	<b>Oral Language</b> <input type="checkbox"/> Oral expression <input type="checkbox"/> Listening comprehension <input type="checkbox"/> Vocabulary <sup>3</sup>	<b>Reading</b> <input type="checkbox"/> Basic Reading <input type="checkbox"/> Reading Comprehension	<b>Mathematics</b> <input type="checkbox"/> Calculation <input type="checkbox"/> Problem solving
		<b>Knowledge</b> <input type="checkbox"/> General knowledge <input type="checkbox"/> Academic knowledge	

## Committee Consideration

- ☐ Data demonstrate characteristics of dysgraphia.
 ☐ Data demonstrate characteristics of dysgraphia; however, these characteristics would not be consistent with TEA guidelines for the identification of dysgraphia.

Evaluator(s) \_\_\_\_\_ Date: \_\_\_\_\_

# Dysgraphia Profile – Overall Report

(Proctor, 2020)

# Dysgraphia Profile – Overall Report

## Committee Consideration

- ☐ Data demonstrate characteristics of dysgraphia.
- ☐ Data demonstrate characteristics of dysgraphia; however, these characteristics would not be consistent with TEA guidelines for the identification of dysgraphia.
- ☐ Data do not demonstrate characteristics of dysgraphia.



Determination of Characteristics of Dysgraphia for Committee Consideration	Document in the Determination of Disability Condition section of the FIE.	DETERMINATION	
		<p>_____ has received effective classroom instruction and has had adequate sociocultural opportunities. Thus, based on multiple sources of data, _____'s academic weaknesses and related cognitive ability weaknesses are unexpected in relation to his/her ability to learn when writing is not required (e.g., general intelligence, reasoning and knowledge, oral language, reading, math, and/or academic knowledge). Therefore, _____ demonstrates characteristics of dysgraphia.</p>	
		OR	
		<p>_____ has received effective classroom instruction and has had adequate sociocultural opportunities. However, based on multiple sources of data, her/his academic weaknesses and related cognitive ability weaknesses are not unexpected. _____'s poor academic performance in writing is related to poor ability to learn when writing is not required (e.g., general intelligence, reasoning and knowledge, oral language, reading, math, and/or academic knowledge). Therefore, _____ does not demonstrate characteristics of dysgraphia.</p>	
		OR	
		<p>_____ has not had consistent effective classroom instruction in writing (document events). Therefore, based on multiple sources of data, _____ does not meet Texas Education Agency guidelines for the identification of dysgraphia at this time.</p>	
OR			
<p>_____ (document events); thus, s/he has not had the sociocultural opportunities to acquire an adequate education compared to same age/grade peers attending general education. Therefore, based on multiple sources of data, _____ does not meet Texas Education Agency guidelines for the identification of dysgraphia at this time.</p>			



# Woodcock-Muñoz Language Survey III

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**Assessing Dysgraphia Using the  
WMLS III**

# Overview of WMLS III

Provides a broad sampling of academic language proficiency in the areas of:

- Listening
  - Speaking
  - Reading
  - Writing
  - English or Spanish Language Ability
- Oral Language  
Reading-Writing  
Comprehension

Appropriate for use with *ages 3 through 22 years* of age  
Available in **English and Spanish**



## Woodcock-Muñoz Language Survey III

- Test Books: English Form A & B, Spanish Form
- Test Record
- Response Booklet
- Audio Recording
  - In online scoring & reporting program
- Comprehensive Manual
- Online Scoring & Reporting
- Online training video




## Components

### *WMLS III Online Parent and Teacher Intervention System*






# WMLS III Tests in English and Spanish

## English A & B

1. Analogies
2. Oral Comprehension 
3. Picture Vocabulary
4. Oral Language Expression
5. Letter-Word Identification
6. Passage Comprehension
7. Dictation 
8. Written Language Expression 

## Spanish

1. Analogías
2. Comprensión oral 
3. Vocabulario sobre dibujos
4. Expresión de lenguaje oral
5. Identificación de letras y palabras
6. Comprensión de textos
7. Dictado 
8. Expresión de lenguaje escrito 



## WMLS III Structure

- Designed to provide 2 tests for each language domain—one test of *basic or foundational skills* and one test of skill *application or functional skills*:
  - Listening
  - Speaking
  - Reading
  - Writing
- The Comprehension cluster is designed to measure functional skills in listening comprehension and reading comprehension

# WMLS III: English Selective Testing Table

	Listening and Speaking					Reading and Writing					Cross-Domain Clusters			
	Listening	Speaking	Broad English Oral Language	Basic English Oral Language	Applied English Oral Language	Reading	Writing	Broad Reading and Writing	Basic Reading and Writing	Applied Reading and Writing	Comprehension	Broad English Language Ability	Basic English Language Ability	Applied English Language Ability
Test 1: Analogies	■		■	■								■	■	
Test 2: Oral Comprehension	■		■		■						■	■		■
Test 3: Picture Vocabulary		■	■	■								■	■	
Test 4: Oral Language Expression		■	■		■							■		■
Test 5: Letter-Word Identification						■		■	■			■	■	
Test 6: Passage Comprehension						■		■		■	■	■		■
Test 7: Dictation							■	■	■			■	■	
Test 8: Written Language Expression							■	■		■		■		■

■ Tests required to create the cluster listed.

# WMLS III: Spanish Selective Testing Table

	Escuchar y hablar					Leer y escribir					Cross-Domain Clusters			
	Escuchar	Hablar	Lenguaje oral amplio en español	Lenguaje oral básico en español	Lenguaje oral aplicado en español	Leer	Escribir	Lectura y escritura amplias en español	Lectura y escritura básicas en español	Lectura y escritura aplicadas en español	Comprensión	Habilidad amplia de lenguaje en español	Habilidad básica de lenguaje en español	Habilidad aplicada de lenguaje en español
Prueba 1: Analogías	■		■	■								■	■	
Prueba 2: Comprensión oral	■		■		■						■	■		■
Prueba 3: Vocabulario sobre dibujos		■	■	■								■	■	
Prueba 4: Expresión de lenguaje oral		■	■		■							■		■
Prueba 5: Identificación de letras y palabras						■		■	■			■	■	
Prueba 6: Comprensión de textos						■		■		■	■	■		■
Prueba 7: Dictado							■	■	■			■	■	
Prueba 8: Expresión de lenguaje escrito							■	■		■		■		

■ Tests required to create the cluster listed.

# WMLS III: Tests to Assess *Basic Skills*

Listening    Test 1: Analogies / Analogías

Speaking    Test 3: Picture Vocabulary / Vocabulario sobre dibujos

Reading    Test 5: Letter-Word Identification / Identificación de letras y palabras

Writing    Test 7: Dictation / Dictado

# WMLS III: Tests to Assess *Applied Skills*

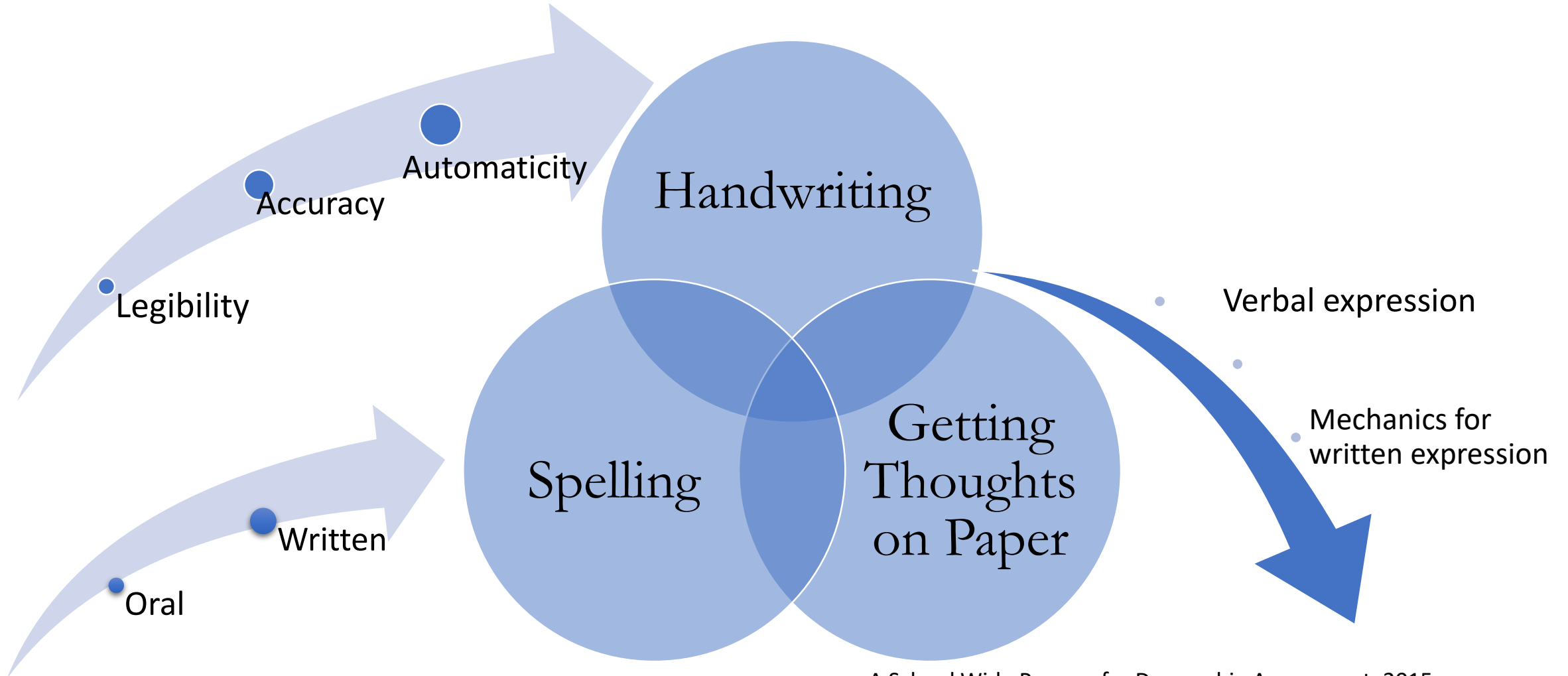
Listening    Test 2: Oral Comprehension / Comprensión oral

Speaking    Test 4: Oral Language Expression / Expresión de lenguaje oral

Reading    Test 6: Passage Comprehension / Comprensión de textos

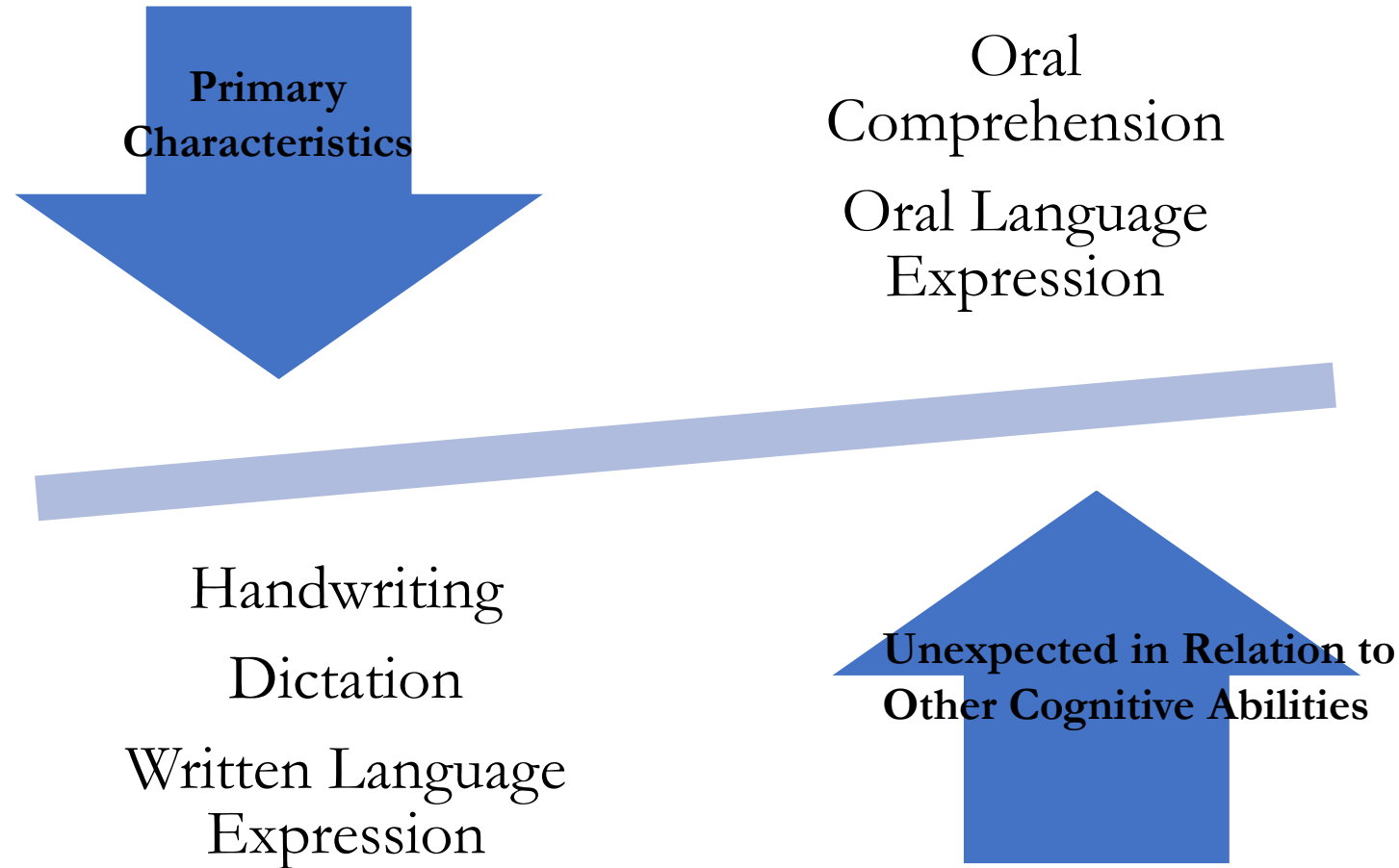
Writing    Test 8: Written Language Expression / Expresión de lenguaje escrito

# Dysgraphia Assessment



A School Wide Process for Dysgraphia Assessment, 2015

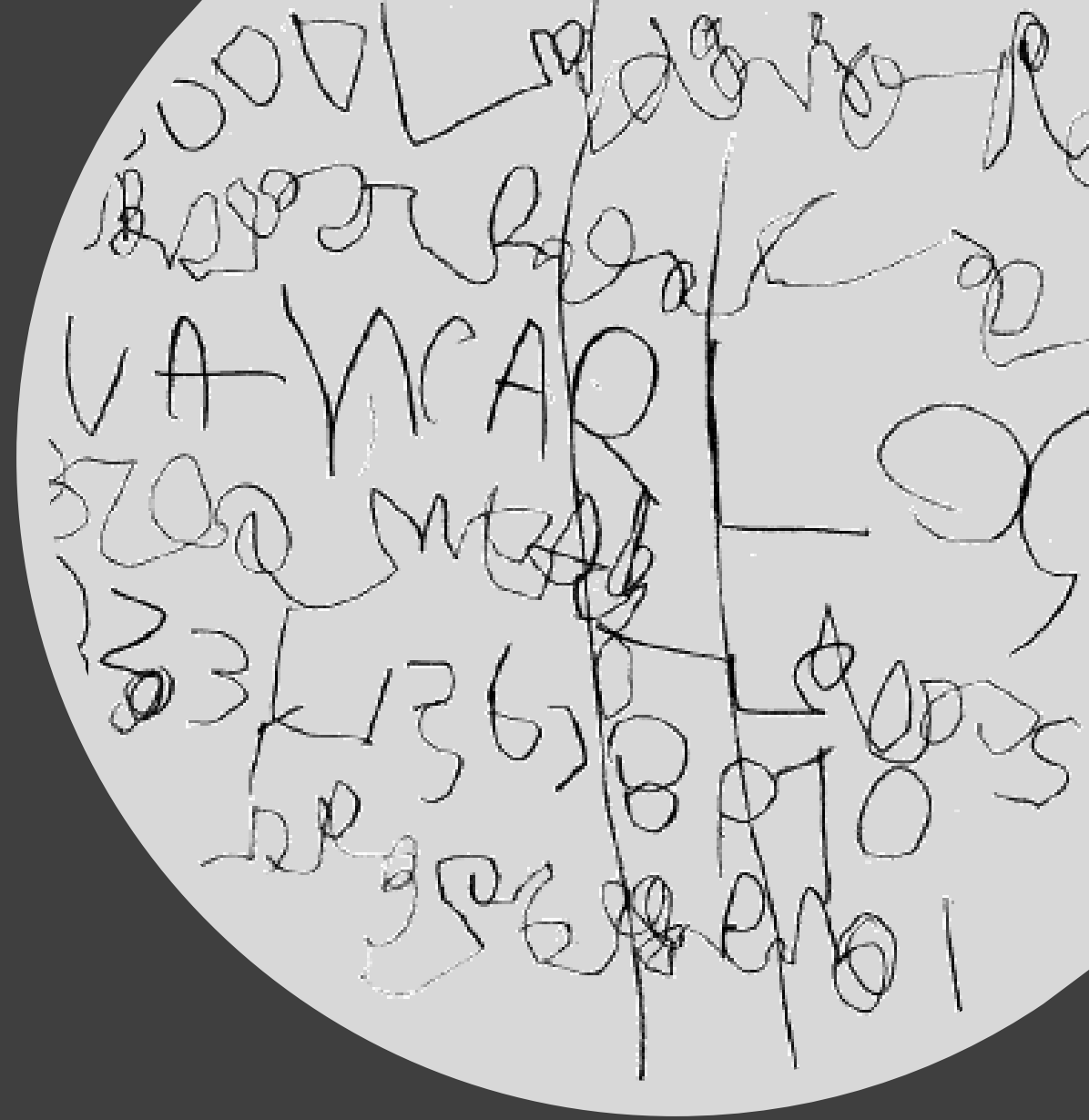
# Dysgraphia Evaluation and the WMLS III



# Primary Characteristics

“The impaired handwriting may interfere with spelling...”

Berninger & Wolf (2016)





# Primary Characteristics

- “Impaired letter form production which impairs handwriting that in turn may interfere with learning to spell.”
- Typically evident when handwriting and spelling are first taught explicitly in kindergarten or first grade.”

Berninger, Richards, Abbott (2015)



# Primary Characteristics

“...the deficient transcription skills (handwriting and spelling) compromise the higher-level processes in written composition.”

V. Berninger (2004)



# WMLS III: Writing Tests

## Dictation

### Basic Skills

25. (S) **Number twenty-five. Write the word *jump*. I like to jump. Jump.**

▲ **Correct:** jump



walked  
up  
stairs

26. (P) **Number twenty-six. Make an exclamation point.**

▲ **Correct:** ! (exclamation point; must be dotted)

27. (S) **Number twenty-seven. Write the word *are*. You are my best friend. Are.**

▲ **Correct:** are



girl  
baby  
kissed

28. (S) **Number twenty-eight. Write the word *under*. Look under the bed. Under.**

▲ **Correct:** under

## Written Language Expression

### Applied Skills

**Number thirteen. Look at the picture and the words *walked, up, stairs* (present one word per second). Use these words and any others you need to write a good sentence about the picture. You can use the words in any order but do not change the words in any way.**

▲ **Correct:** uses stimulus words without changing their form in a complete, coherent sentence and mentions something about the picture

**Examples:** (1) The lady walked up the stairs.  
(1) That Grandma walked upstairs.  
(0) I waked up the stairs. (*misspelling forms real word*)  
(0) Walked up stairs. (*incomplete sentence*)

**Number fourteen. Look at the picture and the words *girl, baby, kissed* (present one word per second). Use these words and any others you need to write a good sentence about the picture. You can use the words in any order but do not change the words in any way.**

▲ **Correct:** uses stimulus words without changing their form in a complete, coherent sentence and mentions something about the picture

**Examples:** (1) The girl kissed the baby.  
(1) The mom kissed the baby girl.  
(0) She kissed the baby. (*omitted stimulus word*)  
(0) baby kissed girl (*incomplete sentence*)

# Dysgraphia Evaluation and the WMLS III

- Opportunity for evaluator to collect qualitative data for legibility:
  - What hand does the child use for writing?
  - Is the pencil held in an appropriate grasp?
  - Is appropriate tension used in holding the pencil?
  - Is the paper positioned correctly on the writing surface for right or left-handed writing?
  - Is the non-writing hand used to anchor the paper?
  - Is posture correct?

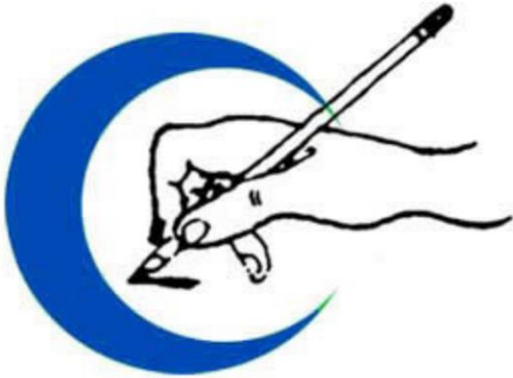
R. Cicci (1995)

# Dysgraphia Evaluation and the WMLS III

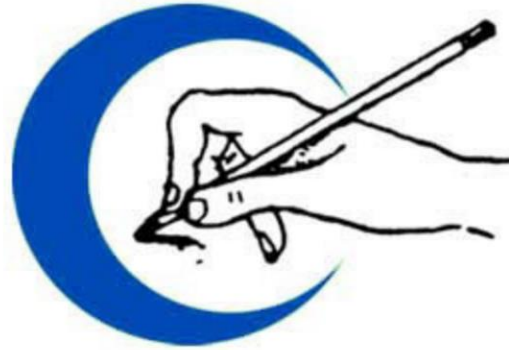
- Legible handwriting includes the following characteristics:
  - Letter formation
  - Size
  - Spacing
  - Line quality
  - Slant
  - Alignment

Mather, Wendling, & Roberts (2009)

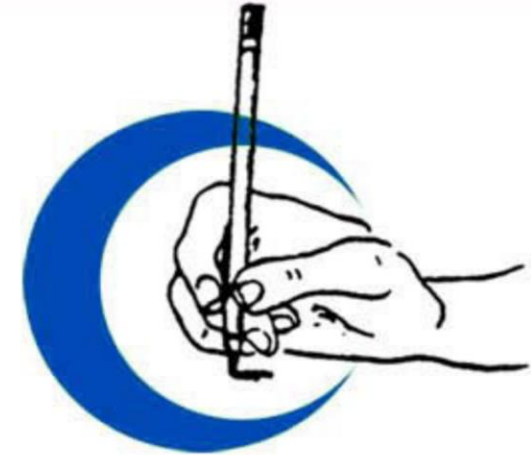
## Correct



1. The pencil rests on the first joint of the middle finger with the thumb and index fingers holding the pencil in place.



2. Same as Figure 1, except the fingers are closer to the pencil point.



3. Same as Figure 1, except the pencil is held perpendicular to the table.

## Incorrect



# Dysgraphia Evaluation and the WMLS-III

- Opportunity for evaluator to collect qualitative data for motor memory:
  - Writing is often slow, hesitant, and labored
  - Inconsistent letter formations
  - Frequent crossing out or erasures
  - Reduced legibility

M. Levine (2002)

# Dysgraphia Evaluation and the WMLS-III

- Opportunity for evaluator to collect qualitative data for motor implementation:
  - Writing with the elbow rather than fingers
  - Writing may be slow and labored
  - Writing may be difficult to read

M. Levine (2002)



# Dysgraphia Evaluation and the WMLS-III

- Opportunity for evaluator to collect qualitative data for motor feedback:
  - Some students compensate by keeping eyes very close to the page to visually monitor the pencil point
  - Some students may use their larger joints (wrist) demonstrating an uncomfortable pencil grip
  - Some students may use excessive pressure causing hand to tire or cramp
  - Some students may produce legible handwriting at a reduced rate

M. Levine (2002)

# Unexpected in Relation to Other Cognitive Abilities

“Dysgraphia is a specific dissociation in the functional writing system of individuals whose overall motor, sensory, language, cognitive, and social/emotional development is in the normal range for age, but their transcription skills (handwriting and spelling) are significantly underdeveloped compared to verbal reasoning and ability to generate ideas; ...”

V. Berninger (2004)

# WMLS III: Listening Tests

## Analogies

### Basic Skills

18. **On is to start, as off is to ...** (pause).  
▲ **Correct:** stop, end, finish  
▼ **Incorrect:** on, dark, go, turn off  
Q **Query:** shut down—**Tell me another answer.**
19. **Food is to hunger, as water is to ...** (pause).  
▲ **Correct:** thirst  
▼ **Incorrect:** drink, hydrate, thirsty
20. **Shirt is to coat, as sock is to ...** (pause).  
▲ **Correct:** shoe, boot  
▼ **Incorrect:** wear



## Oral Comprehension

### Applied Skills

2. **My mommy reads me a \_\_\_\_\_.**  
▲ **Correct:** book, story
3. **A duck quacks, but a dog \_\_\_\_\_.**  
▲ **Correct:** barks, ruffs, woofs
4. **Games are to play; books are to \_\_\_\_\_.**  
▲ **Correct:** read, look at

# WMLS III: Speaking Tests

## Picture Vocabulary

### Basic Skills



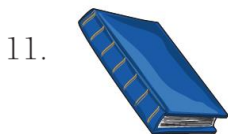
Point to picture on examinee's page and say: **What is this?**

▲ **Correct:** apple



Point to picture and say: **What is this?**

▲ **Correct:** frog, froggy, toad



Point to picture and say: **What is this?**

▲ **Correct:** book

## Oral Language Expression

### Applied Skills

18.



Point to picture and say: **Use the word *gliding* in a complete sentence that tells about the picture. Do not change the word in any way. Gliding.**

▲ **Correct:** uses stimulus word without changing its form in a complete, coherent sentence and mentions something about the picture

**Example:** We saw the eagle gliding overhead.

19.



Point to picture and say: **Use the word *shivering* in a complete sentence that tells about the picture. Do not change the word in any way. Shivering.**

▲ **Correct:** uses stimulus word without changing its form in a complete, coherent sentence and mentions something about the picture

**Example:** She was all bundled up, but she was still shivering.

# Summary

- Dysgraphia is defined as a **language based, neurological, written language disorder** manifested by *illegible and/ or inefficient handwriting due to difficulty with letter formation*
- Comorbidity may exist with dyslexia and/ or ADHD
- Integration of formal and informal data is necessary to adequately assess for dysgraphia
- The C-SEP framework can be used to drive the assessment process
- The WMLS III, WJ IV, or Bateria IV can be utilized within a comprehensive dysgraphia evaluation

# Recommendations

## SUGGESTED RESOURCES:

- National Handwriting Association [www.nha-handwriting.org.uk](http://www.nha-handwriting.org.uk)
  - The Dyslexia Handbook: Procedures Concerning Dyslexia and Related Disorders 2018 Update by Texas Education Agency [https://tea.texas.gov/sites/default/files/2018-Dyslexia-Handbook Approved Accomodated 12 11 2018.pdf](https://tea.texas.gov/sites/default/files/2018-Dyslexia-Handbook%20Approved%20Accommodated%2012%2011%202018.pdf)
  - Understanding Dysgraphia Fact Sheet by the International Dyslexia Association (2013) <https://dyslexiaida.org/understanding-dysgraphia/>
- Core-Selective Evaluation Process <https://csep.online/>

# Contact Information:

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# Questions????





# Resources

- Berninger, V., & Wolf, B. (2016). Dyslexia, Dysgraphia, OWL LD, and Dyscalculia: Lessons from Science and Teaching (2<sup>nd</sup> Edition). Baltimore, Maryland: Paul H. Brookes Publishing.
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- Berninger, V. (2004). Understanding the graphia in dysgraphia. In D. Dewey & D. Tupper (Eds.), *Developmental motor disorders: A neuropsychological perspective*. New York: Guilford.

# Resources

- Levine, M. (2002). Educational care: *A system for understanding and helping children with learning differences at home and in school*, 2<sup>nd</sup> Edition. Cambridge, MA: Educators Publishing Service.
- Mather, N., Wendling, B., & Roberts, R. (2009). Writing assessment and instruction for students with learning disabilities (2<sup>nd</sup> ed.) San Francisco: Jossey-Bass.
- Proctor, C. (2020). *Dysgraphia Profile Report*
- Stephens-Pisecco, T., Schultz, E., Moon, G., & Holman, S. (2018). *Core-selective evaluation process: Overview and Procedures*. Amazon.com
- The International Dyslexia Association, Fact Sheet #982, *Dysgraphia*