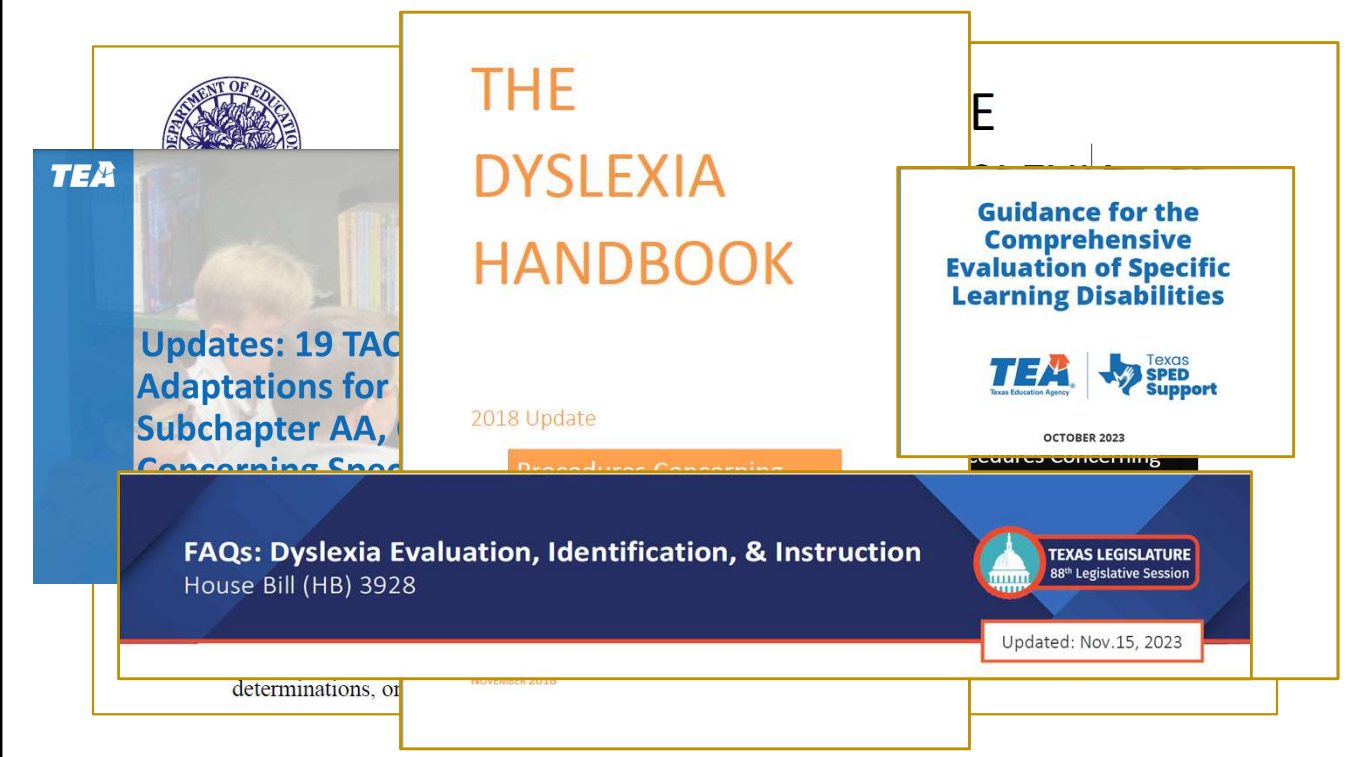


# The Lesser-Known Specific Learning Disability

## How to Evaluate and Program for Dysgraphia

Mertie M. Gomez, PhD

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DEPARTMENT OF EDUCATION

**TEA**

Updates: 19 TAC Adaptations for Subchapter AA, Concerning Spec

**THE DYSLEXIA HANDBOOK**

2018 Update

Procedures Concerning

**Guidance for the Comprehensive Evaluation of Specific Learning Disabilities**

**TEA** | Texas SPED Support

OCTOBER 2023

Procedures concerning

**FAQs: Dyslexia Evaluation, Identification, & Instruction**  
House Bill (HB) 3928



TEXAS LEGISLATURE  
88<sup>th</sup> Legislative Session

Updated: Nov.15, 2023

determinations, or

November 2023


2


## THE DYSLEXIA HANDBOOK

Procedures Concerning  
Dyslexia and Related Disorders  
**2024 Update**

TEXAS STATE BOARD OF EDUCATION  
APRIL 2024



**FAQs: Dyslexia Evaluation, Identification, & Instruction**  
House Bill (HB) 3928




## THE TEXAS DYSLEXIA HANDBOOK: FREQUENTLY ASKED QUESTIONS (FAQs)

This document represents frequently asked questions (FAQs) received by the Texas Education Agency (TEA) in relation to the State Board of Education's (SBOE's) [Dyslexia Handbook: Procedures Concerning Dyslexia and Related Disorders, 2024 Update](#) (Handbook). This FAQ is attached to the electronic PDF version of the Handbook as a courtesy to the reader, but it is not a document approved by the SBOE. This FAQ is a guidance document prepared by TEA. It does not constitute an administrative rule and thus does not impose any requirements beyond those required under applicable law, rules, and regulations. The intent is to offer general assistance to local educational agencies (LEAs) in implementing the Handbook. For additional technical assistance related to dyslexia and other specific learning disabilities (SLDs), see Texas SPED Support at [spedsupport@tea.texas.gov](mailto:spedsupport@tea.texas.gov).


[The Dyslexia Handbook on TEA's Dyslexia and Related Disorders webpage.](#)

This FAQ is informational only and not intended as, nor should it be considered as, providing legal advice. For legal advice on specific implementation issues, please consult an attorney.


AUGUST 2024




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# TEA Dyslexia Handbook (2024)




**Chapter 1**  
Definitions and Characteristics




**Chapter 2**  
Screening



**Chapter 3**  
Evaluation and Identification



**Chapter 4**  
Components of Dyslexia Instruction



**Chapter 5**  
Dysgraphia

4



# Definitions

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## Dysgraphia Definition (TEA, 2024)

A review of recent evidence indicates that dysgraphia is best defined as a neurodevelopmental 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) (Berninger, 2015). 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.

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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**“Without data, you’re just another person with an opinion.”**

**W. Edwards Deming**

7



**Guidance**

8



## 34 CFR 300.8 (c)(10) & TAC § 89.1040 (9)(A)

“Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

(ii) Disorders not included. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage.”

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## FAQs HB 3928: Dyslexia Evaluation, Identification, & Instruction (Updated 11/15/23)

### Impact on Related Disorders

Updated  
11/15/23


**23. Will the bill have the same impact on dysgraphia, which is the related disorder recognized by the state when referring to dyslexia and related disorders?**

The bill primarily addresses dyslexia. However, **it is reasonable to interpret most or all of the bill’s requirements as applying to suspicions of, evaluation for, and instruction for dysgraphia, as it is an SLD.** Dysgraphia and dyslexia are both language-based disorders, and dysgraphia is unique from the general description of the SLD area of written expression in that it can involve both motor and language skills. While the required MDT and ARD committee member for a student suspected or identified with dyslexia is mandated as described in HB 3928, a suspicion of dysgraphia and a corresponding suspicion of the need for SDI will also require knowledgeable members on the MDT and ARD committee as a required component of the Child Find and evaluation process. These members would likely include occupational therapists and diagnosticians or other appropriate personnel who have the expertise to address all required areas of evaluation for dysgraphia that are identified in the Handbook.

<https://tea.texas.gov/academics/special-student-populations/special-education/hb-3928-faqs.pdf>

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**THE TEXAS FREQUENT**

This document represents free Agency (TEA) in relation to the State Concerning Dyslexia and Related Disorders. This is the electronic PDF version of the approved by the SBOE. This FAQ is an administrative rule and thus applicable law, rules, and regulations agencies (LEAs) in implementing and other specific learning disabilities.

[The Dyslexia Handbook](#)

This FAQ is informational only and not intended as, nor should it be considered as, providing legal advice. For legal advice on specific implementation issues, please consult an attorney.

### 3. How do we categorize dysgraphia within the eight SLD areas listed in 34 CFR 300.309(a)(1)(i)-(vii) in an evaluation and an IEP?

Dysgraphia, as described in the Handbook, is a neurodevelopmental disorder characterized by illegible and/or inefficient handwriting due to difficulty with letter formation. It goes on to state the difficulty is the result of deficits in graphomotor function (hand movements used for writing) and/or storing and retrieving orthographic codes (letter forms).


TEA often gets questions in relation to how to document dysgraphia within the eight SLD areas listed in federal regulations and in [19 TAC §89.1040](#). Those areas are oral expression, listening comprehension, written expression, basic reading skills, reading fluency skills, reading comprehension, mathematics calculation, and mathematics problem solving. The question primarily comes up since the Handbook description of dysgraphia says that secondary consequences of dysgraphia *may* include problems with spelling and written expression.

For purposes of state data collection on student eligibility for special education and related services, only the category of SLD is reported. The area of SLD difficulty is not reported. However, most LEAs use IEP programs that document the area of SLD difficulty. To that end, as mentioned in the question about related disorders in the Chapter 1 section, there is nothing that would prohibit an MDT or an ARD committee from using the term dysgraphia as *the* SLD for which a student qualifies for special education and related services.

Therefore, dysgraphia could be added to the list of SLD areas for LEAs to indicate through their IEP programs as *the* SLD for which a student is eligible. To the extent that is not done, dysgraphia would fit within the area of written expression. Whereas written expression is generally referred to as the ability to communicate thoughts and ideas through writing, the area of written expression should also be viewed as including illegible and/or inefficient handwriting due to difficulty with letter formation, which is caused by deficits in graphomotor function (hand movements used for writing) and/or storing and retrieving orthographic codes (letter forms). In other words, the area of written expression for purposes of the area of SLD eligibility includes handwriting, writing fluency, and spelling.

Texas Education Agency

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**THE TEXAS DYSLEXIA HANDBOOK:**


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and other specific learning disabilities (SLDs), see Texas SPEU Support at [speusupport.tea.texas.gov](https://speusupport.tea.texas.gov).

[The Dyslexia Handbook on TEA's Dyslexia and Related Disorders webpage.](#)

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AUGUST 2024



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## Filling the Buckets of Dysgraphia Evaluation


WEAKNESSES WEAKNESSES STRENGTHS (multiple data sources)

What is the pattern (P)?

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# Academics

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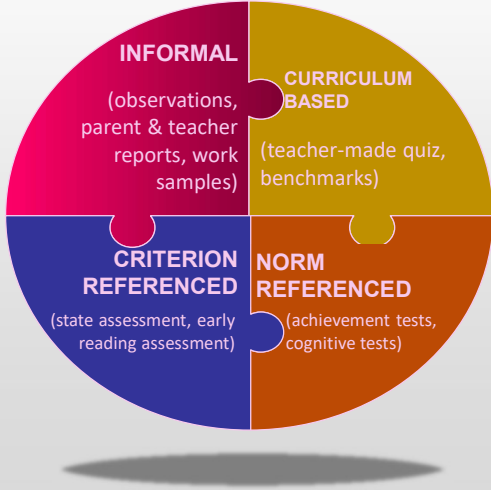
# Academics for Dysgraphia Assessment

**Manifested by**

- **Handwriting Legibility/Letter Formation**
- **Handwriting Automaticity (rate & accuracy)**

**Impacts**

- **Word & Sentence Dictation**
- **Copying Tasks (rate & endurance)**
- **Spelling**
- **Written Expression (quantity, quality, vocabulary)**
- **Writing Fluency (both accuracy and fluency)**



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## Formal Academic Data Sources

Skill	Test Battery	Subtest
Letter Formation (Handwriting Legibility - L)	PAL-II RW THS-R The Print Tool	Handwriting Total Legibility Composite Letters from Memory Measures print skills
Handwriting Automaticity (A)	PAL-II RW PAL-II RW	Handwriting Total Automatic Legibility Composite (L & A) Handwriting Total Time Composite (A)
Word & Sentence Dictation	THS-R	Letter Dictation
Copying Tasks (rate & endurance)	PAL-II RW THS-R FAW	Copy Tasks A & B – Time, Legibility, Accuracy Copy Tasks – Letters, Words, Sentences Copying Speed
Written Expression (quality & quantity)	PAL-II RW PAL-II RW WIAT-4 KTEA-3 WJIV ACH FAW	Expository Report Writing Quality Expository Report Writing Organization Written Expression Written Expression Written Expression Expository Writing
Spelling	WIAT-4 KTEA-3 WJIV ACH	Spelling Spelling Spelling
Writing Fluency (both accuracy and fluency)	PAL-II RW	Narrative Compositional Fluency Number of Words

\*Not an exhaustive list

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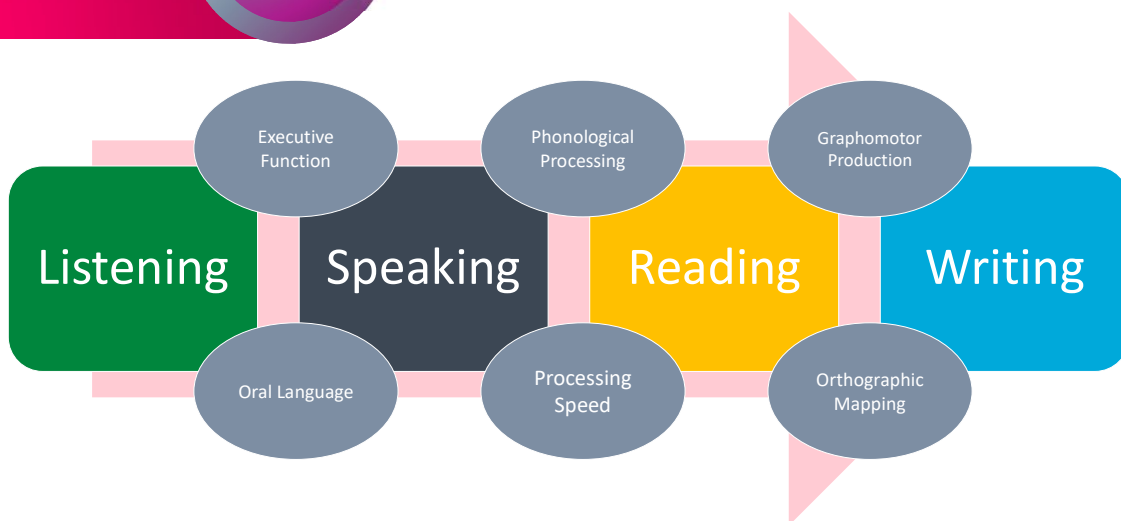


# Background

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## Language Continuum



Lee, C. (2019). *Dysgraphia assessment*. Austin, TX: TEA.

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## Screening (p. 15)

### Other Related Disorders

It is important to note that, while TEC §38.003 requires that all students in kindergarten and grade 1 be screened for dyslexia and related disorders, at the time of the update to this handbook it was determined there are no grade-level appropriate screening instruments for dysgraphia and the other identified related disorders. For more information, please see Chapter 5: Dysgraphia.

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.



## Writing Checklist

### Writing Checklist

Student ID/Name: \_\_\_\_\_ Grade: \_\_\_\_\_ Date: \_\_\_\_\_ Person completing form: \_\_\_\_\_

**Step 1:** Gather two to three authentic writing samples for review. Note date and subject area where work was completed.  
**Step 2:** Rate student's performance relative to same-age peers by placing a check in the appropriate boxes below.

Areas	Impaired	Below Average	Average	Above Average	Superior
Handwriting					
Spelling					
Written Expression					
Oral Language					
Self-Management Skills					

- Step 3:** Check concerns (relative to same age peers) below. If not observed, write N/O.
- Demonstrates poor stamina and/or frustration when writing (circle appropriate observations)
  - Demonstrates an awkward or unusual pencil grip and/or wrist position when writing
  - Complains about hand discomfort when writing
  - Makes a significant number of spelling errors on grade level words
  - Erases excessively
  - Writes unfinished letters
  - Produces generally illegible writing
  - Makes irregular/inconsistent letter sizes/formations/slant (circle appropriate observations)
  - Demonstrates difficulty tracing or staying in the lines
  - Writes letters/words with irregular spacing
  - Writes with a mixture of upper and lower-case letters (inappropriately)
  - Writes with inconsistent pressure (i.e. - too light/dark, pencil tears in paper from heavy pressure)
  - Misuses lines and margins
  - Writes too small or too large for reading (circle one)
  - Makes letter and/or number reversals (\*reversals are common for students in Kinder- end of first grade)
  - Writes unusually slowly or appears to be rushing or racing

### Table for Determining Writing Speed

To determine the number of words written per minute, time student for one minute and add up all letters composed (letter reversals can be counted but note writing difficulties anecdotally). Divide the number of letters written per minute by five to obtain the number of words written per minute. Note that fluency for written production may be slightly slower than rate for sentence copy or dictation tasks.

FORMULA:  $\frac{\text{LPM}}{5} = \text{WPM}$

Grade Level	1	2	3	4	5	6	7	8
Words Per Minute	4-5	6-7	7-10	8-13	10-15	12-17	14-20	16-23

#### References:

- Amundson, S. J. (1995). *Evaluation tool of children's handwriting*. O.T.Kids, P.O. Box 1118, Homer, Alaska 99603.
- Graham, S. (1990). The role of production factors in learning disabled students' compositions. *Journal of Educational Psychology*, 82, 781-791.
- Graham, S., Berninger, V., Weintraub, N., & Shafer, W. (1998). Development of handwriting speed and legibility in grades 1-9. *Journal of Educational Research*, 92, 42-52.

#### Task 1: Name and Date (K-12<sup>th</sup>)

E: Please write your first and last name on the line. (Indicate/point where to write name; prompt student to write last name if he/she only writes first.)

#### Task 2: Alphabet Sequence (K-12<sup>th</sup>) $\frac{\text{LPM}}{5} = \text{WPM}$

E: Please write the letters of the alphabet in order when I say go. If you finish before I tell you to stop, start over. Please write in lowercase. If you do not know how to form the letter in lowercase, write it in uppercase. Write in print. If you don't know a letter, you can skip it and go on the next. You will have one minute. (Say go & start timer; if student pauses for more than five seconds on a letter, ask him to go to the next letter he/she knows.)

- Take notes below on alphabet sequence performance:

#### Task 3: Best Sentence Copy (K-12<sup>th</sup>) $\frac{\text{LPM}}{5} = \text{WPM}$

E: Please look at this sentence. (Point to sentence on student page.) Copy the sentence in your best handwriting when I say go. If you finish before I tell you to stop, start over and write the sentence again. (Say go & start timer.)

- Take notes below on sentence copy performance:

Lee, C. (n.d.). *Writing Checklist*.

Handwriting Rate Averages for Various Conditions							
Grade	Age	Alphabet by Memory		Copying		Composing (Free write)	
		LPM	WPM	WPM	WPM	WPM Best	WPM
1				5	3-4		
2				6	6-7		
3				7	9-10		
4	9	42.04		8	12-13	12	11.45
5	10	47.32	7-10	10	14-15	13.75	13.9
6	11	54.76		12	16-18	17.5	17.1
7	12	55.44		14	18-22	19.5	18.6
8	13	67.73		16	22-24	20	21.5
9	14	70.45			23-24	21.5	22.7
	15	73.45				23.25	23.3
	16	75.08				23	23.6
		(2007) Barnett, Henderson, Scheib, Schulz	(1986) Findeque, Smith, Sullivan	(1995) Amundson	(1998) Graham, Berninger, Weintraub	(2007) Barnett, Henderson, Scheib, Schulz	(2007) Barnett, Henderson, Scheib, Schulz


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## Considerations when Analyzing Data from Different Types of Writing Conditions/Tasks

- **Alphabet from Memory speed** - "automatic letter writing is the single best predictor of length and quality of written composition in the primary grades and in the secondary years"
- **Copying speed** provides a basis of comparison for motor speed. It does not draw from orthographic memory.
- **Dictation speed** is somewhat slower than copying because it draws from orthographic memory. (no research on dictation speed averages)
- **Composition speed** is slower than copying speed because it requires access to content/ideas, executive function skills, and orthographic memory.
- There is a ceiling for handwriting speed because as speed increases, legibility decreases.
- When typing speed > composition speed it is generally more efficient for the student to type.
- Calculation of Words Per Minute (WPM) = Letters Per Minute (LPM) divided by 5

• Findeque, A., Smith, M. & Sullivan, G. (1986). Keyboarding: The issues today. Proceedings of the 5th Annual Extending the Human Mind Conference. University of Oregon.  
 • Graham, S. (1990). The role of production factors in learning disabled students' compositions. *Journal of Educational Psychology*, 82, 781-791.  
 • Pisha, B. (1993). Rates of development of keyboarding skills in elementary aged children with and without learning disabilities. Retrieved August 23, 2003, from [www.cast.org](http://www.cast.org)  
 • Amundson, S. J. (1995). Evaluation tool of children's handwriting. O.T. Kids, P. O. Box 1118, Homer, Alaska 99603.  
 • Graham, S., Berninger, V., Weintraub, N., & Schafer, W. (1998) Development of handwriting speed and legibility in grades 109. *Journal of Educational Research*, 92(1), 42-52.  
 • Barnett, A., Henderson, L., Scheib, B. and Schulz, C. (2007) Detailed Assessment of Speed of Handwriting (DASH) Copy Best and Fast. Pearson, London.  
 • [https://www.montgomeryschoolsmd.org/departments/hiat/resources/handwriting\\_speeds.pdf](https://www.montgomeryschoolsmd.org/departments/hiat/resources/handwriting_speeds.pdf)  
 • [https://www.giat.org/docs/resourcebank/hwiring\\_kybdng\\_rate\\_info.pdf](https://www.giat.org/docs/resourcebank/hwiring_kybdng_rate_info.pdf)  
 • Summary of Recent Research, Decoste Writing Protocol, p.109 - (Graham, Berninger, Abbott, Abbott & Whitaker, 1997) and (Peverly 2006, Connelly et al., 2006).

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## Dysgraphia is not. . . (p. 55-56)

If the presence of one of the following conditions would be the best explanation as the cause of difficulties with handwriting legibility and efficiency, then it is not unexpected for the student.

- ✓ 1 Evidence of a damaged motor nervous system
- ✓ 2 Part of a developmental disability that has fine motor deficits (e.g., intellectual disability, Autism, cerebral palsy)
- ✓ 3 Secondary to a medical condition (e.g., meningitis, significant head trauma, brain trauma)
- ✓ 4 Association with generalized developmental motor or coordination difficulties (Developmental Coordination Disorder)
- ✓ 5 Impaired spelling or written expression with typical handwriting (legibility and rate) (Berninger, 2004) because dysgraphia by definition is a neurodevelopmental disorder manifested by illegible and/or inefficient handwriting due to difficulty with letter formation

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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### Figure 5.2. Areas for Evaluation of Dysgraphia

Academic Skills	Cognitive Processes	Possible Additional Areas
<ul style="list-style-type: none"> <li>Letter formation</li> <li>Handwriting</li> <li>Word/sentence dictation (timed and untimed)</li> <li>Copying of text</li> <li>Written expression</li> <li>Spelling</li> <li>Writing fluency (both accuracy and fluency)</li> </ul>	<ul style="list-style-type: none"> <li>Memory for letter or symbol sequences (orthographic processing)</li> </ul>	<ul style="list-style-type: none"> <li>Phonological awareness</li> <li>Phonological memory</li> <li>Working memory</li> <li>Letter retrieval</li> <li>Letter matching</li> </ul>

A review of recent evidence indicates that dysgraphia is best defined as a neurodevelopmental 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) (Berninger, 2015). 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.

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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### Figure 5.3. Questions to Determine the Identification of Dysgraphia

- Do the data show the following characteristics and consequences of dysgraphia?
  - Illegible and/or inefficient handwriting with variably shaped and poorly formed letters
  - Difficulty with unedited written spelling
  - Low volume of written output as well as problems with other aspects of written expression
- Do these difficulties (typically) result from a deficit in graphomotor function (hand movements used for writing) and/or storing and retrieving orthographic codes (letter forms)?
- Are these difficulties unexpected for the student's age in relation to the student's other abilities and the provision of effective classroom instruction?

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Linked Dysgraphia Characteristics to Causes (p. 57)

- Variably shaped (OP), poorly formed letters (GM), improper letter slant (GM)
- Poor spacing between letters and words (GM), inability to copy correctly (GM)
- Letter and number reversals beyond early stages of writing such as “b” and “d” reversals (OP)
- Difficulty with unedited written spelling (OP), inability to recall orthographic patterns for words (OP)
- Awkward, inconsistent pencil grip (GM), Excessive erasures and cross-outs (OP) > (GM)
- Heavy pressure/hand fatigue or inadequate pressure (GM)
- Overuse of short familiar words “big” (OP)
- Slow or labored writing & copying with legible or illegible handwriting (GM/OP)
- Low volume of written output & problems w/other aspects of written expression (GM/OP)
- Inability of student to read what was previously written (GM/OP)
- Avoidance of Written Tasks (GM/OP)

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Self-Regulation and Control



High levels of self-regulation are thought to be important to skilled writing because composing is an intentional activity that is quite often self-planned and self-sustained (Zimmerman & Riesemberg, 1997). In addition, skilled writing is commonly viewed as a difficult and demanding task, requiring extensive self-regulation and attentional control to manage the writing environment, the constraints imposed by the writing topic, and the processes involved in composing (Kellogg, 1987; Ransdell & Levy, 1996; Scardamalia & Bereiter, 1986; Zimmerman & Riesemberg, 1997).

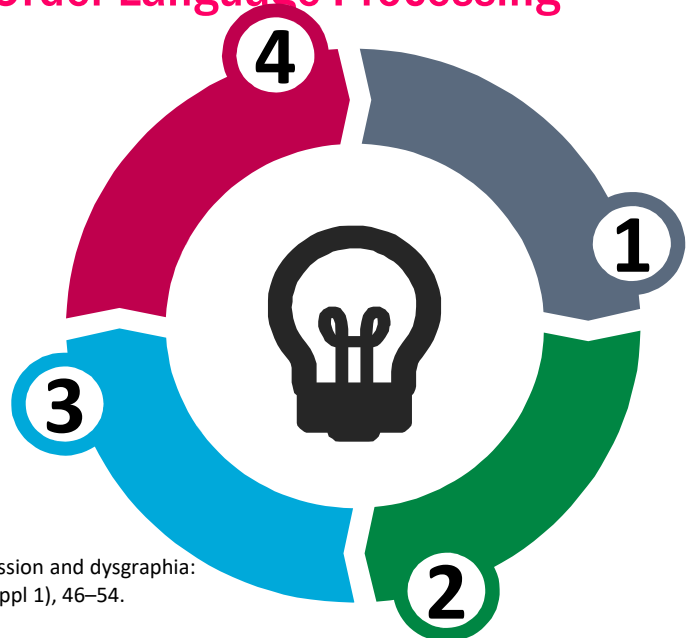
Graham, S. & Harris, K.R. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist*, 35(1), 3–12.

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## Writing Projects Require EF and Higher Order Language Processing



1. Internally creating the desired statement
2. Segmenting the desired statements into sections for transcription
3. Retaining the sections in verbal working memory while executing the task of writing
4. Checking that the completed written product matches the original thought



Chung, P. J., Patel, D. R., & Nizami, I. (2020). Disorder of written expression and dysgraphia: definition, diagnosis, and management. *Translational pediatrics*, 9(Suppl 1), 46–54.  
<https://doi.org/10.21037/tp.2019.11.01>

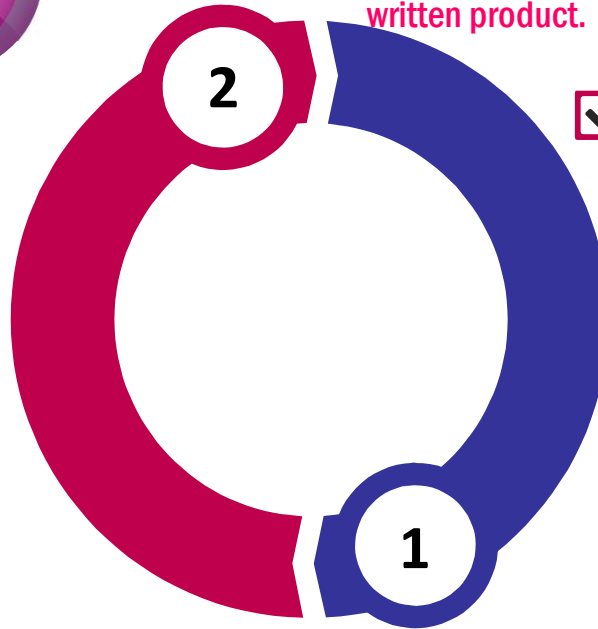
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Chung, P. J., Patel, D. R., & Nizami, I. (2020). Disorder of written expression and dysgraphia: definition, diagnosis, and management. *Translational pediatrics*, 9(Suppl 1), 46–54. <https://doi.org/10.21037/tp.2019.11.01>

### ✓ Automaticity

Failure to develop writing automaticity by third grade greatly increases the likelihood of difficulty in more complex writing tasks, as the child's higher cognitive functions may be preoccupied by the graphomotor requirements of letter formation.

Beyond the early school years, writing projects require the additional ability to organize, plan, and implement a complete written product.

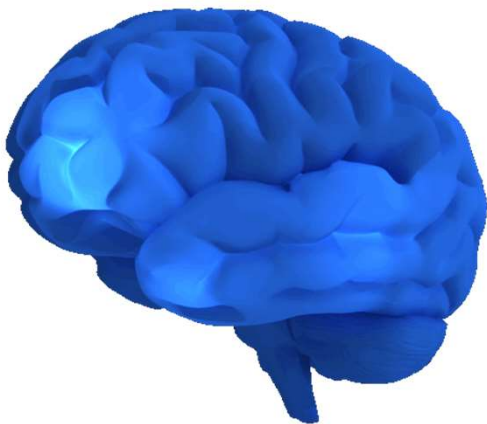


### ✓ More complexity

Writing more complex products such as paragraphs or essays requires additional planning, organization, and revision to stitch together multiple statements and thoughts into a coherent whole.

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## Cognitive Resources



“Young school children who struggle with handwriting, spelling, or punctuation have fewer cognitive resources to devote to composition.”

McCutchen, D. (1988). “Functional automaticity” in children’s writing: A problem of metacognitive control. *Written Communication*, 5(3), 306–324

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# Orthographic Processing

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## Orthographic Processing Memory for Letter or Symbol Sequence (p. 59)

The process of handwriting requires the student to rely on memory for letters or symbol sequences, also known as orthographic processing. Memory for letter patterns, letter sequences, and the letters in whole words may be selectively impaired or may coexist with phonological processing weaknesses. When spelling, a student must not only process both phonological and orthographic information but also apply their knowledge of morphology and syntax (Berninger & Wolf, 2009).

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Orthographic Processing Visualizing Written Language

Orthographic Mapping - the bonding of the phonological and orthographic structures of words in lexical memory; outcomes of encoding and decoding

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## Orthographic Processing

Language skills at the sub-word level  
(language by ear,  
language by mouth,  
language by eye,  
and language by  
hand)

1 Difficulty at the sub-word level

2 Difficulty with storage of letter forms

3 Difficulty with retrieval of letter forms

4 Difficulty with producing letter forms

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Experience the Disability



### Simulated Orthographic Deficit

What did you notice?

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Handwriting Rate Averages for Various Conditions

Grade	Age	Alphabet by Memory	Copying				Composing (Free write)
		LPM	WPM	WPM	WPM	WPM Best	WPM
1				5	3-4		
2				6	6-7		
3				7	9-10		
4	9	42.04	7-10	8	12-13	12	11.45
5	10	47.32		10	14-15	13.75	13.9
6	11	54.76		12	16-18	17.5	17.1
7	12	55.44		14	18-22	19.5	18.6
8	13	67.73		16	22-24	20	21.5
9	14	70.45			23-24	21.5	22.7
	15	73.45				23.25	23.3
	16	75.08				23	23.6
		(2007) Barnett, Henderson, Scheib, Schulz	(1986) Findeque, Smith, Sullivan	(1995) Amundson	(1998) Graham, Berninger, Weintraub	(2007) Barnett, Henderson, Scheib, Schulz	(2007) Barnett, Henderson, Scheib, Schulz

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## What do orthographic processing deficits look like?

### Does the student:

- Have difficulty reading or spelling irregular words?
- Confuse letters with similar appearance (n for h)?
- Misread little words in text (were for where)?
- Reverse letters (b for d)
- Have trouble remembering basic sight words?
- Have trouble copying from a book or board to paper?
- Spell the same word different ways?
- Spell words according to sound rather than appearance?
- Read at a slow rate?

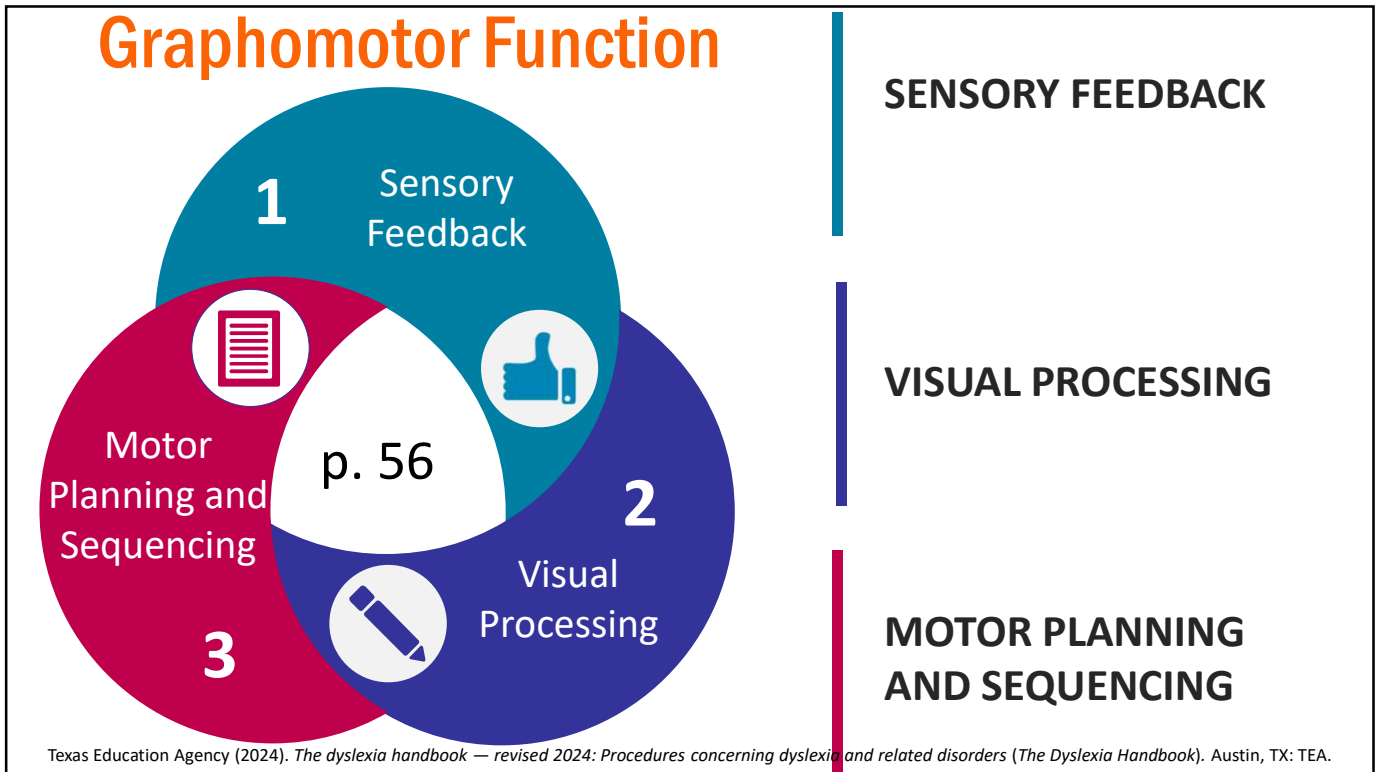
Mather & Goldstein (2001), *Learning disabilities and challenging behaviors: A guide to intervention and classroom management*. Brookes Publishing.

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## Graphomotor Function

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# Neurotypical Development


### GRAPHOMOTOR FUNCTION

- ① Impaired feedback the brain is receiving from the fingers <sup>1</sup>
- ② Weaknesses using visual processing to coordinate hand movement and organize the use of space <sup>1</sup>
- ③ Problems with motor planning and sequencing <sup>1</sup>

<sup>1</sup>Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

<sup>2</sup>Image adapted from Taylor & Trott (1991).

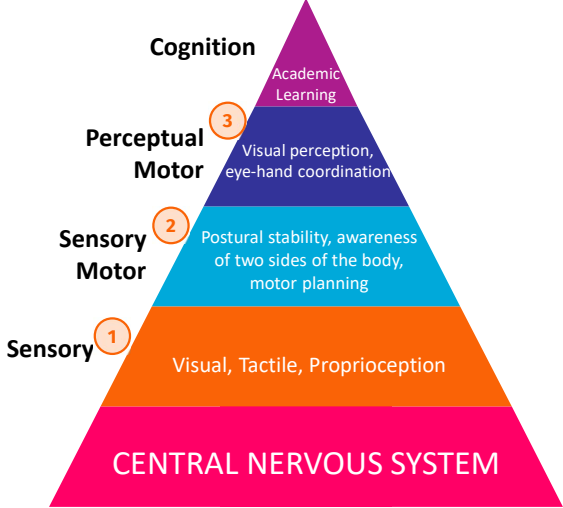
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## Neurotypical Development Impaired Feedback the Brain is Receiving From the Fingers<sup>1</sup>

1 a) **Proprioceptive Feedback** – information from the joints, tendons, muscles on the position as well as the kinesthetic (movement) of the fingers/hand/wrist

b) **Tactile Feedback** – pressure receptors in the skin measures force



**Cognition**  
Academic Learning

**Perceptual Motor** 3  
Visual perception, eye-hand coordination

**Sensory Motor** 2  
Postural stability, awareness of two sides of the body, motor planning


**Sensory** 1  
Visual, Tactile, Proprioception

**CENTRAL NERVOUS SYSTEM**

<sup>1</sup>Adapted from Texas Education Agency (2024). The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook). Austin, TX: TEA.

<sup>2</sup>Danna, J., & Velay, J. (2015). Basic and supplementary sensory feedback in handwriting. *Frontiers In Psychology*, 2015.

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## Neurotypical Development Use of Visual Processing to Coordinate Hand Movement and Organize the Use of Space

2 a) **Visual discrimination** - ability to discriminate dominant features of objects such as position, shape, form, and color

b) **Spatial Relations** - ability to perceive the positions of objects in relation to oneself or other objects

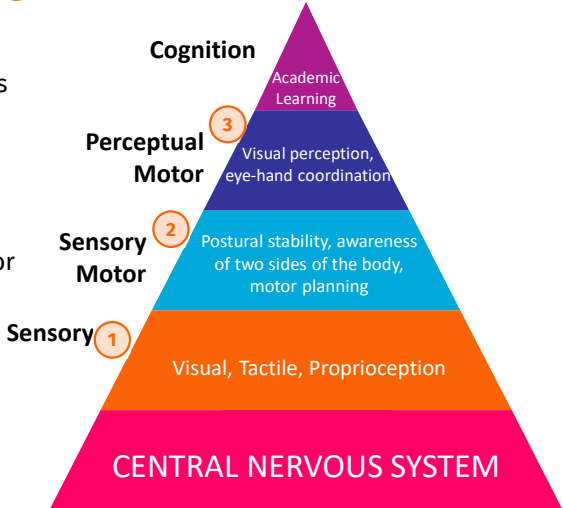
c) **Visual memory** – ability to recognize one stimulus item after a very brief interval

d) **Form constancy** - ability to match two figures that vary on one or more discriminating features such as size, position or shade

e) **Visual Sequential Memory** – ability to remember sequences of objects in respect to size, shape, and location

f) **Figure ground** - ability to distinguish an object from a complex background or surrounding objects

g) **Visual closure** - ability to identify a whole figure when only fragments are presented<sup>2</sup>



**Cognition**  
Academic Learning

**Perceptual Motor** 3  
Visual perception, eye-hand coordination

**Sensory Motor** 2  
Postural stability, awareness of two sides of the body, motor planning

**Sensory** 1  
Visual, Tactile, Proprioception

**CENTRAL NERVOUS SYSTEM**

<sup>1</sup>Adapted from Texas Education Agency (2024). The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook). Austin, TX: TEA.

<sup>2</sup>TVPS-3 Test of Visual Perceptual Skills Third-Edition, Academic Therapy Publications, 2006, Nancy Martin PhD ISB 1-57128-410-9 Novato California

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## Some Examples of Visual Spatial (Gv-Vz) Assessments

**Visualization (Vz)**

- Bateria III COG Relaciones Espaciales (Gv:Vz)
- Bateria IV COG Visualizacion (Gv:Vz)
- Beery VP Test of Visual Perception (Gv:Vz)
- Beery VMI Test of Visual-Motor Integration (Gv:Vz;Gp:P1)
- CMAT Geometry (MC;Gq:A3;Gv:Vz)
- CMAT Measurement (MC;Gq:A3;Gv:Vz)
- DAS-II Copying (Gv:Vz)
- DAS-II Matching Letter-Like Forms (Gv:Vz)
- DAS-II Pattern Construction (Gv:Vz)
- D-KEFS Tower (Gv:Vz;Gf:RG)
- DTLA-5 Geometric Sequences (Gf:I;Gv:Vz)
- DTVP-3 Copying (Gv:Vz;Gp:P1)
- DTVP-3 Form Constancy (Gv:Vz,CF)
- DTVP-3 Visual Closure (Gv:Vz)
- DTVP-A Copying (Gv:Vz;Gp:P1)
- DTVP-A Form Constancy (Gv:Vz,CF)
- DTVP-A Visual Closure (Gv:Vz)
- FRTVMI Full Range Test of Visual Motor Integration (Gv:Vz;Gp:P1)
- KABC-II Block Counting (Gv:Vz)
- KABC-II Conceptual Thinking (Gv:Vz;Gf:I)
- KABC-II Pattern Reasoning (5-6 years) (Gv:Vz;Gf:I)
- KABC-II Pattern Reasoning (7-18 years) (Gf:I;Gv:Vz)
- KABC-II Triangles (Gv:Vz)

**2**

- TVMS-3 Test of Visual Motor Skills (Gv:Vz)
- TVPS3 Form Constancy (Gv:Vz,CF)
- TVPS3 Spatial Relations (Gv:Vz)
- TVPS3 Visual Closure (Gv:Vz)
- TVPS3 Visual Discrimination (Gv:Vz)
- TVPS4 Form Constancy (Gv:Vz,CF)
- TVPS4 Spatial Relationships (Gv:Vz)
- TVPS4 Visual Closure (Gv:Vz)
- TVPS4 Visual Discrimination (Gv:Vz)
- UNIT2 Cube Design (Gv:Vz)
- WAIS-IV Block Design (Gv:Vz)
- WAIS-IV Visual Puzzles (Gv:Vz)
- WASI-2 Block Design (Gv:Vz)
- WISC-IV Block Design (BD) and BD No Time Bonus (Gv:Vz)
- WISC-IV Integrated Block Design Multiple Choice (Gv:Vz)
- WISC-IV Integrated Block Design Process Approach (Gv:Vz)

Flanagan, D. (2022). *Cross-Battery Assessment Software System 2.0 (X-BASS 2.4)*. Wiley & Sons

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## Neurotypical Development Motor Planning and Sequencing While Writing by Hand<sup>1</sup>

**3**

- a) **Bilateral Integration** - coordinating both sides of the body, crossing midline, lateralization (allows hand dominance), using one hand to stabilize the paper while the other moves the pencil.
- b) **Shoulder & Postural (Proximal) Stability** - stability at the shoulder and trunk allows controlled movement of the hand and fingers
- c) **Wrist Stability in Extension** - allows full access to fine motor movements
- d) **Separation of Function of the Two Sides of the Hand** – grip fingers provide stable base to allow distal control of the prehension side of the hand
- e) **Thumb Opposition & Open Webspace** - efficient grip and pressure gradation
- f) **Palmar Arches, Hand & Finger Strength** - intrinsic muscle development and strength for distal control
- g) **In Hand Manipulation** - Rotation (pencil pick ups) and Shift (important for cursive)

<sup>1</sup>Adapted from Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.  
<sup>2</sup> <https://school-ot.com/Fine%20motor%20101.html>

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# Qualitative Data

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## Characteristics of Dysgraphia Graphomotor Function (GM)

- 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
  - Poorly formed letters or poor formation of letters (GM)
  - Improper letter slant (GM)
  - Poor spacing between letters and/or inside words (GM)
  - Inability to copy correctly (GM)
  - Awkward, inconsistent, or poor pencil grip (GM)
  - Pressure: Hard, Soft, inadequate, or inconsistent (GM)
  - Hand fatigue (GM) - can be due to muscle weakness, awkward grip, or heavy pressure
  - Inability to copy words accurately (GM) - indicates a perceptual or motor issue because it does not draw from orthographic memory
  - Difficulty with visual-motor integrated sports or activities (GM) - would be from parent history, more related to eye-hand coordination like catching a small ball (tennis/baseball) or threading/shift activities like shoe-tying, or hand rotation activities like turning a lock or rotating a dial, etc. Not as much related to gross motor or eye-foot coordination.

**\*\* A student can have FM difficulties and dysgraphia, have FM difficulties and not dysgraphia, and have dysgraphia but not FM difficulties.**

Adapted from Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Characteristics of Dysgraphia Orthographic Processing (OP)

- Difficulty with storage and retrieval of letter forms (Levine, 1999) (both letter form and letter sequence level):
  - Variably shaped (OP) - indicates the student has poor orthographic memory for letter forms because the same letter is formed differently in the same sample, may have different forms, different stroke sequence, different starting point
  - Letter and number reversals beyond early stages of writing such as “b” and “d” reversals (OP) - 3rd grade and above - letters should not be reversed because orthographic memory provides a consistent starting place and stroke sequence for letters
  - Difficulty with unedited written spelling (OP) - decreased orthographic memory for orthographic spelling patterns such as suffixes, floss rule (doubling), when to drop the e, etc.
  - Inability to recall orthographic patterns for words (OP) - same reason as above
  - Overuse of short familiar words “big” (OP) - because they do not remember how to spell larger words that are readily available in their oral vocabulary, but they can not synthesize using their orthographic lexicon to spell correctly

Adapted from Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Characteristics of Dysgraphia GM and/or OP

### Graphomotor Processing (GM) and/or Orthographic Processing (OP) Characteristics

- Excessive erasures and cross-outs (OP) > (GM) - usually more orthographic because they can not remember the letter form, but it does not look correct to them, but can also be graphomotor if the letter is poorly formed due to poor distal motor control/planning so the student wants to start over.
- Slow or labored writing & copying with legible or illegible handwriting (GM/OP) - poor handwriting rate can occur with legible letters or with poor legibility
- Low volume of written output & problems w/other aspects of written expression (GM/OP)
- Inability of student to read what was previously written (GM/OP)
- Avoidance of Written Tasks (GM/OP)

Adapted from Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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# Observations & Analysis

**PHYSICAL APPROACH**

**SELF-CORRECTION**

**PRINTING SKILLS**

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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# Observations & Analysis

## 1

### PHYSICAL APPROACH – Graphomotor Function

- Handedness
- Pencil Grip
- Pencil Pressure
- Paper Placement
- Posture
- Helper Hand


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# Observations & Analysis


Physical Approach Observations - GRAPHOMOTOR FUNCTION						
Handedness	Y	N	Right dominant	Y	N	Left dominant
	Y	N	Switches hands while writing	Y	N	Switches hands for activities
Pencil Grip	Y	N	Holds pencil vertically	Y	N	Pencil rests in center of webspace
	Y	N	Fingers high on the mid-shaft of pencil	Y	N	Thumb tight against index instead of under
	Y	N	Fingers at the tip of the pencil	Y	N	Open webspace (appropriate grasp)
	Y	N	Closed webspace (inefficient)	Y	N	Quadrupod Grip (efficient)
	Y	N	Tripod grip (efficient)	Y	N	Thumb tight under index finger (thumb tuck)
	Y	N	Adapted Grip (efficient)	Y	N	Thumb tight over index finger (thumb wrap)
	Y	N	Fisted Grip (pencil wrapped in fingers)	Y	N	Splayed grip (all finger tips on pencil)
Pencil Pressure	Y	N	Too hard - writing is dark	Y	N	Too soft - writing is light
	Y	N	Variable pressure	Y	N	Just right pressure
	Y	N	Joints hyperextend when gripping pencil	Y	N	Shakes hand or reports hand fatigue
Paper Placement	Y	N	Straight up	Y	N	Tilted slightly to right (for L handers)
	Y	N	Tilted slightly to left (for R handers)	Y	N	Straight Up and close to table edge
Posture	Y	N	Slouches/Slumps	Y	N	Head on table
	Y	N	Props self on arm	Y	N	Upright/appropriate
	Y	N	Feet dangle or not on floor	Y	N	Feet on floor
Helper Hand	Y	N	Moves paper when writing	Y	N	Uses helper hand to stabilize
Immature Motor Patterns	Y	N	Wrist is hooked in flexion	Y	N	Switches hands instead of crossing midline
	Y	N	Starts further from left margin each line	Y	N	Grip fingers not tucked away to stabilize hand
	Y	N	Palms appear flat under thumb or pinky	Y	N	Moves wrist/elbow/shoulder when writing
Examiner Notes	© Laura Dowdy, OTR					

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## Pencil Grip


**Efficient Grip with Open Webspace**



**Tripod Grip**




**Quadrupod Grip**

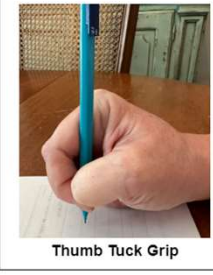


**Adapted Grip**

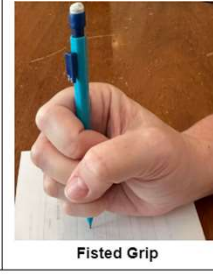
**Inefficient Grip with Closed Webspace**




**Thumb Wrap Grip**



**Thumb Tuck Grip**



**Fisted Grip**



**Splayed Grip**

©Dowdy, L. (2023)

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## Observations & Analysis

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**SELF-CORRECTION**

- Erases too much
- Works carelessly, rushes
- Edits works appropriately
- Write overs or cross outs

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## Observations & Analysis

3

**PRINTING SKILLS**

- Memory
- Orientation
- Placement
- Size
- Start
- Sequence
- Spacing
- Control


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# Observations & Analysis

Handwriting Observations - Printing Skills						
Memory	Y	N	Uses unidentifiable letter forms (OP)	Y	N	Omits letters from words (OP)
	Y	N	Frequently uses UC instead of LC letters (OP)	Y	N	Misses letters in words/alphabet (OP)
Orientation	Y	N	Confusion with p, d, b, q (naming&reading) (GM)	Y	N	Letter reversals ex: "b" for "d" (OP)
	Y	N	Letter inversions ex. "b" for "p" (OP)	Y	N	No letter orientation issues observed (OP)
Placement	Y	N	Poor adherence to baseline (GM)	Y	N	Poor use of margins (GM)
	Y	N	Writing slants uphill or downhill (GM)	Y	N	Doesn't ascend/descend letters (GM) or (OP)
	Y	N	Other misplacement of letters (GM)	Y	N	No letter placement issues observed (GM)
Size	Y	N	Letter size big for age (GM)	Y	N	Letter size too small to read easily (GM)
	Y	N	Uses appropriate letter size (GM)	Y	N	Uses variable letter size (GM)
Start	Y	N	Uses top down approach (OP) (GM) - appropriate	Y	N	Circles counter-clockwise (OP)(GM) - appropriate
	Y	N	Uses bottom up approach (OP)(GM)	Y	N	Circles clockwise (OP)(GM)
	Y	N	Uses mixed approach (OP)(GM)	Y	N	Uses appropriate directional starts (OP)
Sequence	Y	N	Makes strokes out of order (OP)	Y	N	Forms letters in non-standard way (OP)
	Y	N	Letters formed with standard sequence(OP)	Y	N	Letter transpositions "saw" for "was" (OP)
Spacing	Y	N	Too much space between letters/words (GM)	Y	N	Letters/words run together (GM)
	Y	N	Spacing is inconsistent (GM)	Y	N	Uses appropriate spacing (GM)
Distal Control	Y	N	Letter lines look shaky or squiggly (GM)	Y	N	Overshoots or Undershoots letters (GM)
	Y	N	Good control of letter lines/curves (GM)	Y	N	Holds pencil near tip for good control (GM)
	Y	N	Moves hand/wrist/arm not just digit tips (GM)	Y	N	Holds pencil high on shaft (GM)
Self Correction	Y	N	Erases too much (GM) (OP)	Y	N	Works carelessly (GM) (OP)
	Y	N	Write-overs/cross outs (GM) (OP)	Y	N	Edits appropriately (GM) (OP)
Examiner Notes	© Laura Dowdy, OTR					

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# Dysgraphia

## Handwriting Analysis Samples

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## Instruction for Students with Dysgraphia Handwriting (p. 63)

- Use research-based elements of Effective Handwriting Instruction
  1. Show students how to hold a pencil.
  2. Model efficient and legible letter formation.
  3. Provide multiple opportunities for students to practice effective letter formation.
  4. Use scaffolds, such as letters with numbered arrows showing the order and direction of strokes.
  5. Have students practice writing letters from memory.
  6. Provide handwriting fluency practice to build students' automaticity.
  7. Practice handwriting in short sessions.
- Hierarchy of Instruction: Posture → Grip → Letter Formation → Sequence
  - Establish routines for self monitoring
  - HW is not an independent activity. Provide immediate feedback – *practice makes permanent!*

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Instruction for Students with Dysgraphia Spelling (p. 64)

### Spelling

Handwriting supports spelling, a complex process of translating a phoneme (spoken sound) to the corresponding grapheme (orthographic representation) in order to generate written text to express an idea. Orthography is the written spelling patterns and rules in a given language. Students must be taught the regularity and irregularity of the orthographic patterns of a language in an explicit and systematic manner. The instruction should be integrated with phonology and sound-symbol knowledge.

**Because spelling is meaning driven and draws upon the phonological, orthographic, and morphological aspects of words, students will benefit from systematic, explicit instruction based on the following guiding principles:**

- Phoneme-grapheme correspondence
- Letter order and sequence patterns, or orthographic conventions:
  - syllable types
  - orthographic rules
  - irregular words
- Position of a phoneme or grapheme in a word
- Meaning (morphology) and part of speech
- Language of origin (Moats, 2005)

- ❖ All of these components are in a handbook compliant dyslexia program.
- ❖ Orthographic Mapping Development
- ❖ Focus on encoding (spelling) goals.

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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## Instruction for Students with Dysgraphia

### Written Expression

#### Writing

A potential secondary consequence of dysgraphia is difficulty with students expressing themselves in written text. This difficulty may be attributed to deficits in handwriting, spelling, language processing, or the integration of each of those skills. In Chapter 4 of this handbook, Moats and Dakin (2008) are quoted as stating:

*The ability to compose and transcribe conventional English with accuracy, fluency, and clarity of expression is known as basic writing skills. Writing is dependent on many language skills and processes and is often even more problematic for children than reading. Writing is a language discipline with many component skills that must be directly taught. Because writing demands using different skills at the same time, such as generating language, spelling, handwriting, and using capitalization and punctuation, it puts a significant demand on working memory and attention. Thus, a student may demonstrate mastery of these individual skills, but when asked to integrate them all at once, mastery of an individual skill, such as handwriting, often deteriorates. To write on demand, a student has to have mastered, to the point of being automatic, each skill involved (p. 55).*

Students with written expression difficulties because of dysgraphia would benefit from being taught explicit strategies for composing including planning, generating, reviewing/evaluating, and revising different genre including narrative, informational, compare and contrast, and persuasive compositions (IDA, 2012).

1. Is student independently meeting grade level written task expectation per TEKS and teacher input?
2. Remove the barrier of inefficient or illegible handwriting. Can student meet grade level written task demands when trained in and independent with AT?
3. Focus on encoding (spelling) goals.

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.  
TEKS Snapshot Resource: <https://lead4ward.com/resources/>

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## Instruction for Students with Dysgraphia

### Delivery of intervention (p. 65)

- Simultaneous, multisensory (VAKT) – whole body, multiple pathways/inputs
- Systematic and cumulative – simple to complex, build on motor patterns
- Explicit Instruction – model, guided practice, immediate corrective feedback
- Diagnostic Teaching to Automaticity – individualize per ongoing assessment

Texas Education Agency (2024). *The dyslexia handbook — revised 2024: Procedures concerning dyslexia and related disorders (The Dyslexia Handbook)*. Austin, TX: TEA.

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# Students with DYSGRAPHIA need a balanced approach

Targets letter formation and/or spelling (encoding)

Improves handwriting fluency and/or spelling

Remediation – Dysgraphia Intervention

Accommodates handwriting and/or spelling

Reduces secondary consequence – difficulty with written expression

Compensation through accommodations – access to grade level TEKS

**Common Accommodations for Dysgraphia:**

- Access to word processor
- Copy of class notes prior to lecture (*no attempt required*)
- Speech-to-Text (STT)
- Standard Spell Check (orthographic errors)
- PDF annotator & Access to classroom content PDFs
- Word prediction software

**A.T. IS ESSENTIAL!**  
Dysgraphia impacts dictation (taking notes), copying and written composition

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## Supporting Writing Difficulties

A practical guide from CALL Scotland

**Who could help?**

- Consult school ICT Coordinator, and colleagues.
- Consult local authority ICT SLT / ASN specialist.
- Check for contact details in your area: [www.ctsls.org.uk/](http://www.ctsls.org.uk/)

**What do writing difficulties arise from?**

- Refer to local SLT / ASN Guidance Document(s).
- Involve SLT / ASN team.
- Consult 'Addressing Dyslexia Toolkit'.
- Consider consulting OT, PT, SLT, Visual Impairment service as needed.

**1 Identifying the problems, gathering information, team approach.**

- Dyslexia / specific learning difficulties with language, reading, spelling?
- Vision or visual processing - acuity, visual field, tracking?
- Cognition - learning, comprehension?
- Physical causes - poor coordination, pencil grip, seating, positioning?

**2 Identifying problems with physical writing using a pencil/pen.**

The pupil's writing takes excessive time and effort?  
The quality of writing output is poor; legibility, spelling, letter shape, length of writing etc?  
Is there a difference in quality between what the pupil can write and what they can verbalise, i.e. dictating to a scribe?  
The pupil appears reluctant to write?

Poor writing is not because a pupil is lazy or stupid.

- A different size or style of pencil / pen?
- A pencil or pen grip?
- A writing slope?
- Different or better positioning; chair / table / lighting etc?
- One of more of the above in combination?
- Using appropriate writing technology?

**3 Have you tried the following?**

Staff who 'don't do computers' is not a valid reason for the pupil not using technology! Hand writing is a life skill - true - but the physical process must be separated from producing content - language and ideas. Pupils must be prepared for a digital future.

Will a classroom computer suffice, or might the pupil need a personal, portable device?

There are different types of keyboards.

- e.g. bigger, smaller, high contrast, upper, lower case, keyboard stickers.
- Touch screen keyboards; on-screen keyboards controlled by a mouse pointer or external joystick.
- Is the keyboard too big, too small, too high and / or wrong size, wrongly positioned?
- Is the pupil unfamiliar with the keyboard, e.g. layout, upper case letters?
- Do the computer settings need to be personalised?
- Does the pupil require additional software to improve typing speed and accuracy?
- Does the pupil require an alternative method to input text?
- Keyboards which fit over the keyboard to prevent errors.
- Keyboard mounts / risers to aid hand / arm / head positioning.
- Dycem mats to prevent keyboard slipping / movement.

If the pupil can't use a keyboard, why not?

There are many accessories for keyboards.

Is the pupil using appropriate keyboarding tasks? Is copying or typing notes into a word processor really worthwhile?  
Touch typing is NOT feasible for some pupils so 'keyboard familiarity' practice might be more useful.

**4 Have you tried a computer, tablet or keyboard adaptation?**

Customising the screen can make all the difference, e.g. changing font style, size, background colour etc.

Have you considered adapting the built-in accessibility options such as FilterKeys, StickyKeys, large cursor etc?

If these options are 'locked down' or the pupil is unable to customise their personal settings i.e. make reasonable adjustments, the school could be breaching disability discrimination legislation.

**5 Have you tried customising the screen and computer settings?**

**6 Have you tried supportive software?**

Supportive software can include:

- Picture or symbol support.
- Text-to-speech - speech feedback, text is read aloud.
- Word prediction - words are predicted in context after the first or second keypress - sometimes supported with pictures and text-to-speech.
- Spell checking - phonetic, audio or symbol supported options are available. Support also available with homophones. Remember hand-held talking spell checkers, digital scanning pens etc.

If staff are not familiar with such software, training should be requested. Check local CPD calendar: [www.callscotland.org.uk/](http://www.callscotland.org.uk/)

**7 Have you tried different access methods?**

If the pupil can't use a keyboard consider other access methods.

- Touchscreen.
- A different mouse or large rollerball / trackball.
- A joystick with different handle adaptations (T-bar, large foam ball).
- A Glidedpad or a laptop mouse track pad.
- A switch access system (interface box plus one or two switches) - which scans rows, columns etc.
- Positioning for one or all of the above - keyboard risers, mats to prevent slipping etc.

Try to borrow to trial before buying, locally or from CALL Scotland (2 - 3 months only).

Check what is available in school, contact local specialist for further advice.

Word banks - topic dictionaries, sometimes support with pictures and / or text-to-speech.

Mind mapping to visually help plan and organise thoughts and ideas.

Audio: voice recording, often directly into the application (which can be saved for evidence).

Speech recognition - talking to a computer, speech is converted to text.

One of more of the above used in combination with each other, e.g. Clicker, CoWriter, Texthelp Readit Write, Penfriend, Textease, WriteOnline etc.

**8 Working in partnership with parents and professionals.**

Formulate an action plan for Next Steps, including list of possible technology(ies).  
Clarify / launch procedures for obtaining technology needed.  
Ensure child's views are taken into account. Share with parents.  
Take account of training and support implications.

Establish or expand the Child's Plan, as per LA procedures.

<https://www.callscotland.org.uk/assets/files/supporting-writing-difficulties.pdf>

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# Thank you!

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