

Looking Beyond Standardized Test Scores Observation and Error Analysis in Dyslexia Assessment

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Quick Write (3 minutes)

What are the key indicators of dyslexia?
What symptoms must be present?

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Dyslexia: Definition (2003)

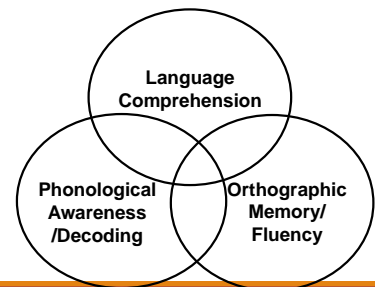
One of several distinct reading difficulties

Characterized by...

- Poor decoding and encoding (spelling)
- Unusual problems with accurate and/or fluent printed word recognition
- Inconsistent with age and/or cognitive ability
- **Often** associated with difficulty identifying, manipulating, and/or producing the speech sounds in spoken words (phonology)

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A Newer Conceptualization: "Multiple Dyslexias" (Fletcher et al., 2007; Aaron, Joshi et al., 2008; Elliott & Grigorenko, 2014)...



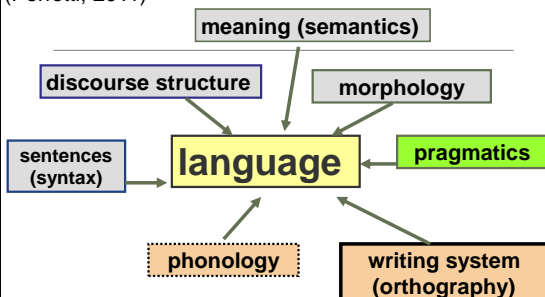
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Most Important Aspects of Performance to Assess and Interpret

- Nonword reading and spelling
- Phonological awareness
- Reading accuracy, out of context
- Reading fluency and rate
- Spelling (regular and irregular words)
- Compare to math and oral language abilities

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"Reading builds on language..."
(Perfetti, 2011)



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Think, Pair, Share (5 min.)

What are the limitations of standardized test scores in assessing a student and determining if the student has a specific reading disability (dyslexia)?

Can you enumerate up to 10 limitations?

7

Think, Pair, Share

What are the top five things you need to know about the student, aside from test scores?

8

Aim of Assessment!

Who needs help?

(Why do they need help?)

What kind of help do they need?

Is the help helping?

If not, why not? Should I change something?

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Supplements to Standardized Tests

- Computerized clinical assessment of skills (SPELL Diagnostic; Lexile Rating System; Degrees of Reading Power; Lexia Diagnostic)
- Curriculum-based measures: Words correct per minute; ratio of correct words to total; number of correct letter sequences, etc.
- Spelling inventories and phonics surveys that sample knowledge of specific orthographic features
- Supplementary phonological/orthographic tasks
- Linguistic analysis of reading and spelling errors

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Curriculum-Based Assessment

(Hosp, Hosp, & Howell, 2007)

Counting Proportion of Words Spelled Correctly (WSC) to Total Words Written (TWW)

- Writing sample obtained in 3-minute, structured assignment
- Uses *pre-determined rules* re:
 - abbreviations; hyphenated words; titles; capitalization; reversed letters; contractions

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Curriculum-Based Assessment (2)

Counting correct writing sequences (CWS)

- “two adjacent, correctly spelled words that are acceptable within the context of the phrase”
- Includes spelling, punctuation, syntax, semantics, and capitalization

Advantages:

- high inter-rater reliability for scoring writing
- sensitive to small, incremental gains

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Curriculum-Based Assessment (2)

^The ^ best ^ birthday ^ I ^ ever hade wus when
^ my frends came ^ over ^ and ^ one (how
lived ^ next ^ to ^ me) hade a ^ sleepover
whith me ^ and ^ we hade lats of ^ fun ^.

Total words written: 30
Words spelled correctly: 22 (73%)
Correct writing sequences: 17 (57%)

Phonics and Word Reading Surveys

Really Great Reading Company – Diagnostic Decoding Surveys

DIBELS DEEP

WIST (Wilson Language)

LETRS Phonics and Word Reading Survey

95 Percent Group Phonics Screener

CORE Phonics Survey

Decoding Skills Test (WPS)

Diagnostic Inventories: Knowledge of Correspondence Patterns for Spelling

- Can be embedded in any spelling/word study/phonics program
- Can be adapted to sample the linguistic elements that are being taught
- Are formative as well as summative

1	fan								
2	pet								
3	dig								
4	mob								
5	rope								
6	Wafe	wait							
7	chunk								
8	sed	sled							
9	stik	stick							
10	sin	shine							
11	drem	dream							
12	blad	blade							
13	cowch	coach							
14	frit							fright	
15	shaw							talked	
16	chod								
17	camping								
18	thorn								
19	shawtid							shouted	
20	spoyol							spoil	
21	growl								
22	chirp								
23	clapped								
24	chris							tries	
25	hiking								

Primary Spelling Inventory - Individual Score Sheet (adapted from Francine Johnston, 1985)

Name of Child: _____ Teacher: _____ Grade: 2 Date: 2-5 Total Pts: _____

	Initial Consonant	Final Consonant	Digraph	Blend	Short Vowel	Long Vowel VC:e	Vowel Team/diphthong	R-control Vowel	Inflections	Correct	Word Totals
1. fan	f	n			a					✓	3
2. pet	p	t			e					✓	3
3. dig	d	g			i					✓	3
4. mob	m	b			o					✓	3
5. rope	r	p			e					✓	3
6. wafe	w	f			e					✓	3
7. chunk	ch	ck			u					✓	3
8. sled	s	d			e					✓	3
9. stick	st	ck			i					✓	3
10. shine	sh	ne			i					✓	3
11. dream	dr	m			e					✓	3
12. blade	bl	de			e					✓	3
13. coach	co	ch			o					✓	3
14. fight	fi	gh			i					✓	3
15. snowing	sn	ow			o					✓	3
16. talked	ta	ld			a					✓	3
17. camping	ca	mp			a					✓	3
18. shorn	sh	rn			o					✓	3
19. shouted	sh	ed			a					✓	3
20. spoil	sp	oi			i					✓	3
21. growl	gr	ow			o					✓	3
22. chirp	ch	rp			i					✓	3
23. tries	tr	ie			i					✓	3
25. hiking	hi	ng			i					✓	3
Feature Totals:	6/6	6/2	4/6	0/2	7/2	1/3	2/4	1/2	9/6	12/15	44/53
	Initial Consonant	Final Consonant	Digraph	Blend	Short Vowel	VC:e	Vowel Team/diphthong	R-control Vowel	Resulted in Correct	Inflections	Words Correct Total

1. fan											
2. pet											
3. dig											
4. rod											
5. hop											
6. wat											
7. gym											
8. sled											
9. stik											
10. sin											
11. drem											
12. blad											
13. coch											
14. frit											
15. chod											
16. crol											
17. wishis											
18. thorn											
19. shawtid											
20. spoyol											
21. growl											
22. thrd											
23. camt											
24. chris											
25. cloping											
26. riding											

Informal Tasks – Passage #1

Once upon a time a tawndy rapsig named Gub found a tix of pertollic asquees. So chortlich was he with his discovery that he murtled a handful to show Kon, a cagwitzpat. "Pagoo!" cried Kon "With these you could treeples a frange!" "No," smiled Gub, "I think I'll just paible a catwicine."

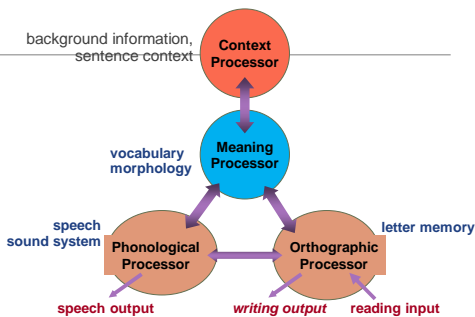
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Passage #2

The traphestal difference between the bafister jacepot and torquial wexid lies in the function of the Dighton. In the former, the Dighton scelliates the waudey, while in the latter it unhoves the eutone. Still, the miastic similarity between the two cannot be deflayed.

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Four Processing Systems in Word Recognition



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How Do You Spell "Astronaut"?

astro – naut (morpheme)
 as-tro-naut (syllable)
 a-s-t-r-o-n-a-u-t (grapheme)
 a-s-t-r-o-n-a-u-t (letter)
 [ă s t r ə n ɔ̃ t] (phoneme)

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Spelling Error Analysis

Question #1:

Are the representations of the sounds of speech complete and logical, even if the symbols used are inaccurate? Or are there signs of incomplete/inaccurate analysis of the sounds in words?

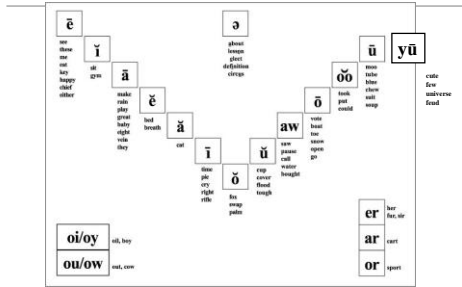
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It can be complicated...

- Are students using alphabetic strategies?
KR/car; NTR/enter
- Are students portraying *details of speech*?
(CHRIK/trick; SHUGR/sugar; JRAGN/dragon; BEDR/better)
- Are phonemes with overlapping features confused with one another?

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Vowels and Their Spellings (Moats, 2010)



English Consonant Phonemes

	bilabial	Labio-dental	Inter-dental	alveolar	palatal	glottal
stops						
unvoiced	/p/			/t/		/k/
voiced	/b/			/d/		/g/
nasals				/n/		/ŋ/
fricatives						
unvoiced		/f/	/θ/	/s/	/ʃ/	
voiced		/v/	/ð/	/z/	/ʒ/	
affricates					/tʃ/	
unvoiced					/tʃ/	
voiced					/dʒ/	
glides					/j/	
unvoiced					/w/	/h/
voiced					/w/	
liquids				/l/	/r/	



Phonetically Inaccurate Consonant Errors

Deletion or confusion of consonants within consonant blends or clusters. (DAF/drive; BOP/bump; TERAN/train; SOPID/stupid; SPILTING/splitting)

Confusion of consonants that are phonetic "neighbors" and share features

DAF/drive; BEGS/beaches; SIUP/ship; WESTERDAY/yesterday; THRIVT/thrift; HANER/hanger

Phonetically Inaccurate Consonant errors (continued)...

Nasal omission or confusion (n, m, ng)
(BAP/bump; TRASPLANT/transplant; UNBLEDED/unblended; HANER/hanger)

Liquid sequencing or representation (l, r)
(CART/cattle; GEOMERTEY/geometry; FRIST/first; GAJ/garage)

So What? Confusion of Consonants...

Determine if all sounds in the word are represented – single consonants and consonant blends.

Determine which sounds or which class of sounds is confused (Nasals? Fricatives? Liquids? Stops?).

Call attention to articulation – the feel and look of each phoneme, as well as its acoustic properties.

Begin with wide contrasts; work toward minimally contrasting pairs of words for comparisons, discrimination, and practice. (free/three; sheep, seep, cheap; mob/mop)

Attend to sound; then connect with graphemes (use keywords and phoneme-grapheme mapping techniques).

Phonetically Inaccurate Vowel Errors

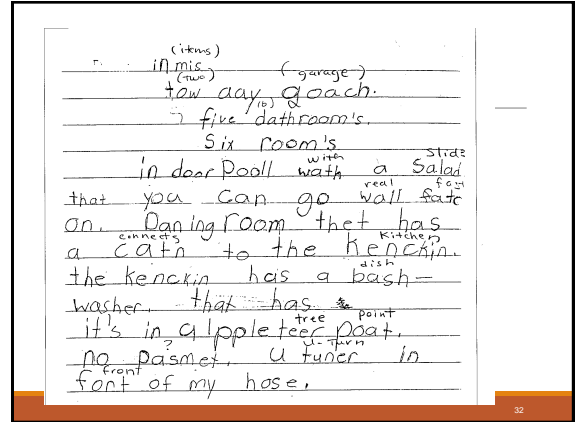
Omission of vowels, especially schwa – the vowel in the unstressed syllable.

(GAJ/garage)

Vowel substitution.

(DAF/drive; WINE/when; BRASH/brush; SPONK/spunk; AGINDA/agenda)

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So What? Addressing Vowel Confusion...

Identify and teach directly each vowel on the vowel chart.

Teach ALL of the VOWEL SOUNDS in auditory-verbal exercises, with a key word association.

Call attention to articulation – the feel and look of each vowel phoneme, as well as its acoustic features.

Begin with wide contrasts; work toward minimally contrasting pairs of words for comparisons, discrimination, and practice (beet, bit; shut, shot; burr, bar)

Attend to sound; then connect with graphemes (use phoneme-grapheme mapping techniques).

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Question #2

If the spelling is phonetically accurate, which phoneme-grapheme correspondences, spelling patterns, and word structures does the student not know? What common words can the student read “by sight”? Which ones does he/she know? What is next in the scope and sequence?

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Chris,
Age 7-11

WRAT
SS 85,
16th %ile

1. go	✓	16. obre	under	31.
2. cat	✓	17. woch	walk	32.
3. in	✓	18. anter	ant	33.
4. day	dog	19. grab	gr	34.
5. on	and	20. nacher	nater	35.
6. will	✓	21. explain	expl	36.
7. make	✓	22. egg	edge	37.
8. him	✓	23. xo xo xox		38.
9. soe	soe	24. Strip		39.
10. cut	✓	25. weed	welld	40.
11. chick	chick	26. waster	wanted	41.
12. hite	hit	27. shuve	shue	42.
13. must	✓	28.		43.
14. bres	br	29.		44.
15. reach	✓	30.		45.

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Right Consonant Phoneme, Wrong Consonant Grapheme

- woch/watch wocd/walked
- cck/cook
- doy/boy; bres/dress
- nacher/nature
- eg/edge

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Right Vowel Phoneme, Wrong Vowel Grapheme

sae/say woch/watch
 cuck/cook gron/grown
 lite/light explan/explain
 odre/order

Chris, 5th grade, age 10-9

Spelling (TWS), SS 91, 27th %ile

As I wook up I remembered were I was. First I got dressed and ate breakfast I had some toast and a glass of water. Then I got on my soccer suit and went out side. They were kicking a new ball. I decided to watch. After a while I got bored so I decided to play. I kicked the ball it was easier on the smooth they the earth because you are lighter so you can jump high. As I played I got tired so I skipped home when I came in it was lunch time so after I took of my

What Does Chris Still Need to Learn About Orthography?

wock/woke	rememberd/rememdered
where/were	breakfest/breakfast
tost/toast	bord/bored
bilding/building	basket ball/basketball
desided/decided	easer/easier
skiped/skipped	hire/higher
of/off	

NAME: CHRIS 4 10 YEARS OLD

When I was 4 I had leukemia. I had to stay in the hospital for 2 weeks. I had to have surgery to have something put in. I had to get wash that can a bone marrow and spinal fluid. I had to fill I was 7 I have been off chemotherapy for 2 years now. When I had leukemia I had to get blood tests 3 times a week. Now I go 1 or 2 months I go to a hospital call this

WHEN I WAS 4 I HAD LEUKEMIA. I HAD TO STAY AT THE HOSPITAL FOR 2 WEEKS. I HAD TO HAVE SURGERY. TO HAVE SOMETHING PUT IN. I HAD TO GET WHAT THEY CALL A BONE MARROW AND SPINAL TAP. I HAD IT TIL I WAS 7. I HAVE BEEN OFF CHEMOTHERAPY FOR 2 YEARS NOW. WHEN I HAD LEUKEMIA I HAD TO GET BLOOD TESTS 3 TIMES A WEEK. NOW I GO EVERY 3 MONTHS. I GO

Summary of Implications: Good Phonology, Poor Memory for Orthography

Give "conceptual handles" for thinking about the spellings of words

- do + es = does (doeth) done
- go + es = goes (goest) gone

Teach the conditional phoneme-grapheme correspondence patterns

- (e.g., word sorting for ch, tch alternation; the ai/ay alternation, etc.)

Teach the ending rules, one at a time, with never-ending practice

- consonant doubling, change y to i, drop silent e

Teach syllable types, syllable combining

Teach word origin and morphology

Use multi-sensory tracing and writing routines for high frequency words

Standard Teaching Principles



- ✓ Linguistic concepts
- ✓ Systematic
- ✓ Explicit
- ✓ Cumulative
- ✓ Multisensory
- ✓ Intensive
- ✓ Applied to purposeful reading and writing

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Morphological Errors – Prefixes, Roots

improve / improve
 colect/collect
 eckspress/express

desision/decision
 consntrate/concentrate
 equilise/equalize

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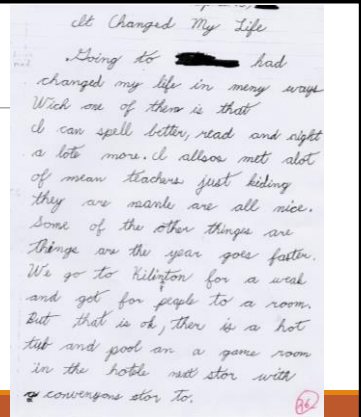
Morphological Errors: Inflectional and Derivational Suffixes

crisbist/crispest fames/famous
 classis/classes vakashan/vacation
 strapt/strapped shrinkedge/shrinkage

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Age 16, After many years of intensive teaching.

What would be next for this student?



Your Turn: How Would Describe This?

Hi I am an asstronot I love to Se the space ships and holes and unusul thing. That is why I go to space a lot. I allso love to see we all rede have made a lot of fondushon [foundations]. I am the one that is clos to you whipping [wiping] off apece of corvd [carved] stone.

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How Do You Spell "Astronaut"?

astro – naut (morpheme)
 as-tro-naut (syllable)
 a-s-t-r-o-n-au-t (grapheme)
 a-s-t-r-o-n-a-u-t (letter)
 [ă s t r ə n ɔ̃ t] (phoneme)

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Your Turn: What Next for This Student?

I an Dyslexic, non of my family has Dyslexia althow my dad might hav it. My family notist that we had to start doing something about it in the 6th grade. Then began my great adventcher. We heded to Bostin. Its amazing lokng out a window in the city, the cars speeding by in a calerfol [colorful] bler [blur] of head lights and street lights all arownd, th sownds of horns and sirens from all derectchins [directions] [arently [apparently] I had to go threw like 8 awers [hours] of testing, some of it was fun thow. After I finisd testing we needed to go to egecashino [educational] consultants at the XXXXX senter.

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Summary: A Multi-component Lesson Framework

“Sound warm-up” – phoneme awareness

Direct, explicit teaching of word or language concept (phonics, etc.)

- Modeling
- Guided practice
- Supported independent practice
- Application in context



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Multi-component Lesson, continued.

Fluency development

- speed drills
- repeated reading
- partner work

Vocabulary – word meanings

Oral and silent text reading for comprehension, including sentence level work

Spelling and writing



Phoneme Identification

Link the phoneme to a gesture, object, or picture of the word.

- Call attention to articulation.
- Identify the sound in spoken words.
- Cue the production of the sound with the gesture, object, or picture.



/ō/



/wh/

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Adjustment for Poor Orthographic Memory

- Practice “sight word” memory for highest frequency words
- Constantly review and reteach as needed
- Teach the logic of English spelling, emphasizing patterns, word origin, and morphology
- Call attention to details of print through word sorting, computer games, spelling aloud, color coding – anything that works.

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“For every complex problem there is a simple solution – that doesn’t work.”
Mark Twain

Most students need a multi-component approach.

Stay focused on reading and writing; use “processing” tests to help explain the student, but not as a gateway to services or for selecting programs.

Rely on structured language approaches for intervention; use them with flexibility.

Look for and develop compensatory student strengths!

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Remember

“Every child would read [and spell] if it were in his power to do so.”

Betts, E. A. (1936). *The prevention and correction of reading difficulties*. Evanston, IL: Row, Peterson and Company. (p. 5)

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“It Changed My Life!”

You, the teacher, are the most important agent for that change.

Thank you for the work you do!

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