What Should Be Included in a Comprehensive Assessment of Dyslexia

2023 TASP Conference

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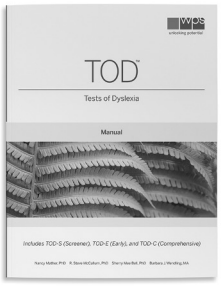
November 4, 2023

Disclosure: I am a co-author of the Tests of Dyslexia (TOD™) which I will briefly describe. (Mather, McCallum, Bell, & Wendling, 2024)

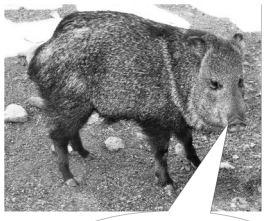


I am also a co-author and will briefly mention:

WJ IV
Test of Orthographic Competence (TOC-2)
Test of Silent Word Reading Fluency (TOSWRF-2)

Topics

- What is dyslexia?
- What should a comprehensive evaluation of dyslexia include?
  - Reading and spelling skills
  - Specific linguistic risk factors
  - Vocabulary and reasoning
  - Qualitative information
- Consideration of comorbidity
- Brief description of the Tests of Dyslexia (TOD)



So, what are we going to talk about?

Definition of Dyslexia

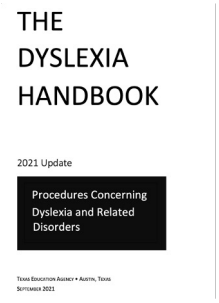
International Dyslexia Association:

Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

Source: Adopted by the IDA Board of Directors, Nov. 12, 2002.

Texas Definition of Dyslexia TEC 38.003(d)

- Disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell despite conventional instruction, adequate intelligence, and sociocultural opportunity.
- *Dyslexia Handbook* was first developed in 1987
  - Revised in 1992, 1998, 2001, 2007, 2010, 2014, 2018, and 2021



Dyslexia Laws in the USA

As of December of 2015, 28 states had some type of dyslexia law. In 2020, it was 46. By 2022, all states have some type of dyslexia law.

Source: Youman, M., & Mather, N. (2018). Dyslexia laws in the USA: A 2018 Update. *Perspectives*, 37–41.

Dyslexia Resources

National Center on Improving Literacy
State of Dyslexia: Explore dyslexia legislation and related initiatives in the United States of America.
improvingliteracy.org/state-of-dyslexia

Dyslegia: A Legislative Information Site
Dyslegia.com tracks the progress of legislation specifically related to dyslexia throughout the United States.
dyslegia.com

Dyslexic Advantage
Dyslexia Laws in the US 2021
dyslexicadvantage.org/dyslexia-laws-2018/

Consensus on the Definition of Dyslexia

- It is a neurobiological difference that affects the development of basic reading skills, automaticity with sound–symbol connections, and spelling.
- It is often accompanied by specific weaknesses in linguistic risk factors that predict poor reading and spelling.
- It is a lifelong condition but effective interventions reduce the impact.
- Many other abilities are often intact and can even be advanced.
- It affects both motivation and self-esteem.

It is the most common specific learning disability.

70 to 80% of the referrals to special education involve concerns about reading development.

Dyslexia and Alternate Terms

- Specific Reading Disability
- Specific Learning Disability in Basic Reading Skills
- Specific Reading Fluency/Rate Disability
- Developmental learning disorder with impairment in reading (ICD-11 6A03.0)
- Specific learning disorder with an impairment in reading (DSM-5 315.00)

Specific Reading Disability = Dyslexia

"We do not understand why the term "dyslexia" is often viewed as if it were a four-letter word, not to be uttered in polite company" (p. 187).

Source: Siegel, L. S., & Mazabel, S. (2013). Basic cognitive processes and reading disabilities. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of learning disabilities* (2nd ed.) (pp. 186-213). Guilford Press.

UNITED STATES DEPARTMENT OF EDUCATION
OFFICE OF SPECIAL EDUCATION AND REHABILITATIVE SERVICES

THE ASSISTANT SECRETARY

October 23, 2015

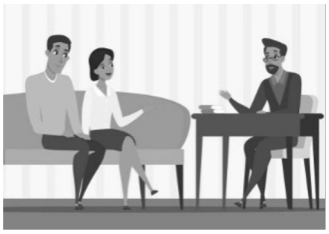
"In implementing the IDEA requirements discussed above, OSERS encourages SEAs and LEAs to consider situations where it would be appropriate to use the terms dyslexia, dyscalculia, or dysgraphia to describe and address the child's unique, identified needs through evaluation, eligibility, and IEP documents. OSERS further encourages States to review their policies, they do not prohibit the use of the terms dyslexia, dyscalculia, and dysgraphia in evaluations, eligibility, and IEP documents."

Hereditary Factors

Strong converging evidence indicates that:

1. Dyslexia has a genetic basis but there is not one specific gene for reading.
2. Family history is a key risk indicator.
3. If one parent is affected, there is a 34 to 54% chance, the child will have dyslexia.

Sources: Lasnick, O., Feng, J., Quirion, A., Hart, S., & Hoeft, F. (2022). The importance of family history in dyslexia. *Reading League Journal,* 3(2), 35-40.
Snowling, M. J., & Melby-Lervåg, M. (2016). Oral language deficits in familial dyslexia: A meta-analysis and review. *Psychological Bulletin*, *142*, 498–545



Family history is one of the strongest risk factors for developing dyslexia (Ozernov-Palchik & Gaab, 2016). Having a parent who has dyslexia increases the likelihood that a child will have dyslexia, and if both parents have dyslexia, the probability increases even more (Snowling & Melby-Lervåg, 2016; Spencer et al., 2014).

At-Risk Indicators

Two questions you always want to ask:

Did anyone in your family have difficulty learning to read?

Did your child have difficulty with speech or language development?

Relevant Background Information

Family history

Educational history (past tutoring and interventions)

Past evaluations

Co-morbid disorders (e.g., developmental language disorder, ADHD, dyscalculia)

Parent and teacher interviews

Analyses of oral reading and writing samples

Reading and Spelling Assessment

- Pseudoword (nonsense word) reading and spelling (untimed and timed)
- Exception word reading (untimed and timed)
- Reading fluency and rate
- Spelling (both regular and exception words)
- Comprehension under time constraints

Untimed and Timed Word Reading

- Pseudoword (nonsense word) (untimed and timed)
- Exception word reading (untimed and timed)

"Tests of accuracy and speed of word recognition and pseudoword reading are absolutely essential for understanding whether an individual is experiencing reading difficulties" (p. 26).

Source: Siegel, L. S., & Hurford, D. P. (2019). The case against discrepancy models in the evaluation of dyslexia. *Perspectives on Language and Literacy, 45*(1), 23-28.

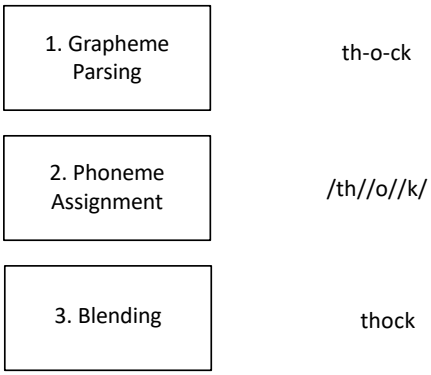
Pseudoword and Irregular Word Reading

- Pseudoword reading: relies on phonological processing and indicates present level of skill in applying phonics to pronounce unfamiliar words.
- Irregular word reading: relies on both phonological processing and orthographic processing (pronunciation of the irregular element of the word) and indicates the breadth of sight vocabulary.

Three Steps in Reading Pseudowords

- **First step**: Grapheme parsing - breaking apart a letter string into its constituent graphemes.
- **Second step**: Phoneme assignment - assigning phonemes to the graphemes.
- **Third step**: Blending the phonemes together to form a pseudoword.

Source: Coltheart, M., & Ulicheva, A. (2018). Why is nonword reading so variable in adult skilled readers? *PeerJ, 6*:e4879. https://doi.org/10.7717/peerj.4879.



"This blending process will be very slow at first. It is, in fact, the most difficult step of the whole teaching procedure. But it is also the most fundamental step thereof. The mastery of the individual sounds is comparatively easy, but the ability to blend these sounds into recognizable words is often very difficult. But it will come,--it always has come. As an aid to this blending process it has been found very helpful to have some sort of movable letters… (p. 129).

Source: Stanger, M. A., & Donohue, E. K. (1937). *Prediction and prevention of reading difficulties.* Oxford University Press.

Pseudowords vs. Irregular Words

Compare performance on pseudoword and irregular word reading. Pseudoword requires phonological awareness and exception word reading requires orthographic processing.

Poor performance on pseudoword reading: Provide instruction to improve phonics. Ensure the student can blend phonemes. If not, first provide instruction in sound blending.

Poor irregular word reading: Provide instruction in common spelling patterns (e.g., ight, -tion). Provide practice in both reading and spelling exception words.

"When a reader who has a limited sight word vocabulary is asked which word looks right, the response is likely to be, 'Words never *look right* to me' " (p. 35).

Source: Willows, D. M., & Terepocki, M. (1993). The relation of reversal errors to reading disabilities. In D. M. Willows, R. S. Kruk, & E. Corcos (Eds.), *Visual processes in reading and reading disabilities* (pp. 31-56). Lawrence Erlbaum.

Untimed vs.Timed Tests

Compare performance on untimed and timed word reading tests.

Accuracy vs. automaticity

Poor accuracy: Provide systematic instruction to improve basic reading skills.

Poor automaticity but average accuracy: Provide instruction designed to build rate and fluency.

Error Analysis

"When evaluating the reading skills of struggling readers, it is important to analyze the items on which they make errors and the types of errors that are made. Error and item analyses provide a clue as to the types of interventions that would be of most benefit (p. 27)."

Source: Siegel, L. S., & Hurford, D. P. (2019). The case against discrepancy models in the evaluation of dyslexia. *Perspectives on Language and Literacy, 45*(1), 23-28.

Importance of Observing Error Patterns

"Reading errors are of many types. Two children, reading the same paragraph, may make the same number of errors, receive the same reading grade, and yet their mistakes may be wholly different in nature. Their reading performances may be quantitatively the same but qualitatively unlike" (p. 34).

Source: Monroe, M. (1932). *Children who cannot read.* University of Chicago Press.

Results

- Time: 1 minute
- Rate
  - Words read per minute = 24
  - Number of errors = 13

Source: Hasbrouck, J., & Tindal, G. (2017). *An update to compiled ORF norms.* (Technical Report No. 1702). Behavioral Research & Teaching, University of Oregon.

Results

- 11/13 Words Read Correctly (WRC) = less than 50% accuracy
  - (Record the total number of words read [24]. Subtract the number of errors [13]. The top number is WRC, and the bottom number is the number of errors.)
- A typical second grade student would be expected to read at about 100 words correct per minute, when reading unpracticed second grade text (Hasbrouck & Tindal, 2017).

Source: Hasbrouck, J., & Tindal, G. (2017). *An update to compiled ORF norms.* (Technical Report No. 1702). Behavioral Research & Teaching, University of Oregon.

COMPILED ORF NORMS

Hasbrouck & Tindal (2017)

From Hasbrouck, J. & Tindal, G. (2017). *An update to compiled ORF norms* (Technical Report No. 1702). Eugene, OR. Behavioral Research and Teaching, University of Oregon.

Grade	Percentile	Fall WCPM*	Winter WCPM*	Spring WCPM*
1	90		97	116
	75		59	91
	50		29	60
	25		16	34
	10		9	18
2	90	111	131	148
	75	84	109	124
	50	50	84	100
	25	36	59	72
	10	23	35	43
3	90	134	161	166
	75	104	137	139
	50	83	97	112
	25	59	79	91
	10	40	62	63

Grade	Percentile	Fall WCPM*	Winter WCPM*	Spring WCPM*
4	90	153	168	184
	75	125	143	160
	50	94	120	133
	25	75	95	105
	10	60	71	83
5	90	179	183	195
	75	153	160	169
	50	121	133	146
	25	87	109	119
	10	64	84	102
6	90	185	195	204
	75	159	166	173
	50	132	145	146
	25	112	116	122
	10	89	91	91

*WCPM = Words Correct Per Minute

Science

Text Reading Fluency

Is FASTER Better?

50-75 the percentile range on oral reading fluency (ORF) norms on unpracticed, grade level text

(Hasbrouck & Tindal,1992; 2006; 2017)

White et al. (2021). The 2018 NAEP Oral Reading Fluency Study (NCES 2021-025). U.S. Department of Education. Washington, DC: Institute of Education Sciences.

Slides on Text Reading Fluency from: Dr. Jan Hasbrouck

Science

Text Reading Fluency

1 LIMITED EVIDENCE from research or theory or practice that suggest a benefit to reading significantly ABOVE the 50-75 percentile range. Can be detrimental.

2 SIGNIFICANT EVIDENCE that it is crucial to help students read with fluency solidly at or very near the 50 percentile to support comprehension and motivation.

Research suggests 75th percentile **sufficient** for optimizing comprehension; the 50th percentile **necessary** for comprehension.

Spelling

Analyze spelling errors.

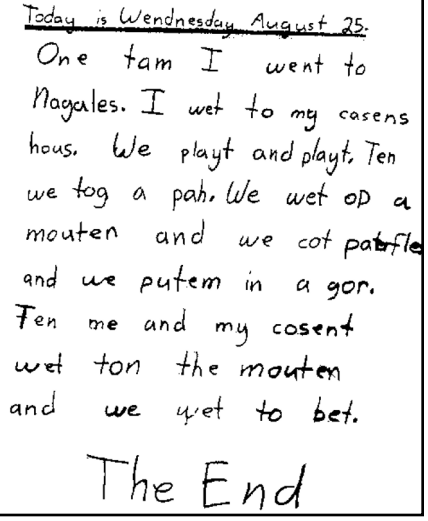
Determine any patterns.

Compare reading and spelling errors.

Identify instructional goals.

Amanda, Grade 3
Weaknesses in phonological processing

1. Leaves out nasal sounds (e.g., wet for went, mouten for mountain).
2. Confuses voiced and unvoiced consonants, e.g., d-t (bet for bed, ton for down), b-p (e.g., paterfles for butterflies).
3. Omits the digraph *th*, (e.g., pah for path, ten for then).
4. Confuses medial vowel sounds.
5. Makes errors on the spelling of past tense (e.g., playt for played)


Today is Wendnesday August 25.
One tam I went to Nagales. I wet to my casens hous. We playt and playt. Ten we tog a pah. We wet oD a mouten and we cot paterfle and we putem in a gor. Ten me and my cosent wet ton the mouten and we wet to bet.
The End

Linguistic Risk Factors

The specific cognitive and linguistic abilities that can contribute to reading and spelling difficulties.

No one linguistic risk factor can rule in or out a diagnosis of dyslexia.

Low scores on multiple linguistic risk factors increase the risk for reading and spelling difficulties.

Dr. Alan Kaufman

…there is a demand for the comprehensive assessment to drive intervention. This is the way it has always been, and this is the way it will always be because the referral questions for children with SLD have always asked, What is wrong? And how can we help? These questions demand differential diagnosis, a large part of which is determined by the cognitive abilities present in the individual child (p. 211).

Source: Kaufman, A. S., Lichtenberger, E. O., Fletcher-Janzen, E., & Kaufman, N. L. (2005). *Essentials of the K-ABC-II Assessment.* Wiley.

Many students with dyslexia have poor phonological awareness and difficulty connecting sounds to print, which results in slow word perception, a delay in developing instant word reading, and poor spelling.

In summarizing results about the factors that impede reading, Monroe (1932) concluded:

"No one factor was present in all cases. It is probable that the reading defect is caused by a constellation of factors rather than by one isolated factor" (p. 110).

Source: Monroe M. (1932). *Children who cannot read.* University of Chicago Press.

Multiple Deficit View

Adherence to a single deficit profile has limited utility; using only poor phonological awareness as a criterion for dyslexia would result in missing about one half of the cases.

Source: Pennington, B. F., Santerre-Lemmon, L., Rosenberg, J., MacDonald, B., Boada, R., Friend, A., Leopold, D. R., Samuelsson, S., Byrne, B., Willcutt, E. G., & Olson, R. K. (2012). Individual prediction of dyslexia by single versus multiple deficit models. *Journal of Abnormal Psychology, 121*(1), 212–224. https://doi.org/10.1037/a0025823

Specific Linguistic Risk Factors

- Phonological awareness: ability to hear and manipulate speech sounds
- Rapid automatized naming (RAN): ability to name objects, colors, letters, and/or digits rapidly
- Auditory working memory: ability to listen, then rearrange information (e.g., repeat a string of digits in reverse order).
- Orthographic processing: ability to recall letter orientation and the spelling patterns of words
- Visual-verbal paired associate learning: ability to pair a sound with a symbol and then recall it

Texas Dyslexia Handbook (2021)

- The reading/spelling characteristics are most often associated with the following:
- Segmenting, blending, and manipulating sounds in words (phonemic awareness)
- Learning the names of letters and their associated sounds
- Holding information about sounds and words in memory (phonological memory)
- Rapidly recalling the names of familiar objects, colors, or letters of the alphabet (rapid naming)

Texas Dyslexia Handbook (2021)

Consequences of dyslexia may include:

- Variable difficulty with aspects of reading comprehension
- Variable difficulty with aspects of written language
- Limited vocabulary growth due to reduced reading experiences

Figure 3.4. Areas for Evaluation

Academic Skills	Cognitive Processes	Possible Additional Areas
• Letter knowledge (name and associated sound) • Reading words in isolation • Decoding unfamiliar words accurately • Reading fluency (rate, accuracy, and prosody are assessed) • Reading comprehension • Spelling	• Phonological/phonemic awareness • Rapid naming of symbols or objects	• Vocabulary • Listening comprehension • Verbal expression • Written expression • Handwriting • Memory for letter or symbol sequences (orthographic processing) • Mathematical calculation/reasoning • Phonological memory • Verbal working memory • Processing speed

Poor Phonological Processing

May have:

1. Early articulation errors
2. Confusion of similar sounds (e.g., /b/ and /p/; /t/ and /d/- voiced and unvoiced consonant pairs)
3. History of ear infections or tubes in the ears
4. Trouble learning letter sounds
5. Poor pseudoword repetition, reading, and spelling

Phonemic Awareness

The three most important phonemic awareness abilities for reading and spelling are:

- **Sound blending**: provides the basis for learning phonics.
- **Segmentation**: provides the basis for sequencing sounds when spelling.
- **Phonemic manipulation:** provides the best prediction of reading skill.

Phoneme Manipulation Tasks

Requires working memory and more detailed analyses of words.

Source: Kilpatrick, D. A. (2015). *Essentials of assessing, preventing, and overcoming reading difficulties.* John Wiley & Sons.

Assessment Guidelines

Consider the level of development and the difficulty level of the task:

- Initial sound, final sound, and then medial vowel sound
- Compound words, syllables, phonemes
- Sound blending and segmentation vs. phoneme manipulation tasks (involves working memory)

Blending

Phonemes, syllables, compound words:

- If I put these sounds together, what would the word be? /s/ /t/ /o/ /p/
- If I put these syllables together, what would the word be? car-pen-ter
- If I put these words together, what would the word be? (use pictures if needed) *rain...coat*

Informally Assessing Sound Blending

If the student has difficulty with blending:

- Start with words with continuous sounds that can be prolonged (e.g., /s/, /f/, /m/).
- Present words with two, three, and then four sounds (e.g., /m/ /e/, /sh/ /oe/, /f/ /a/ /t/, /s/ /a/ /n/ /d/).
- Gradually increase the interval between sounds from a 1/4-second to a 1-second break.
- Determine exactly what the student can do.

Segmentation

Phonemes, syllables, compound words:

- Tell me the sounds you hear in the word *bus*.
- Tell me the two parts in the word pencil.
- Tell me the two words in *baseball*.

Intervention Implications

If low, recommend direct instruction in:

- Sound blending
- Segmentation
- Start the instruction with phonemes (use larger units if they cannot blend or segment phonemes)

Instruction in phonemic manipulation tasks may promote orthographic mapping (forming the connections between the speech sounds and print).

Rapid Automatized Naming (RAN)

Measures response time or rapid retrieval for a visual stimulus (objects, colors, letters, or numbers or a combination)

6 8 9 6 4 9 3 6 9 4

8 1 3 9 6 8 4 3 1 9

What Do Rapid Naming Tests Appear to Measure?

1. Ability to sustain attention to identify and name the symbols
2. Ability to discriminate among the symbols rapidly
3. Ability to retrieve verbal labels rapidly
4. Ability to articulate words rapidly

RAN Research Findings

a) RAN letters and then numbers are the strongest predictors of both reading and spelling.

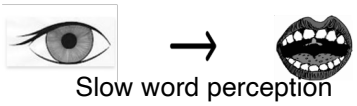
b) RAN is distinct from phonological awareness and most strongly related to speeded measures of reading.

c) The contribution of RAN is larger for younger readers and readers with more severe reading disabilities.

d) Pause time is significantly correlated with reading accuracy and fluency, whereas articulation time is not.

Dr. Martha Denckla

The Visual-Verbal Highway



Slow word perception

See it… Say it circuit

Intervention Implications

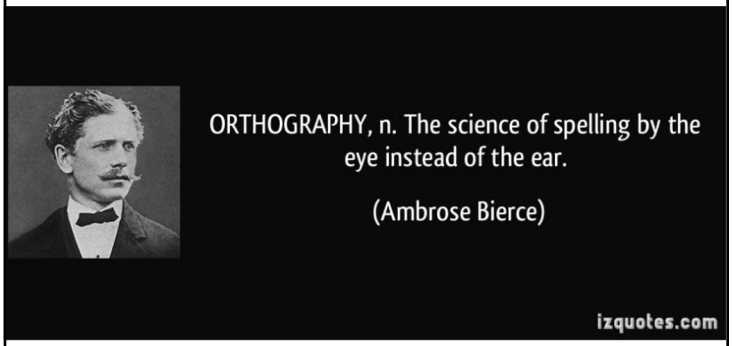
Ensure automaticity with the stimuli, before administering a RAN test.

When RAN is slow, intervention is usually needed for reading rate and fluency.

When rate is slow as well, a student will usually require extended time on exams and high-stake tests.

Auditory Working Memory

- Ability to hold information in memory and rearrange it.
- Related to attention and executive functioning.
- Affects many aspects of academic performance.
- When low, specific accommodations are often needed.



How do you know the correct spelling?

- rain
- rane
- sope
- soap

Phonological processing can occur but it is not sufficient for identifying the correct spelling of the word.

Learning Disabilities Practice 1997

Learning Disabilities Research & Practice, 12(4), 236–250

Orthographic Dyslexia: The Neglected Subtype

Rhia Roberts
Chapman University
Nancy Mather
University of Arizona

Phonologic deficits have recently received much attention in the study of reading disabilities. In this article, Rhia Roberts and Nancy Mather examine in detail the role of orthographic deficits as another important factor in research and treatment of reading disabilities. They argue persuasively that "orthographic dyslexia" must not be ignored.

TEXAS SCOTTISH RITE HOSPITAL FOR CHILDREN
www.tsrhc.org

ORTHOGRAPHIC PROCESSING: A SUBCOMPONENT, NOT A SUBTYPE, OF DEVELOPMENTAL DYSLEXIA

WHAT IS ORTHOGRAPHY, ORTHOGRAPHIC KNOWLEDGE AND ORTHOGRAPHIC PROCESSING?

Orthography is the methodology of writing a language, which primarily consists of spelling, but includes, contractions, punctuation and capitalization. Knowledge of orthography is stored in memory in the form of rules and representations of words or parts of words.[1] Orthographic processing, or coding, is the skill or facility to use orthographic knowledge to read and spell words.

Source: Scottish Rite Hospital for Children (2014, November). *What is orthography, orthographic knowledge and orthographic processing*? Dallas, TX: Luke Waites Center for Dyslexia and Learning Disorders.

Subtype vs. Subcomponent

- Make separable contributions to word recognition and spelling
- contribute differently to reading and spelling difficulties
- require different types of intervention

Definitions Related to Orthography

- Orthography: the writing system of a language (includes spelling, punctuation, capitalization)
- Orthographic Processing: the brain's ability to recall letter orientation, spelling patterns, and words with both accuracy and speed
- Visual Orthographic Image (VOI): recall of individual letters, word parts, and words

Source: Mather, N., & Jaffe, L. (2021). Orthographic knowledge is essential for reading and spelling. *Reading League Journal, 2*(3), 15-25.

Orthographic Knowledge Is Essential for Reading and Spelling

by Nancy Mather and Lynne Jaffe

A colleague recently assessed Samantha, a young girl (age 9 years, 11 months), and was puzzled by her test results. She described them in the following way: "On the GORT-4 (Gray Oral Reading Test-4, scaled scores, mean = 10, standard deviation = 3), she scored 10 on Reading Rate, 13 on Accuracy, and 14 on Reading Comprehension. Her performance on an untimed phonological awareness task was good, and her Full Scale IQ score of 130 places her in the gifted range. She had no difficulty reading nonsense words on an untimed task (85th percentile) and was in the average range (46th percentile) when reading a list of irregular words, although she had no difficulty with those same words in context. In fact, she seems to be a beautiful reader. Her only problem is spelling. She makes numerous spelling mistakes, even on simple words, such as spelling *very* as *vry*, *only* as *onle*, and *they* as *thay*. Within a paragraph, she often spells the same word three different ways." Our colleague's question to us was, "Why is this happening? Could this be dyslexia? Her written stories are absolutely amazing, but her spelling is truly awful."

Orthographic processing is also a linguistic risk factor. Findings from a recent meta-analysis indicated that individuals with dyslexia have a deficit in orthographic knowledge that is as large as that of phonological awareness and rapid automatized naming (RAN).

Source: Georgiou, G. K., Martinez, D., Vieira, A. P. A., & Guo, K. (2021). Is orthographic knowledge a strength or a weakness in individuals with dyslexia? Evidence from a meta-analysis. *Annals of Dyslexia, 71*, 5–27. https://doi.org/10.1007/s11881-021-00220-6

Unstable Word Images

Visual orthographic images (VOI)

Poor Orthographic Processing and Reading

- Trouble remembering sight words
- Sounds out words even after many exposures
- Confuses similar-looking words (e.g., on and no, who and how)
- Slow word perception and reading rate often into adulthood

Poor Orthographic Processing and Spelling

- Difficulty learning how to form letters
- Reverses letter and numbers past the age of 7
- Trouble copying from the board
- Spells words the way they sound, not the way they look
- Spells the same word inconsistently
- Violates rules of English spelling
- Has poor spelling into adulthood
- Often has a discrepancy between spelling and ideation

Further Considerations

Has the student received reading and spelling instruction for at least one year?

Was the instruction systematic?

Is English the student's first language?

Examples of Exception Words

again	**people**
answer	**said**
because	**their**
come	**though**
could	**two**
does	**was**
eyes	**water**
great	**were**
once	**whose**

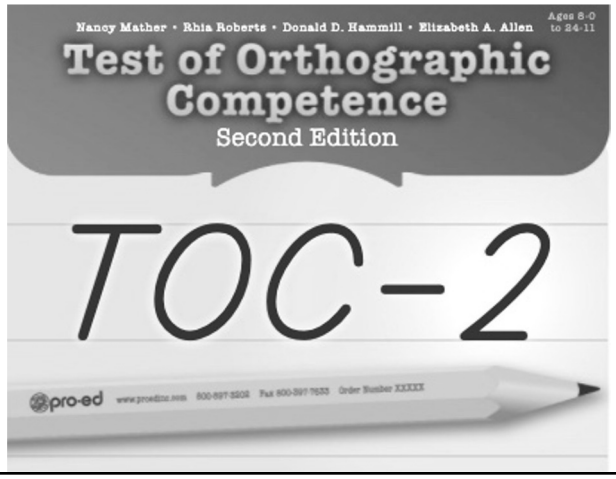
Test of Silent Word Reading Fluency-2

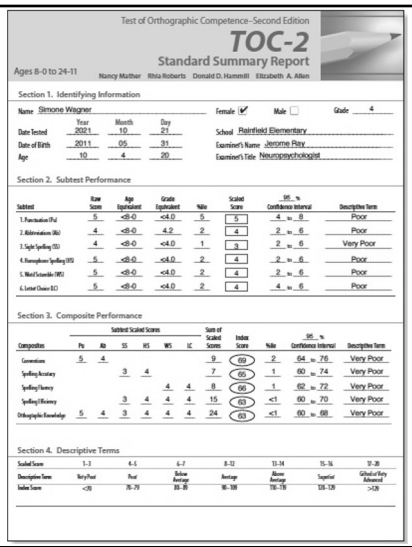
(TOSWRF-2) PRO-ED

itbagredsunfell

chaosempathysurrendercostume

it/bag/red/sun/fell/





Test of Silent Word Reading Fluency-2

(TOSWRF-2) PRO-ED

Correlations with the TOC

Spelling Accuracy	.87	Very Large
Orthographic Ability	.92	Nearly Perfect

Orthographic Mapping

"…the process readers use to store written words for immediate, effortless retrieval. It is the means by which readers turn unfamiliar written words into familiar, instantaneously accessible sight words" (p. 81).

Source: Kilpatrick, D. A. (2015). *Essentials of assessing, preventing, and overcoming reading difficulties*. John Wiley & Sons.

Orthographic Mapping

Starting point: forming the connections between the phonemes and the graphemes

Phonemes: /m/ /a/ /n/

Graphemes: m a n

Visual-Verbal Paired Associate Learning (PAL)

"…the learning of mappings between orthography and phonology is critical for learning to read and likely operates at numerous levels, including the process of learning letter–sound correspondences and the learning of mappings at the level of single letters, letter groups, and whole words when acquiring a word recognition system" (p. 47).

Source: Warmington, M., & Hulme, C. (2012). Phoneme awareness, visual-verbal paired associate learning, and rapid automatized naming as predictors of individual differences in reading ability. *Scientific Studies of Reading, 16*, 45–62.

Vocabulary and Reasoning: Ability to Learn when Reading is not Required

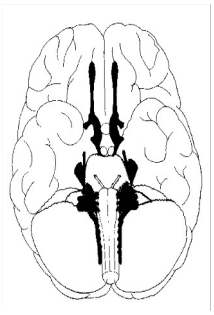
- **Vocabulary**: high comorbidity with developmental language disorder (low vocabulary, low reading)
- **Vocabulary**: unexpected nature of dyslexia (high vocabulary, low reading)
- **Reasoning**: rule out intellectual impairments, English Learners
- **Vocabulary and Reasoning**: ability–achievement discrepancies
- **Vocabulary and Reasoning**: identification of twice-exceptional students with dyslexia who have average or low average reading

Need to identify the factors that will facilitate performance…

We shouldn't ask:
How smart you are…

but instead:
How are you smart?

—H. Gardner



Source: Gardner, H. (1993). *Frames of mind: The theory of multiple intelligences* (10th anniversary). Basic Books.

Dyslexia Assessment

a) Identify at-risk indicators: family history, early speech and language difficulties
b) Primary areas (word reading, rate, and spelling), including results of error analyses
c) Identify specific linguistic risk factors
d) Ability to learn when reading is not required (vocabulary and reasoning)
e) Identify strengths
f) Determine specific accommodations and interventions

Comorbidity

High comorbidity (two or more disorders in the same person) exists between dyslexia and other learning disorders. 40% of children with dyslexia will have another learning disorder as well.

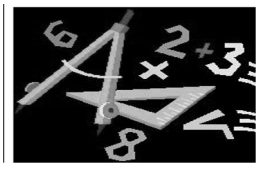
Source: Moll, K., Snowling, M. J., & Hulme, C. (2020). Introduction to the special issue "Comorbidities between reading disorders and other developmental disorders." *Scientific Studies of Reading*, *24*(1), 1–6. https://doi.org/10.1080/10888438.2019.1702045

Three Most Common Comorbid Disorders

- Mathematics (Dyscalculia)
- ADHD
- Developmental Language Disorder

Mathematics

- Working memory
- Storing and retrieving facts
- Processing speed
- Rapid number naming
- ADHD



"…specific language impairment and reading disability are best considered as distinct disorders that are often comorbid" (Ramus et al., 2013) (p. 25).

Source: Elliott, J. G., & Grigorenko, E. L. (2014). *The dyslexia debate*. Cambridge University Press.

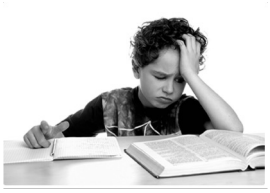
Reading Comprehension

"Individuals with problems in reading comprehension that are not attributable to poor word recognition have comprehension problems that are general to language comprehension rather than specific to reading." (p. 3)

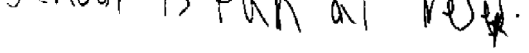
Source: Spencer, M., Quinn, J. M., Wagner, R. K. (2014). Specific reading comprehension disability: Major problem, myth, or misnomer? *Learning Disabilities Research & Practice, 29*, 3-9.

Behavior and Motivation

Reading and writing are so hard and frustrating that sometimes these kids act out or just give up.



"Failure to learn to read as others do is a major catastrophe in a child's life" (p.1).



Source:

Dolch, E. W. (1939). *A manual for remedial reading.* Champaign, IL: Garrard Press.

"We firmly believe that it does students with LD little good to be included and socialized in general education classrooms for 12 years if the result is that these students leave high-school reading at a second- or third-grade level and with serious self esteem issues" (p. 66).

Source: Herr, C. M., & Bateman, B. D.. (2013). Learning disabilities and the law. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of learning disabilities* (2nd ed.) (pp. 51-68). Guilford Press.

In discussing his own realization that he had dyslexia, Schultz (2011), a Pulitzer prize winning poet, reflected: "My ignorance of my dyslexia only intensified my sense of isolation and hopelessness. Ignorance is perhaps the most painful aspect of a learning disability" (p. 64).

Source: Schultz, P. (2011). *My dyslexia.* W. W. Norton & Company.

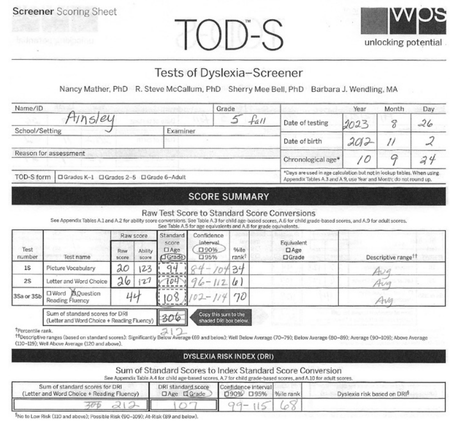
The Dyslexia Paradox

Dyslexia is typically not identified until a child is in second grade and has not learned to read as expected. Early intervention is most effective when provided from Pre-K to Grade 1 prior to reading failure.

A Paradox

Source: Ozernov-Palchik, O. & Gaab, N. (2016). Tackling the 'dyslexia paradox': Reading brain and behavior for early markers of developmental dyslexia. *WIREs Cognitive Science*, *7*, 156-176. https://doi.org/10.1002/wcs.1383

What if all the scores are average? Ainsley, Grade 5



Screener Scoring Sheet

TOD-S™

wps unlocking potential

Tests of Dyslexia–Screener

Nancy Mather, PhD R. Steve McCallum, PhD Sherry Mee Bell, PhD Barbara J. Wendling, MA

Name/ID	Grade		Year	Month	Day
Ainsley	5 fall	Date of testing	2023	8	26
School/Setting	Examiner	Date of birth	2012	11	2
Reason for assessment		Chronological age*	10	9	24

TOD-S form ☐Grades K–1 ☐Grades 2–5 ☐Grade 6–Adult

*Days are used in age calculation but not in lookup tables. When using Appendix Tables A.3 and A.9, use Year and Month; do not round up.

SCORE SUMMARY

Raw Test Score to Standard Score Conversions

See Appendix Tables A.1 and A.2 for ability score conversions. See Table A.3 for child age-based scores, A.6 for child grade-based scores, and A.9 for adult scores. See Table A.5 for age equivalents and A.8 for grade equivalents.

Test number	Test name	Raw score	Ability score	Standard score ☐Age ☐Grade	Confidence interval ☐90% ☐95%	%ile rank†	Equivalent ☐Age ☐Grade	Descriptive range††
1S	Picture Vocabulary	20	123	94	84–104	34		Avg
2S	Letter and Word Choice	26	127	104	96–112	61		Avg
3Sa or 3Sb	☐Word ☒Question Reading Fluency	44		108	102–114	70		Avg

Sum of standard scores for DRI (Letter and Word Choice + Reading Fluency) 306 (212) — Copy this sum to the shaded DRI box below.

†Percentile rank.
††Descriptive ranges (based on standard scores): Significantly Below Average (69 and below); Well Below Average (70–79); Below Average (80–89); Average (90–109); Above Average (110–119); Well Above Average (120 and above).

DYSLEXIA RISK INDEX (DRI)

Sum of Standard Scores to Index Standard Score Conversion

See Appendix Table A.4 for child age-based scores, A.7 for child grade-based scores, and A.10 for adult scores.

Sum of standard scores for DRI (Letter and Word Choice + Reading Fluency)	DRI standard score ☐Age ☐Grade	Confidence interval ☐90% ☐95%	%ile rank	Dyslexia risk based on DRI§
~~306~~ 212	107	99–115	68	

§No to Low Risk (110 and above); Possible Risk (90–109); At-Risk (89 and below).

Additional Considerations

- Strong family history of dyslexia (mother, father, brother, and grandfather).
- Was identified with "suspected" dyslexia in Grade 1 but didn't qualify for special education services, as there was no processing deficit.
- Has had intensive tutoring starting in kindergarten.
- Attends a private school for students with dyslexia.
- Has had daily one-to-one instruction for two years with the Wilson Reading System.

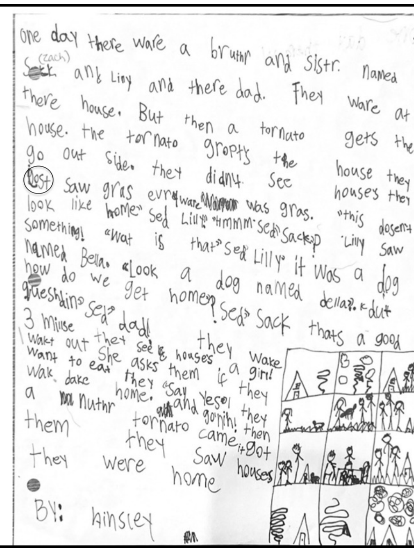
Ainsley, Grade 3

Weaknesses in orthographic processing

Spells words the way they sound (e.g., sed, a nuther, bruthr, giril).

b-d reversals (*dake* for back, *dut* for but, della for Bella), a backward J

Misspells high frequency words (e.g., were, said, does).



Recent Guidance from Texas Education Agency on Dyslexia:

The bill created TEC §29.0031 that now states dyslexia is an example of and meets the definition of a SLD under IDEA.

There is no single instrument, score, or formula that will automatically rule in or rule out dyslexia. ***It is not required that a student demonstrate a specific cognitive weakness on standardized assessments as demonstrated by achieving below a certain threshold to otherwise display a pattern of strengths and weakness relevant to the identification of dyslexia.*** Dyslexia identification is based on the preponderance of evidence.

Dyslexia Profile

- Provides a way to organize data regarding consideration of whether a student has dyslexia.
- May be used with any tests.
- Helps focus the evaluation on the reading and spelling and cognitive and linguistic, abilities most relevant to dyslexia.
- Highlights both strengths and weaknesses.

Developed by: C. Proctor, N. Mather, T. Stephens, and L. E. Jaffe (May, 2017).

DYSLEXIA PROFILE

Name_____ Date of Birth _____ ID_____

School _____ Grade_____ Date_____

The [name of state] Education Code [§ statute number] [or country] defines dyslexia in the following way:

International Dyslexia Association Definition (2002)

Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge.

Authors' note: Dyslexia affects reading at the single word level, reading fluency and rate, and spelling. In turn, these deficits cause difficulties with reading comprehension and written expression. According to research, the major cognitive correlates of dyslexia include weaknesses in one or more of the following abilities: phonological awareness, orthographic awareness, memory, rapid automatized naming, and processing speed. Other abilities, such as general intelligence, reasoning, oral language, mathematics, and knowledge, that do not require reading, are often unimpaired. In other words, the reading and spelling difficulties are often unexpected in relation to the student's other abilities.

Section I: Summary

A. Primary and Secondary Reading, Spelling, and Writing Difficulties

Check the areas of concern.

Primary Reading and Spelling Difficulties	Secondary Reading and Writing Difficulties
☐ Letter-sound associations ☐ Letter names ☐ Letter sounds ☐ Basic reading skills ☐ Sight word identification ☐ Phonics (nonword/word decoding) ☐ Reading fluency and rate ☐ Spelling ☐ in isolation ☐ in context	☐ Reading comprehension ☐ Written expression

B. Cognitive and Linguistic Abilities: Possible Contributing Factors

Check the areas that are possible contributing factors.

☐ Phonological awareness[1] ☐ Blending ☐ Segmentation ☐ Manipulation	☐ Orthographic awareness[2]	☐ Memory ☐ Working memory ☐ Associative memory	☐ Rapid automatized naming ☐ Processing speed

C. Ability to Learn When Reading is Not Required

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

Cognitive Abilities	Oral Language	Mathematics	Knowledge
☐ General intelligence ☐ Reasoning	☐ Oral expression ☐ Listening comprehension ☐ Vocabulary[3]	☐ Calculation ☐ Problem solving	☐ General knowledge[3] ☐ Academic knowledge[3]

D. At-Risk Indicators

Check the areas below that are additional at-risk factors.

☐ Family history ☐ Early speech-language issues

Dyslexia Assessment

A. Primary Areas (word reading, rate, and spelling; Secondary areas (reading comprehension and written expression)
B. Linguistic risk factors
C. Ability to learn when reading is not required
D. At risk indicators: family history, early speech and language difficulties

Identifying the Primary Reading and Spelling Difficulties

Development and Acquisition of:

- **Sound-letter (phoneme-grapheme) associations**
- **Basic reading skills**
  –Phonics and sight word reading
- **Rate (automaticity) of reading and spelling**
- **Spelling**

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 Reading and Spelling Difficulties	Letter-Sound Associations	Informal		**Letter names:** ☐Poor ☐Typical ☐Advanced Case: Lower ____/26 Upper ____/26 **Letter sounds:** ☐Poor ☐Typical ☐Advanced Consonants ___ Vowels ___			
	Basic Reading Skills			**Word Identification**			
				Phonics			
	Reading Fluency/Rate			**Reading Fluency/Rate**			
	Spelling			**Spelling in Isolation**			
				Spelling in Context: ☐Poor ☐Typical ☐Adv.			

TESTS ADMINISTERED

Woodcock-Johnson IV Tests of Achievement Form A and Extended (Norms based on age 13-4)

TABLE OF SCORES

Woodcock-Johnson IV Tests of Achievement Form A and Extended (Norms based on age 13-4)

CLUSTER/Test	GE	RPI	Proficiency	SS (68% Band)	PR (68% Band)
BASIC READING SKILLS	1.8	3/90	Extremely Limited	55 (52-59)	<1 (<1-<1)
Letter-Word Identification	1.9	1/90	Extremely Limited	54 (51-58)	<1 (<1-<1)
Word Attack	1.4	11/90	Very Limited	62 (58-67)	<1 (<1-1)
READING FLUENCY	2.2	1/90	Extremely Limited	60 (55-65)	<1 (<1-<1)
Oral Reading	2.2	19/90	Very Limited	70 (67-74)	2 (1-4)
Sentence Reading Fluency	2.2	0/90	Extremely Limited	61 (55-67)	<1 (<1-1)
WRITTEN LANGUAGE	2.5	12/90	Very Limited	64 (61-67)	<1 (<1-2)
Spelling	2.1	2/90	Extremely Limited	59 (55-63)	<1 (<1-<1)
Writing Samples	3.3	49/90	Limited	80 (76-85)	9 (5-16)

Procedures for Dyslexia Identification

Two Basic Concepts

Unexpected underachievement

Expected underachievement

Procedures for Dyslexia Identification

Basic Concepts - Unexpected Underachievement

Reading performance is below what would be predicted based upon one's other cognitive/linguistic and/or academic abilities (e.g., oral vocabulary, math). (Discrepancy model).

Procedures for Dyslexia Identification

Verbal Ability as an Estimate of Reading Potential

" Children should be able to comprehend, or construct, the meaning of what is being read at a level consistent with their general verbal ability" (p.55).

Source: Torgesen, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning Disabilities Research & Practice, 15*, 55-64.

Procedures for Dyslexia Identification

Basic Concepts - Expected Underachievement

Reading performance is in line with the linguistic risk factors- the weakness(es) predict the poor academic performance (e.g., poor phonological awareness predicts poor phonics skills; slow RAN predicts slow reading rate). (Consistency model)

Procedures for Dyslexia Identification

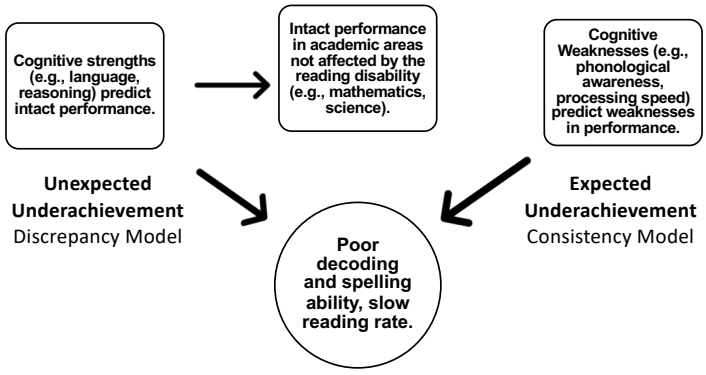
Basic Concepts

"We are coming to recognize that deficiencies in certain cognitive processes are indicators of LD that predict and, therefore, result in expected underachievement" (p. 239).

Source: Learning disabilities: Implications for policy regarding research and practice: A report by the National Joint Committee on Learning Disabilities March 2011. *Learning Disability Quarterly*, *34*, 237-241.

Procedures for Dyslexia Identification

Two Basic Concepts



"Knowledgeable practitioners also use clinical judgment to determine which approach is applicable for a given child or in a given school setting. While regulations and policies require school districts to implement a single approach, best practice may reside somewhere in the margins with a hybrid model" (p. 6).

Source: Kovaleski, J. F., Lichtenstein, R., Naglieri, J., Ortiz, S. O., Klotz, M. B., & Rossen, E. (2015). Current perspectives in the identification of specific learning disabilities. *Communique, 44*(4), 4, 6.

The Main Question

Why do we need to use 3 or 4 different tests to perform a comprehensive dyslexia assessment?

Use of Multiple Tests

- Different norm samples
- Different age and grade ranges
- Access to various tests
- Different types of test scores
- Different score ranges

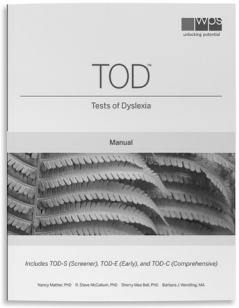
(Average: 85-115, 90-110)

What all should be included in a comprehensive test for dyslexia?

- Word Reading (untimed and timed) and Rate
- Timed reading comprehension
- Spelling
- Specific Linguistic Risk Factors
- Vocabulary and Reasoning
- Rating Scales: Parent, Teacher, and Self
- Recommendations for Intervention

Tests of Dyslexia (TOD)

- TOD-Screener
- TOD-Early (K-2)
- TOD-Comprehensive (Grade 1-Adult)
- TOD Rating Scales
- Dyslexia Interventions and Recommendations



Purposes

The TOD typically has two main purposes:

- screen for risk of dyslexia in either a group or individually and determine if further assessment with the TOD-C or TOD-E is needed.
- use the TOD-S in conjunction with either the TOD-C or TOD-E (depending on age/grade) and TOD Rating Scales to conduct a comprehensive dyslexia evaluation in cases where a referral question regarding dyslexia or poor reading already exists.

TOD-Screener Tests & Risk Composite (Grade K–Adult)

1. Picture Vocabulary+
2. **Letter and Word Choice**
3. **Word Reading Fluency** (K–1) *or* **Question Reading Fluency** (Grade 2 and up)

Dyslexia Risk Index (DRI) = **Bold** Tests

+Picture Vocabulary is useful in the DRI and EDDI interpretation.

Dyslexia Risk Index

- Two TOD-S tests (*Letter and Word Choice*; *Word or Question Reading Fluency)* yield the Dyslexia Risk Index (DRI).
- Indicates the need for further evaluation.
- DRI scores in the at-risk range suggest further testing is needed with the TOD-C or TOD-E.

Risk of Dyslexia Based on DRI score		
Risk	**Interpretive description**	**Standard Score range**
No or Low Risk	Above average	109–130
Possible Risk	Average	90–109
At-Risk	Below average	89 and below

TOD-Early Tests (Grades K–2)

1. Picture Vocabulary+
2. **Letter and Word Choice**
3. **Word Reading Fluency** (K–1) *or* **Question Reading Fluency** (Grade 2 and up)

Dyslexia Risk Index (DRI) = **Bold** Tests

+Picture Vocabulary is useful in the DRI and EDDI interpretation.

1. Picture Vocabulary+
2. **Letter and Word Choice**
3. **Word Reading Fluency**
4. **Sounds and Pseudowords**
5. **Rhyming**
6. **Early Rapid Number and Letter Naming**
7. **Letter and Sight Word Recognition**
8. **Early Segmenting**
9. **Letter and Sound Knowledge**

Early Dyslexia Diagnostic Index (EDDI) = **Bold** Tests

TOD-Early Indexes

Early Dyslexia Diagnostic Index (EDDI) = Early Linguistic Processing Index + Early Reading and Spelling Index

TOD-Early Composites

Early Sight Word Acquisition	**Early Phonics Knowledge**	**Early Basic Reading Skills**	**Early Phonological Awareness**
Letter and Word Choice	Sounds and Pseudowords	Letter and Sight Word Recognition	Rhyming
Letter and Sight Word Recognition	Letter and Sound Knowledge	Letter and Sound Knowledge	Early Segmenting

TOD-Comprehensive (Grade 1 and Up)

1. Picture Vocabulary
2. **Letter and Word Choice**
3. **Word or Question Reading Fluency**
4. **Phonological Manipulation**
5. **Irregular Word Spelling**
6. **Rapid Letter Naming**
7. **Pseudoword Reading**
8. **Word Pattern Choice**
9. **Word Memory**

Dyslexia Diagnostic Index (DDI) = **Bold** Tests

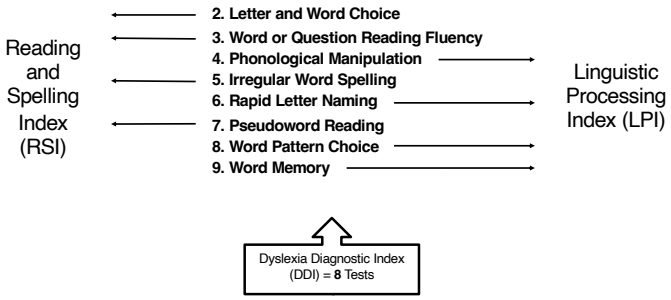
10. Picture Analogies
11. Irregular Word Reading
12. Oral Reading Efficiency
13. Blending
14. Segmenting
15. Regular Word Spelling
16. Silent Reading Efficiency
17. Rapid Number and Letter Naming
18. Letter Memory
19. Rapid Pseudoword Reading
20. Rapid Irregular Word Reading
21. Symbol to Sound Learning
22. Listening Vocabulary
23. Geometric Analogies

TOD-Comprehensive (TOD-C) Indexes

Dyslexia Diagnostic Index (DDI) = Linguistic Processing Index (LPI) + Reading and Spelling Index (RSI)

TOD-C RSI and LPI Composition

(Grade 1 and Up)



TOD-C Reading and Spelling Composites

Sight Word Acquisition	Phonics Knowledge	Basic Reading Skills	Decoding Efficiency
Irregular Word Reading	Pseudoword Reading	Pseudoword Reading	Rapid Pseudoword Reading
Rapid Irregular Word Reading	Rapid Pseudoword Reading	Irregular Word Reading	Rapid Irregular Word Reading

Spelling	Reading Fluency	Reading Comprehension Efficiency
Irregular Word Spelling	Word Reading Fluency/Question Reading Fluency	Question Reading Fluency
Regular Word Spelling	Oral Reading Efficiency	Silent Reading Efficiency

TOD-C Linguistic Risk Factors

Rapid Automatized Naming	Auditory Working Memory	Orthographic Processing	Phonological Awareness
Rapid Letter Naming	Word Memory	Letter and Word Choice	Phonological Manipulation Blending
Rapid Number and Letter Naming	Letter Memory	Word Pattern Choice	Segmenting

TOD-Comprehensive

Test 17C. Rapid Number and Letter Naming
The examinee is presented with rows of confusable letters and numbers and must name the letters as rapidly as possible within 1 minute.

3 E 6 F L 9

Confusable Letters

On letter-naming tasks, even adults with dyslexia have longer fixation times and more regressions than typical readers when the selected letters are confusing (Dahhan et al., 2020).

Source: Dahhan, N. Z. A., Kirby, J. R., Brien, D. C., Gupta, R., Harrison, A., Munoz, D. P. (2020). Understanding the biological basis of dyslexia at a neural systems level. *Brain Communications*, 2, 1–16. fcaa173, https://doi.org/10.1093/braincomms/fcaa173

TOD-C Vocabulary and Reasoning Composites

Vocabulary	Reasoning	Vocabulary and Reasoning-2	Vocabulary and Reasoning-4
Picture Vocabulary	Picture Analogies	Picture Vocabulary	Picture Vocabulary Listening Vocabulary
Listening Vocabulary	Geometric Analogies	Picture Analogies	Picture Analogies Geometric Analogies

TOD Rating Scales

TOD-E

Parent/Caregiver
(K–Grade 2)

Teacher
(K–Grade 2)

TOD-C

Self-Rating
(Grade 1–Adult)

Parent/Caregiver
(Grade 1–Adult)

Teacher
(Grade 1–Adult)

Uses of the TOD Rating Scales

- Stand-alone screener as indicator of the need for further testing or monitoring
- In conjunction with the TOD-Screener (3 group-administered tests) to improve prediction of risk
- In conjunction with the TOD-Early and TOD-Comprehensive to improve diagnostic accuracy
- In conjunction with other dyslexia/reading screeners to improve prediction of risk

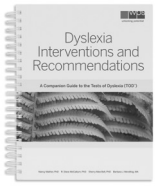
Diagnosis and Instruction

Diagnosis must take **second** place to instruction and must be made a **tool of instruction**, not an end in itself.

Source: Cruickshank, W. M. (1977). Least-restrictive placement: Administrative wishful thinking. *Journal of Learning Disabilities, 10*, 193–194.

Companion Resource to the Tests of Dyslexia

- **Section 1.** Structured Literacy: An Approach to Intervention
- **Section 2.** Phonological/Phonemic Awareness
- **Section 3.** Moving from Speech to Print/Orthographic Mapping
- **Section 4.** Sight Word Acquisition
- **Section 5.** Phonics and Structural Analysis
- **Section 6.** Spelling
- **Section 7.** Reading Fluency
- **Section 8.** Vocabulary
- **Section 9.** Reading Comprehension
- **Section 10.** Accommodations
- **Section 11.** Self-Advocacy/Strengths/Transitions
- **Appendix:** Teaching Students with Dyslexia
- **Glossary of Terms**



Example of an Orthographic Mapping Intervention

Provide the student with daily practice in phoneme–grapheme mapping (Grace, 2022). Using enlarged graph paper and tokens, the student will first represent an orally presented word with tokens and then with letters underneath. The two questions posed are: *What do you hear? What do you write?* One token represents one sound. Follow this progression:

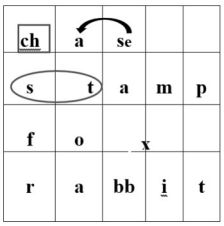
- Begin with regular words where the number of phonemes equals the number of graphemes
- Introduce words with consonant blends
- Introduce words with digraphs (written in one box)
- Introduce words with silent letters (e.g., *v-c-e*, *mb*)
- Introduce words with vowel digraphs (e.g., *oa*, *ee*)

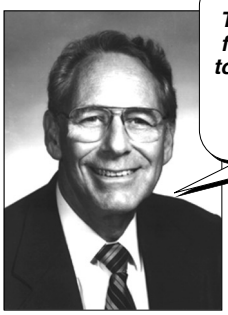
Source: Grace, K. (2022). *Phonics and spelling through phoneme-grapheme mapping*. Really Great Reading.

Orthographic Mapping Example

Specific rules for mapping:

- Vowel and consonant digraphs go in one box with a box drawn around the digraph.
- Consonant blends go in separate boxes with a circle drawn around each blend.
- The letter *x* goes in the middle of two boxes because it makes two sounds.
- CVCe words: the last consonant and small *e* go in one box with an arrow pointing to the long vowel.
- Double consonants go in one box.

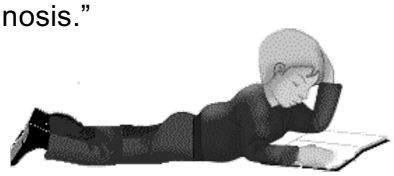




The primary purpose for testing should be to find out more about the problem, not to just get a score.

Dr. R. W. Woodcock

"To be effective, remedial instruction in reading must be preceded by careful diagnosis."



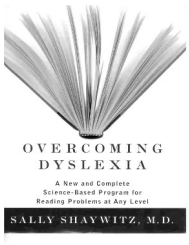
Source: Stanger, M. A., & Donohue, E. K. (1937). *Prediction and prevention of reading difficulties.* Oxford University Press.

Comprehensive Evaluations

Ensure that students with dyslexia get a comprehensive evaluation that:

- Explains the reason(s) why a student is struggling with reading
- Determines where the student is developmentally and what type of instruction is needed (e.g., phonemic awareness, phonics, structural analysis, fluency, spelling)
- Describes what accommodations are needed
- Identifies the strengths

The importance of an "island of competence" (Brooks, 2001)…



"The diagnosis of dyslexia is as precise and scientifically informed as almost any diagnosis in medicine" (p. 165).

Source: Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level.* Alfred Knopf.

Diagnosis of Word Blindness

"With the possession of a knowledge of the symptoms, there is little difficulty in the diagnosis of congenital word-blindness when the cases are met with, since the general picture of the condition stands out as clear-cut and distinct as that of any pathological condition in the whole range of medicine" (p. 88).

Source: Hinshelwood, J. (1917). *Congenital word-blindness.* H. K. Lewis.

"In the final analysis, reading difficulties can be prevented to the degree that the teacher has a professional understanding of her work" (p. 245).

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

The Value of Tests

"If these tests will give us a basis from which we can start to understand a child's difficulties, they will have justified the time spent on them. Anything which helps educators or parents to *understand* any phase of development or lack of development is of immeasurable value" (p. 189).

Source: Stanger, M. A., & Donohue, E. K. (1937). *Prediction and prevention of reading difficulties.* Oxford University Press.