

## Savvy Selection of Assessments for Language and Literacy Including Dyslexia

Michele Anderson, Ph.D. CCC-SLP

manderson@brookespublishing.com

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### Disclosure


Consulting and royalties from Paul H. Brookes Publishing, Inc.

- *Test of Integrated Language and Literacy Skills (TILLS)*; Nelson, Plante, Helm-Estabrooks, & Hotz, 2016
- *Student Language Scale (SLS)*; Nelson, Howe, & Anderson

### Acknowledgments

- Contributions of coauthors and contributors (esp. Elena Plante, Nancy Helm-Estabrooks, and Michele Anderson), graduate students, colleagues, and volunteer test administrators.
- Grants from the U.S. Department of Education, Office of Special Education Programs, and Institute of Education Sciences, National Center for Special Education Research, Grant R322A160354 to Western Michigan University.
- However, the ideas and opinions in this presentation are mine and not the U.S. government.



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## Learning Outcomes

Participants will be able to:

1. Describe the two language levels of assessment that are evidence-based and cross oral and written language modalities and how they relate to DLD and dyslexia
2. List at least two advantages for constructing a learning profile from a co-normed test compared to putting together measures normed on different populations.
3. Cite evidence regarding overlap of DLD and dyslexia.



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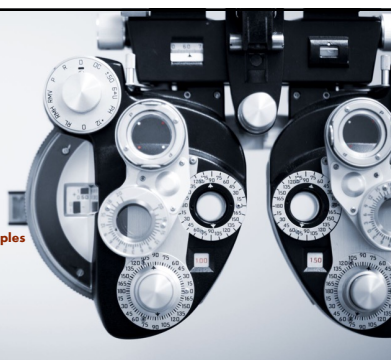
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### The Savvy test administrator knows

- how to determine profiles of DLD/Dyslexia/Both
- the importance of co-norming
- why the make-up of normative samples is important
- how to look in the manual for bias
- sensitivity/specificity



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## How Language Targets Change Over Time



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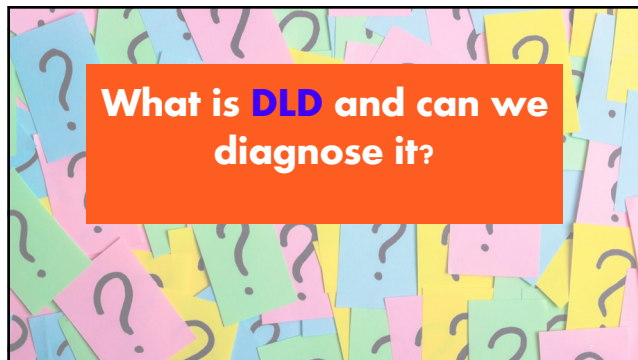
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**Developmental Language Disorder (DLD)**  
<https://www.nidcd.nih.gov/health/developmental-language-disorder>

- is a communication disorder that interferes with a child's understanding and using language.
- is associated with other conditions, such as hearing loss or autism, or by extenuating circumstances, such as lack of exposure to language.
- can affect a child's speaking, listening, reading, and writing.
- has also been called specific language impairment, or language delay.
- is one of the most common developmental disorders, affecting approximately 1 in 10 children – 1 in 1000 adults.
- The impact of DLD often

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

May 30, 2023

Robert M. Augustine, PhD, CCC-SLP  
President  
American Speech-Language-Hearing Association  
2200 Research Boulevard  
Rockville, MD 20850-4289

Dear Dr. Augustine,

The Office of Special Education and Rehabilitative Services (OSERS) has repeatedly stated that the definitions of disability terms in 34 C.F.R. § 300.8(c) are not an exhaustive list of disabilities, impairments, or conditions. For example, OSERS October 23, 2015 Dear Colleague Letter on Dyslexia, Dyscalculia, and Dysgraphia, referred to 20 U.S.C. § 1401(30) and 34 CFR § 300.8(c)(10) and stated, "[w]hile our implementing regulations contain a list of conditions under the definition 'specific learning disability,' which includes dyslexia, the list is not exhaustive" and could include other terms like dyscalculia or dysgraphia. This interpretation of IDEA and its implementing regulations would extend to other conditions that might fall within other disability terms, including speech or language impairments not specifically listed in 34 C.F.R. § 300.8(c)(11) such as DLD.

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### Developmental Language Disorder (DLD)

Speech, Language and Communication Needs

Developmental Language Disorder

Area of Impairment: Syntax, Semantics, Word retrieval, Pragmatics, Verbal learning/memory, Needs, secondary impairment to hearing, Language Disorder associated with biomedical conditions

Phonology

Voice disorders, Lack of familiarity with ambient language, Fluency disorders, Orofacial structural deficits, Articulation disorder, Dyspraxia, Speech Sound Disorder

\* ASD is sometimes treated as an alternative to, rather than part of, SLCN

Source: Bishop D. V., Snowling M. J., Thompson P. A., Greenhalgh T., CATALISE-2 consortium (2017) CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development. Phase 2. Terminology. JCPP

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What is **Dyslexia** and can we diagnose it?

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## International Dyslexia Association

## DSM-5 definition of dyslexia

Dyslexia is a language-based learning disability.

Dyslexia refers to a cluster of symptoms, which result in people having difficulties with specific language skills, particularly reading.

Students with dyslexia usually experience difficulties with other language skills such as spelling, writing, and pronouncing words.

Dyslexia affects individuals throughout their lives, however, its impact can change at different stages in a person's life.

- "Dyslexia is an alternative term used to refer to a pattern of learning difficulties characterized by problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities" (p. 67).

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### Students with Dyslexia alone

**Have difficulty with:**

- Sound/word level skills
- Reading decoding of nonwords and real words
- Spelling of nonwords and real words
- Reading comprehension compared to listening comprehension

**BUT can perform WNL on measures of:**

- Sentence/discourse, vocabulary, and other cognitive-linguistic processing WNL
- Grammatical skills
- Semantic skills
- Inferring
- Story retelling
- Verbal memory

Adolf, S. M., & Hogan, T. P. (2018). Understanding Dyslexia in the Context of Developmental Language Disorders. *Language, Speech, and Hearing Services in Schools, 49*, 762-773. doi:10.1044/2018\_LSH-S-DYSLC-18-0049

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### IDEA Terminology

- **Speech or Language Impairment (S/LI)** → Add "on basis of Developmental Language Disorder" when it applies
- **Specific Learning Disability** (always has been described as a "disorder of spoken or written language," which includes "dyslexia") → Specify whether student's difficulties include DLD and dyslexia

Developmental Language Disorder (DLD) and Dyslexia		
DLD with Dyslexia	DLD without Dyslexia	Dyslexia without additional language problems
<ul style="list-style-type: none"> <li>• Disorder of oral and written language comprehension and expression (problems of vocabulary, syntax, discourse, and verbal memory in varied combinations, affecting both listening and reading comprehension and oral and written expression) (DLD)</li> <li>• PLUS, marked difficulty with reading decoding and spelling (Dyslexia)</li> </ul>	<ul style="list-style-type: none"> <li>• Disorder of oral and written language comprehension and expression (problems of vocabulary, syntax, discourse, and verbal memory in varied combinations, affecting listening and reading comprehension and oral and written expression) (DLD)</li> <li>• BUT reading decoding and spelling within normal limits (i.e., no dyslexia)</li> </ul>	<ul style="list-style-type: none"> <li>• Marked difficulty with reading decoding and spelling (word-structure knowledge), which can have an indirect effect on reading comprehension and learning new vocabulary (Dyslexia)</li> <li>• BUT oral language comprehension/expression and vocabulary within normal limits (i.e., no DLD)</li> </ul>

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## Diagnose and distinguish Dyslexia and DLD

### TWO MODELS THAT CAN HELP

**Simple View of Reading (SVR)**  
Decoding and Spelling  
Comprehension/[Expression]  
Or both

**Two-dimensional quadrant model**  
DLD without dyslexia  
DLD with dyslexia  
Dyslexia without DLD

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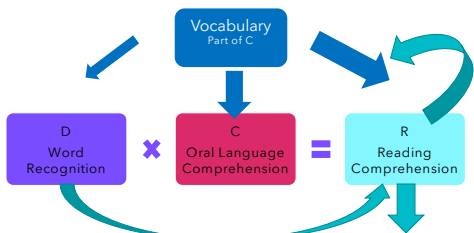
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### Simple View of Reading

(SVR; Gough & Tunmer, 1986; Tunmer & Chapman, 2012)



One view: Listening comprehension > Reading comprehension = **Dyslexia**  
(Badian, 1999; Stanovich, 1994)

Better: Problems with reading decoding, spelling, and reading fluency = **Dyslexia**

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### Simple View of Reading (SVR; Gough & Tunmer, 1986)



Pattern of "Specific Comprehension Deficit"

Listening comprehension = Reading comprehension (**both low**)  
Better: Problems with language comprehension (and expression) but surface reading okay

= **Developmental Language Disorder without Dyslexia**

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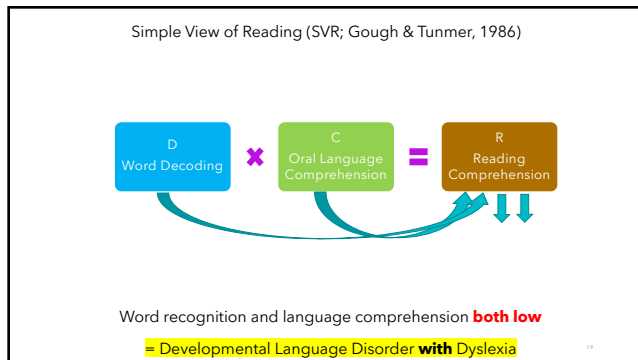
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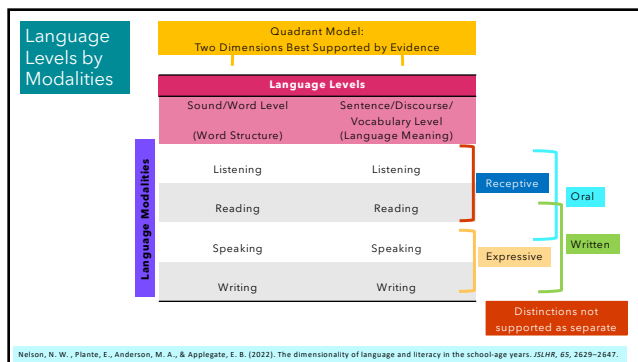
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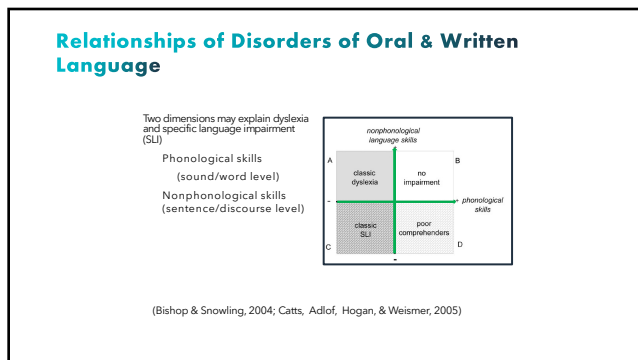
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# Latest evidence for model

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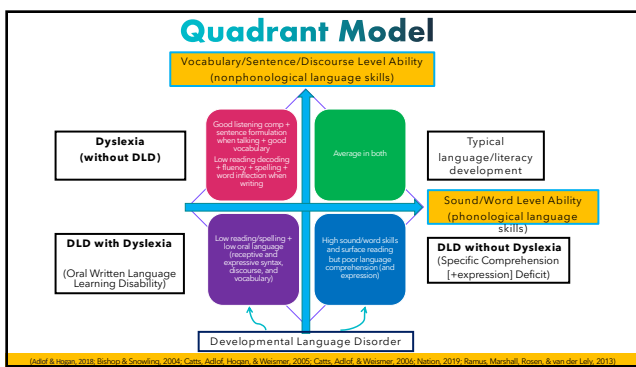
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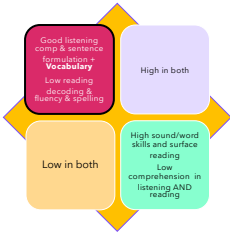
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## Students with Dyslexia alone —

- Have difficulty with:
  - Sound/word level skills
  - Reading decoding of nonwords and real words
  - Spelling of nonwords and real words
  - Reading comprehension compared to listening comprehension
- BUT can perform WNL on measures of:
  - Sentence/discourse, **vocabulary**, and other cognitive-linguistic processing WNL
    - Grammatical skills
    - Semantic skills
    - Inferencing
    - Story retelling
    - Verbal memory



Adolf, S. M., & Hogan, T. P. (2018). Understanding Dyslexia in the Context of Developmental Language Disorders. Language, Speech, and Hearing Services in Schools, 49, 762-773. doi:10.1044/2018\_LSHSS-DYSLC-18-0049

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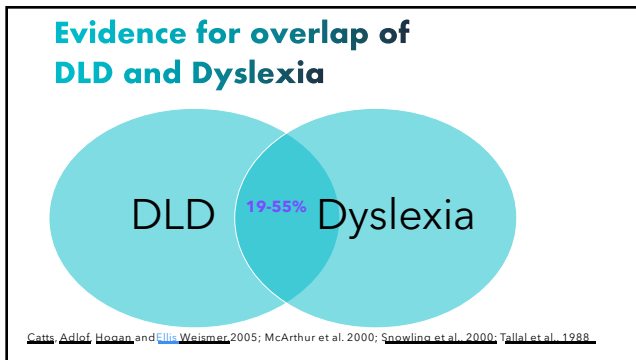
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### The Savvy test administrator knows

- how to determine profiles of DLD/Dyslexia/Both
- the importance of co-norming
- why the make-up of normative samples is important
- how to look in the manual for bias
- sensitivity/specificity

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### Myth: You need multiple tests to identify disorders

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### Individuals with Disabilities Act (IDEA, 2004)

In determining whether a child has a disability under the IDEA, including a specific learning disability, and is eligible to receive special education and related services because of that disability, the LEA must conduct a comprehensive evaluation under §300.304, which requires the use of a variety of assessment tools and strategies to gather relevant functional, developmental, and academic information about the child. This information, which includes information provided by the parent, may assist in determining: 1) whether the child is a child with a disability; and 2) the content of the child's IEP to enable the child to be involved in, and make progress in, the general education curriculum. 34 CFR §300.304(b)(1).

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#### The Myth

Misinterpretation of the wording of the public law (IDEA) that multiple methods must be used to assess children for special education services

#### The Evidence

Multiple sources of evidence doesn't mean multiple *standardized* assessments  
 Diagnostic error rates are mathematically compounded when clinicians are required to use multiple measures, even when each individual test might have good accuracy on its own.

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### Errors add across multiple test

If failed EITHER of 2 tests

	Sensitivity	Error
Test 1	85%	15%
Test 2	80%	20%
<b>Overall Accuracy:</b>	<b>80%</b>	<b>20%</b>

If failed BOTH of 2 tests

	Sensitivity	Error
Test 1	85%	15%
Test 2	80%	20%
<b>Overall Accuracy:</b>	<b>65%</b>	<b>35%</b>

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## The importance of co-norming

It is NOT best practice to compare scores from tests normed on different samples.

When all of your scores are from the same normative group, you have the power to

- make true comparisons and
- identify patterns of strengths and weaknesses that have a high confidence interval.

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If we need to be able to assess **sound/word** skills and **sentence/discourse** skills to identify DLD with or without Dyslexia or Dyslexia alone, then we need a **battery** that looks at all of these skills so it will be co-normed

Students with Dyslexia alone:

- Have difficulty with:
  - Sound/word level skills **low in phonemic awareness**
  - decoding** decoding of nonwords and real words
  - Spelling of nonwords and real words
  - reading comprehension** compared to **listening comprehension**
- BUT can perform WNL on measures of:
  - Sentence/discourse, **vocabulary**, and other cognitive-linguistic processing WNL
    - Grammatical skills
    - Language skills
    - Reasoning
    - Story retelling
    - Verbal memory

Adlof, S. M., & Hogan, T. P. (2018). Understanding Dyslexia in the Context of Developmental Language Disorders. *Language, Speech, and Hearing Services in Schools, 49*, 762-773. doi:10.1044/2018\_LSHSS-DYSLC-18-0049

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## The Savvy test administrator knows

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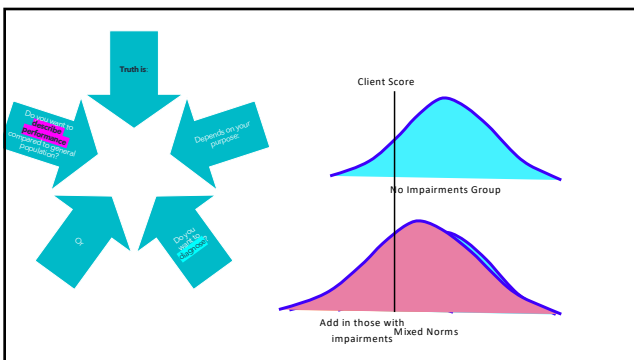
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## Look at your manuals

Many psych tests are designed to describe Some common language assessments that report inclusion of students with impairments

Include wide range of student abilities in normative sample

➔

Do a good job for what they're designed to do

CELF  
OWLS

Often will have lower means than tests of similar constructs with typical language students which may result in under-identification

➔

May not have sensitivity and specificity

This does not mean they can't give you useful information, but knowing the normative sample can aid your interpretation.

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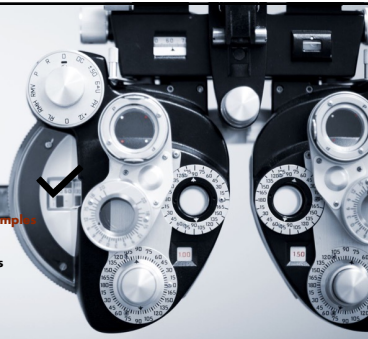
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## Normative Composition and Bias

- **A thought experiment...**
  - If a test contains items that are biased against Hispanic test takers, will having Hispanic test takers in the norms make those items unbiased?
  - If a test contains NO items biased for Hispanic test takers, will the absence Hispanic test takers make the test biased against Hispanics?

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- Bias is not a consequence of the normative sample
- Bias is measured statistically
  - A varied normative sample simply allows test makers to test for bias
  - It should be covered in the manual

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### It should be in the manual under "bias"

**Table 6.3**  
Number of IAC-4 Items With Significant Effect Sizes for Selected Subgroups

Subtest	Number of Items	Dichotomous group				
		Male vs. female	Black/African American vs. non-Black/African American	Asian/Pacific Islander vs. non-Asian/Pacific Islander	Hispanic vs. non-Hispanic	American Indian/Alaska Native vs. non-American Indian/Alaska Native
<b>Core subtest</b>						
Picture Vocabulary	32	0.03	0.03	0.03	0.03	0.03
Receptive Vocabulary	32	0.03	0.03	0.03	0.03	0.03
Oral Vocabulary	37	0.03	0.03	0.03	0.03	0.03
Synthetic Understanding	31	0.03	0.03	0.03	0.03	0.03
Sentence Imputation	37	0.03	0.03	0.03	0.03	0.03
Morphological Comprehension	39	0.03	0.03	0.03	0.03	0.03
<b>Supplemental subtest</b>						
Word Discrimination	29	0.03	0.03	0.03	0.03	0.03
Phoneme Analysis	22	0.03	0.03	0.03	0.03	0.03
Word Articulation	25	0.03	0.03	0.03	0.03	0.03

Note: Numbers inside parentheses represent the number of statistically significant items for each subgroup; numbers outside parentheses represent the number of items in a single effect size domain for each group.

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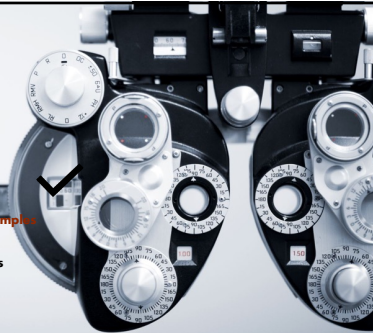
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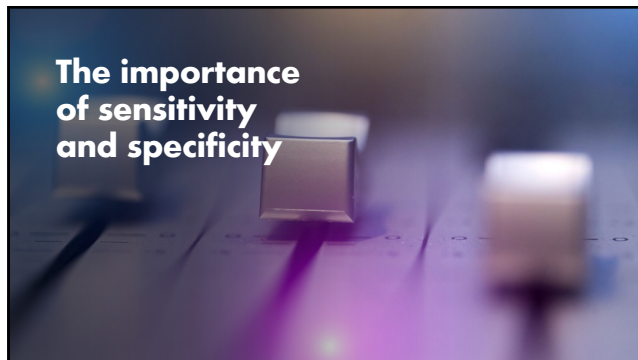
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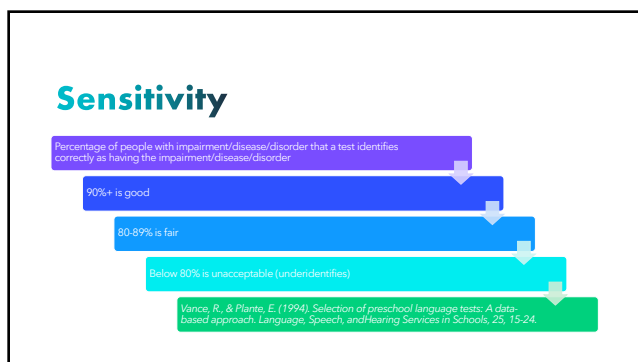
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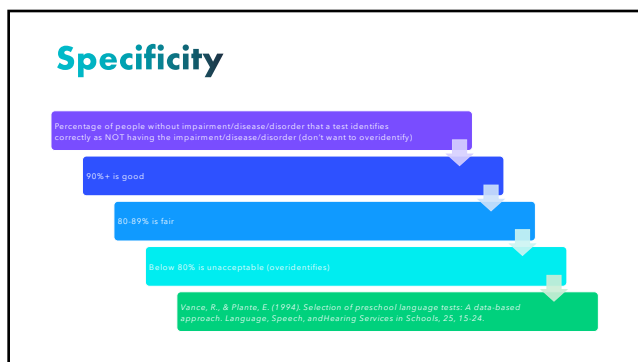
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## Every test may vary

- You cannot apply an arbitrary number of standard deviations below a mean to identify disorder
- Each test will have its own unique cut-score that determines the best combination of sensitivity and specificity
- IDEA requires that a test be used in the manner in which it was designed (so that arbitrary below the cut-score requirement could put you out of compliance)

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## Compiled by Tatyanna Elleseff FB: SLPs for Evidence-based Practice (sourced from LeadersProject.org)

TATYANAELESEFF.COM 2022

### Sensitivity of 7 Common Comprehensive Language Tests for School-Aged Children

Discrimination accuracy is the **sensitivity** and **specificity** of assessment instruments. (Dellabaugh, 2007) Sensitivity ensures that the assessment accurately identifies those students who truly have a language-related disorder or hearing a disorder. Specificity ensures that the assessment accurately identifies those students who truly do not have any disorder or typical. Sensitivity and specificity determine the best degree of discrimination accuracy, or the ability of a test to distinguish the presence of a disorder.

In 1994, Vance and Flynn established criteria for discrimination accuracy or accurate identification of a disorder. 80% is considered good discrimination accuracy, 80% to 89% is considered fair, while below 80% misidentification occur at unacceptably high rates and lack the "serious social consequences" of misidentified children (p. 21). This is the most important information about an assessment. If a test has low sensitivity or if that information is missing from the test manual, OTHER psychometric properties simply do not matter. **Lower on specificity. Given that the below tests are typically administered to students with mild academic deficits, the specificity values for these tests, all of which are in the acceptable range, are not listed below they can be found HERE.**

TEST NAME	SENSITIVITY VALUES
Clinical Evaluation of Language Fundamentals-1 8th Edition (CELF-1)	80 at +1.33 SD; 85 at +1.5 SD but unacceptable <b>reference standard</b> affecting the CELF-1 sensitivity values and precision
Comprehensive Assessment of Spoken Language - Second Edition (CAS-2)	74 at +1 SD making it <b>unacceptable</b>
Receptive-Expressive & Social Communication Assessment-Elementary (RESCA-E)	"Sensitivity and specificity studies were not conducted for the RESCA-E. Individuals with diagnosed disabilities were included in the standardization sample as long as they spent most of their school day in a regular classroom." The authors did not conduct sensitivity and specificity studies and specifically cautioned clinicians that this test cannot be used for diagnostic purposes of disorder identification.
Test of Language Development-Intermediate: 3 (TOLD-4:3)	Cut scores of 85 or 90 adequate for composites, but unreliable due to <b>arbitrary diagnostic cut-scores</b>
Test of Language Development-Primary: 3 (TOLD-P:3)	Cut scores of 85 or 90 adequate for composites, but unreliable due to <b>arbitrary diagnostic cut-scores</b>
Test of Integrated Language and Literacy (TILLS)	Sensitivity is ACCEPTABLE by various age groups. Ranges from 81-97 (not in chronological order) from low to high. Sensitivity is also ACCEPTABLE by cut scores.

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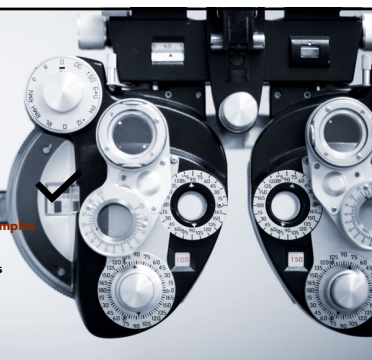
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- ✓ -the importance of co-norming
- ✓ -why the make-up of normative samples is important
- ✓ -how to look in the manual for bias
- ✓ -sensitivity/specificity



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**Thank You**

Q and A

Can find me (**and the chocolate**) at the Brookes Publishing Booth if you have more questions.

[manderson@brookespublishing.com](mailto:manderson@brookespublishing.com)

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