Considerations for Equitable Assessment of Literacy Skills in Multilingual Learners

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University of Cincinnati

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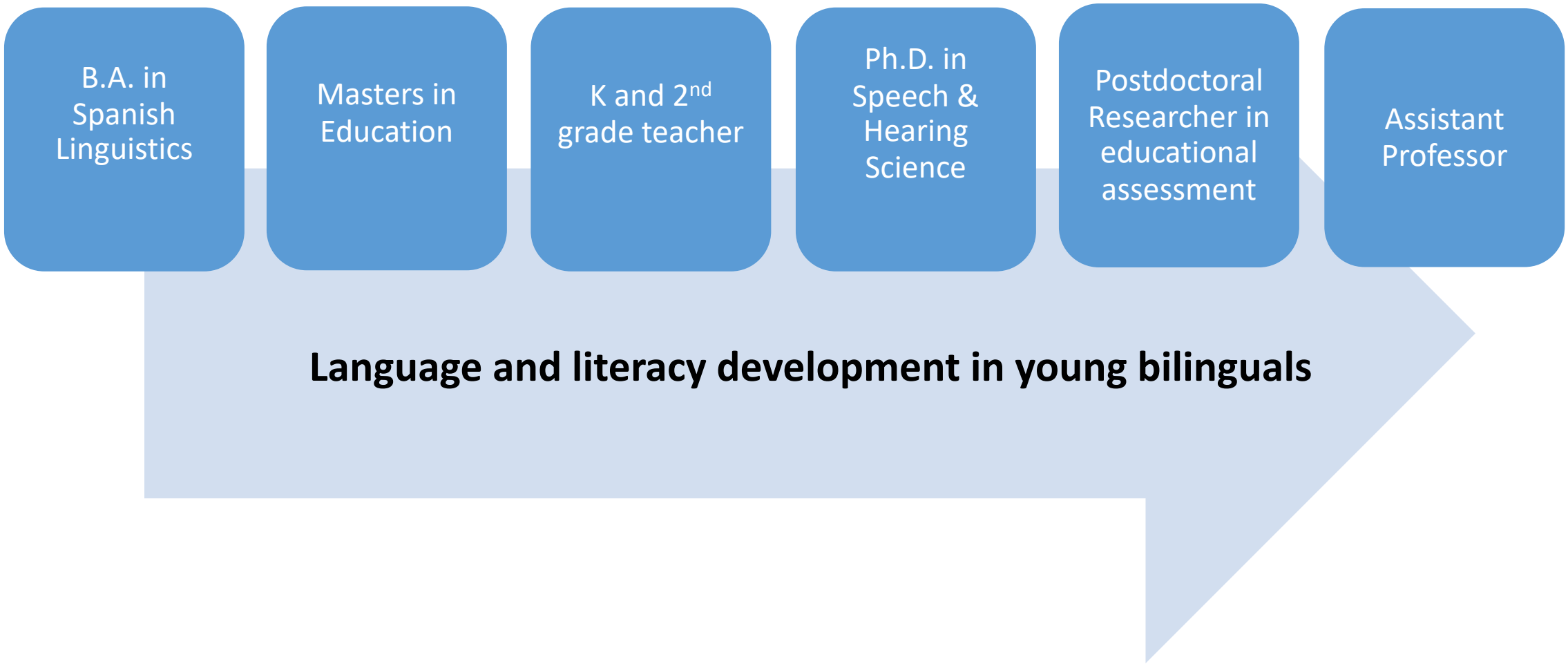
Ohio Literacy Academy

My background



Our team

Transdisciplinary collaborators:

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Javier Jasso, OSU

John Grinstead, OSU

Ashley Adams Sanabria, SDSU

Elizabeth Pena, UC Irvine

Practitioners in SLP, school psychology, and education:

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Current funding sources:

National Institutes of Health, Grant R21DC019996 (PI: Pratt)

Institute of Educational Sciences, Grant R305A210136 (PIs: Peña & Sanabria, Co-I: Pratt)

Past funding sources:

Department of Education, Language, Evaluation, and Development in Educational Research (Training fellow)

Ohio State Presidential Dissertation Fellowship

Department of Education, Literacy Training Fellowship (Training fellow)

Outline

1. Review the language and literacy skills that are predictive of skilled reading; discuss special considerations for bilinguals (20 mins)
2. Describe possible follow-up measures and summary data (30 mins)
3. Putting it all together (15 mins)
4. Questions and disuccion (10 mins)

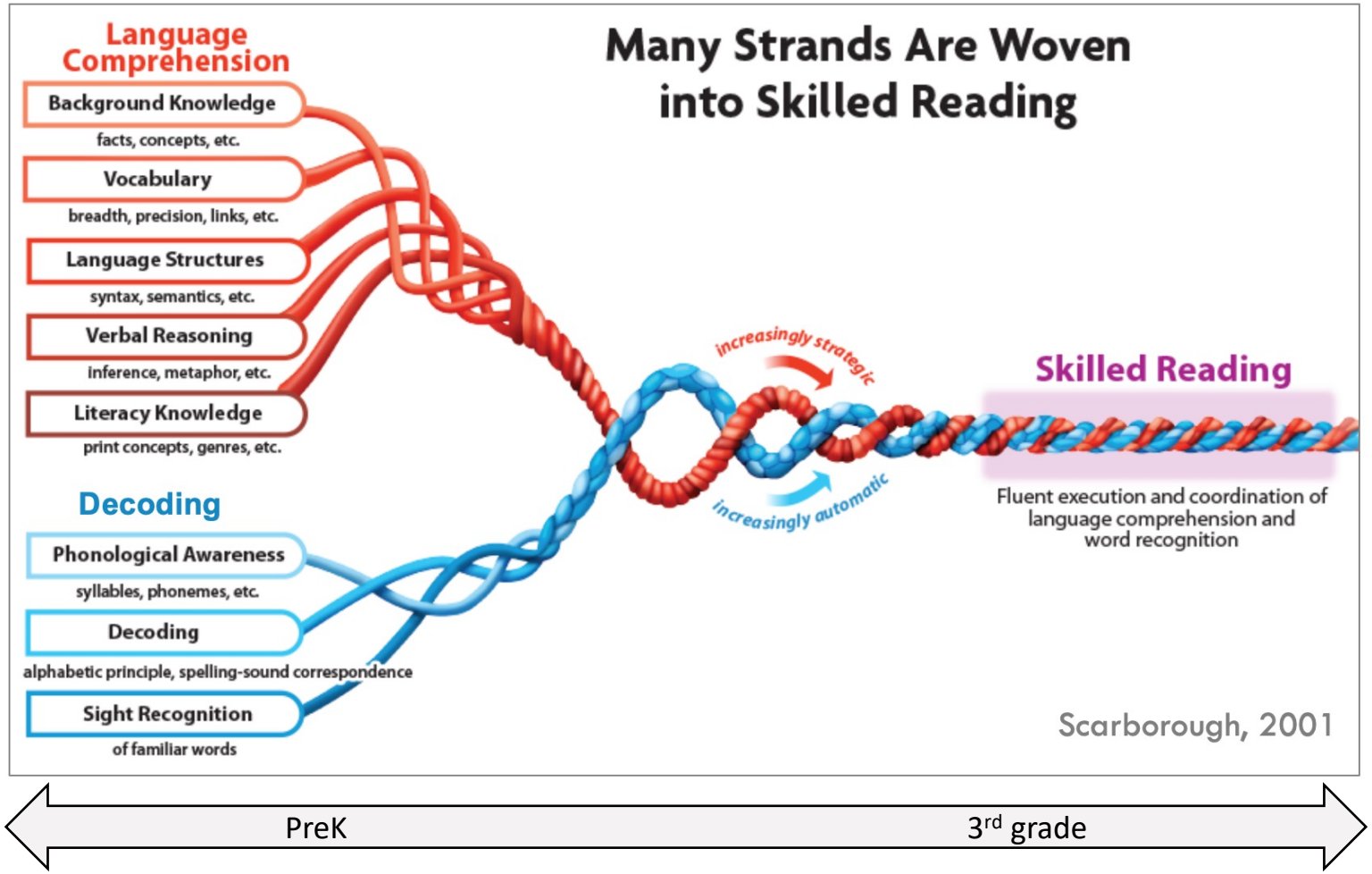
Background on dyslexia x ELs

Scarborough's Rope

Individual strands of rope represent the skills that

(a) develop in early childhood

(b) Are predictive of reading success vs. difficulty



Scarborough's Rope

We can measure THESE SKILLS in kindergarten…

… and predict how well kids will READ in 3rd grade!

Individual strands of rope represent the skills that

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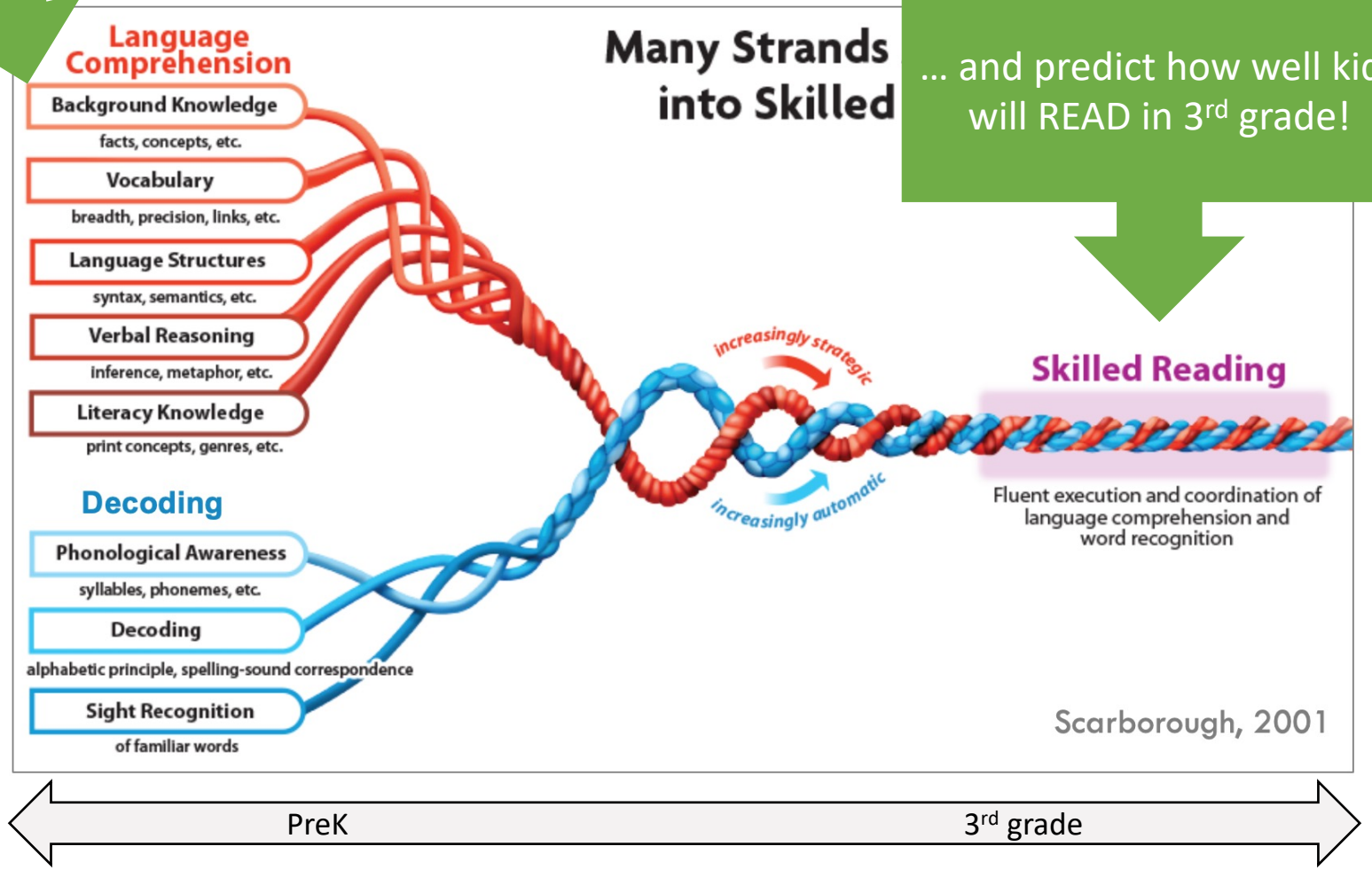
(b) Are predictive of reading success vs. difficulty

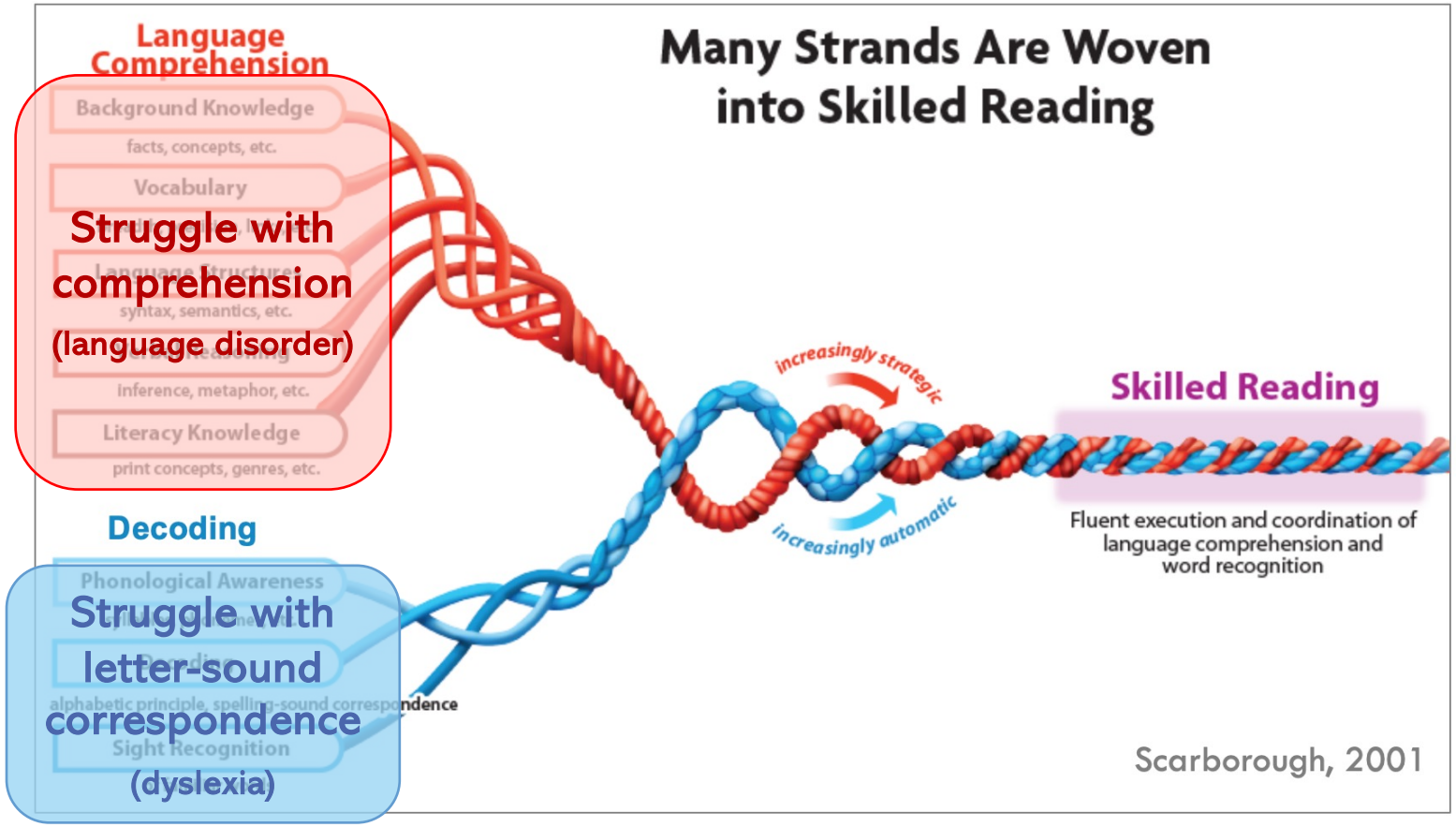


Reading *dis*-ability

Two broad types of skills:

1. Language-based skills

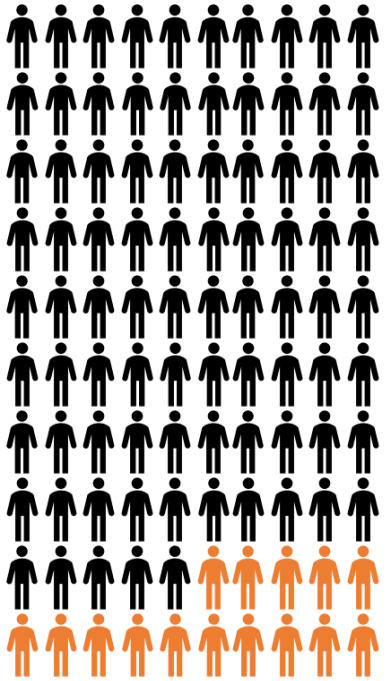
2. Code-based skills



Dyslexia

From Ohio (ORC 3323.25):

"A specific learning disorder that is neurological in origin and that is characterized by unexpected difficulties with accurate or fluent word recognition and by poor spelling and decoding abilities not consistent with the person's intelligence, motivation, and sensory capabilities, which difficulties typically result from a deficit in the phonological component of language."



~ 15% prevalence;

~ 3 kids in a class of 20 students

(IDA, 2012; Odegard et al., 2020)

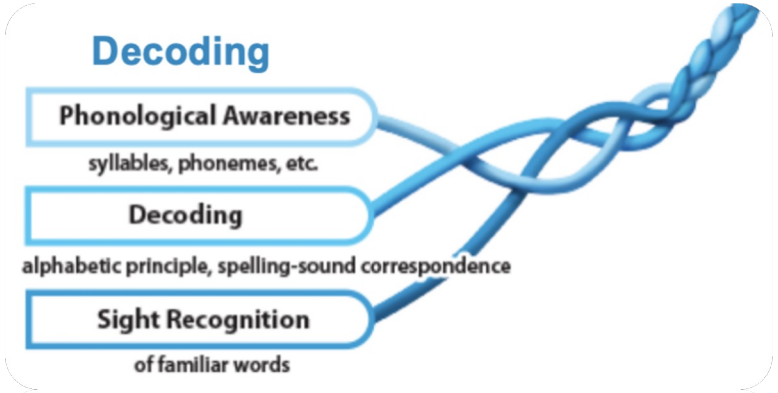
Characteristics of Tier 1 Dyslexia Screening

- Administered in English
- Focus on early **code-based literacy** skills
  - ✓ Phonemic awareness
  - ✓ Letter naming
  - ✓ Letter-sound correspondence
  - ✓ Real and non-word reading
- These are skills that require **explicit and systematic** instruction
  - i.e., just being around text is not enough for most child to learn to read
  - Reading is a relatively new human skill
- Heavily **experience-*dependent***

Skills Measured by Universal Screening (Tier 1 Dyslexia Screening)

Skill to screen	Grade			
	K	1	2	3-6
Phonemic Awareness	X	X		
Letter Naming	X	X		
Letter-Sound Correspondence	X (starting in midyear)	X	X (through beginning of 2nd)	
Real and non-word reading	X (end of year only and only non-words)	X (starting in midyear)	X (non-words through beginning of 2nd)	
Oral Text Reading Accuracy and Rate		X (starting in midyear)	X	X
Comprehension				X

From Ohio's Dyslexia Guidebook, p. 26



WHAT ABOUT ENGLISH LEARNERS?

English Learners in Ohio

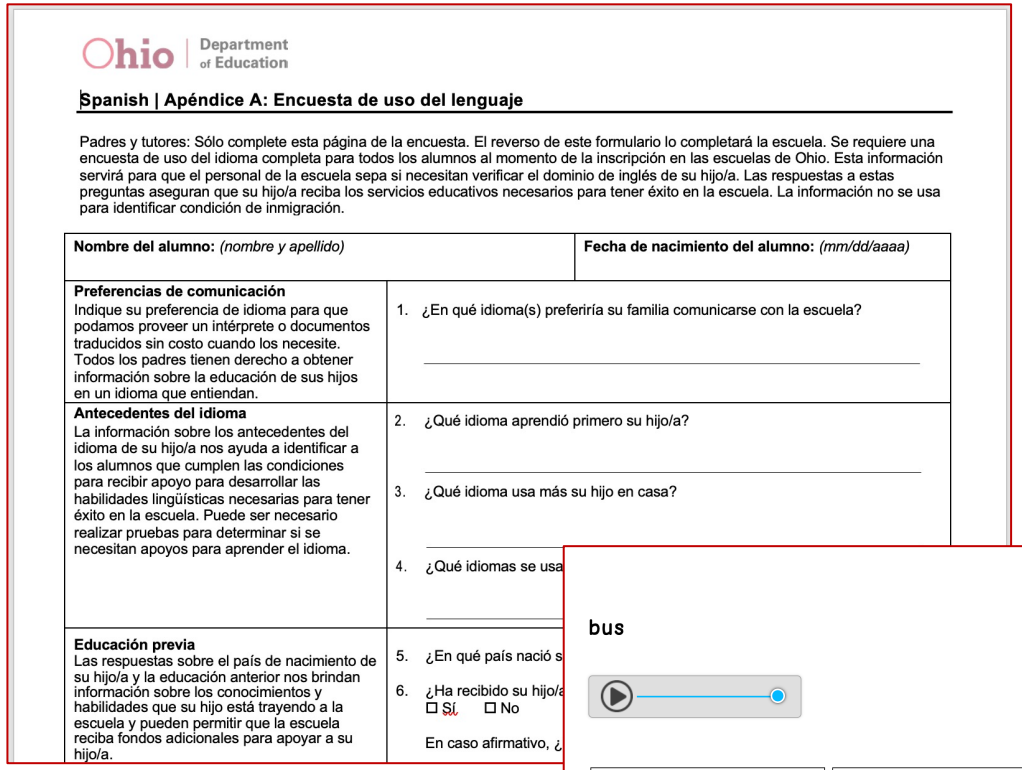
English Learners in Ohio are identified using 2-step process:

Step 1: Language Usage Survey

Step 2: Ohio English Language Proficiency Screener (OELPS)

Ohio public schools serve over 80,000 students who are ELs

Less than 2% of Ohio's ELs are on IEPs for Specific Learning Disability or Speech/Language

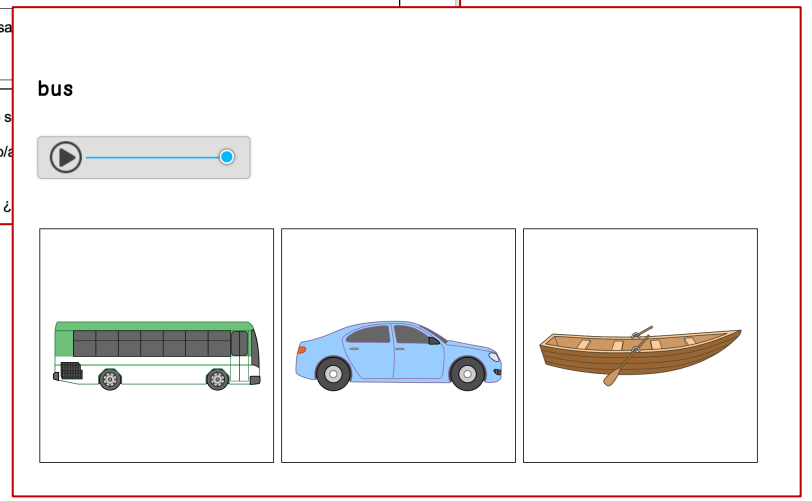


Ohio | Department of Education

Spanish | Apéndice A: Encuesta de uso del lenguaje

Padres y tutores: Sólo complete esta página de la encuesta. El reverso de este formulario lo completará la escuela. Se requiere una encuesta de uso del idioma completa para todos los alumnos al momento de la inscripción en las escuelas de Ohio. Esta información servirá para que el personal de la escuela sepa si necesitan verificar el dominio de inglés de su hijo/a. Las respuestas a estas preguntas aseguran que su hijo/a reciba los servicios educativos necesarios para tener éxito en la escuela. La información no se usa para identificar condición de inmigración.

Nombre del alumno: *(nombre y apellido)*	**Fecha de nacimiento del alumno:** *(mm/dd/aaaa)*
Preferencias de comunicación Indique su preferencia de idioma para que podamos proveer un intérprete o documentos traducidos sin costo cuando los necesite. Todos los padres tienen derecho a obtener información sobre la educación de sus hijos en un idioma que entiendan.	1. ¿En qué idioma(s) preferiría su familia comunicarse con la escuela?
Antecedentes del idioma La información sobre los antecedentes del idioma de su hijo/a nos ayuda a identificar a los alumnos que cumplen las condiciones para recibir apoyo para desarrollar las habilidades lingüísticas necesarias para tener éxito en la escuela. Puede ser necesario realizar pruebas para determinar si se necesitan apoyos para aprender el idioma.	2. ¿Qué idioma aprendió primero su hijo/a? 3. ¿Qué idioma usa más su hijo en casa? 4. ¿Qué idiomas se usa
Educación previa Las respuestas sobre el país de nacimiento de su hijo/a y la educación anterior nos brindan información sobre los conocimientos y habilidades que su hijo está trayendo a la escuela y pueden permitir que la escuela reciba fondos adicionales para apoyar a su hijo/a.	5. ¿En qué país nació s 6. ¿Ha recibido su hijo/a ☐ Sí ☐ No En caso afirmativo, ¿



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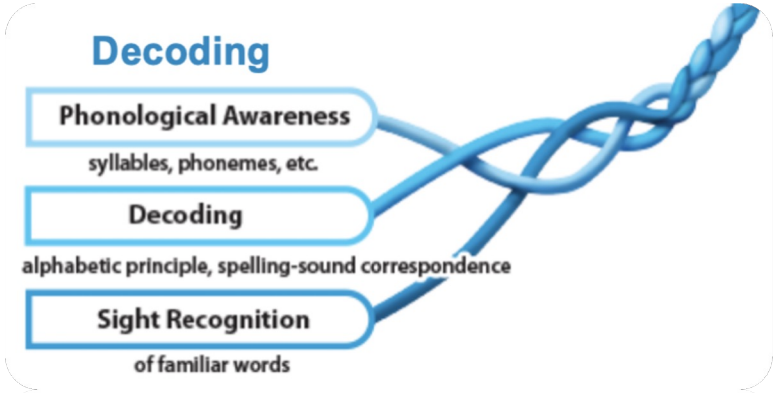


Let’s reflect…

M	**d**	**i**	**C**
s	**a**	**P**	**k**
V	**r**	**T**	**o**

Why might these test items be difficult for ELs?

Heavily influenced by:

- Language exposure (Farver et al., 2013)
- Classroom instruction (Galloway & Lesaux, 2017)
- Home environment (Samuelsson et al., 2005)
- Socioeconomic status (Bojczyk et al., 2019)

gid	seb	vad	mig

Let’s reflect…

M	**d**	**i**	**C**
s	**a**	**P**	**k**
V	**r**	**T**	**o**

gid	seb	vad	mig

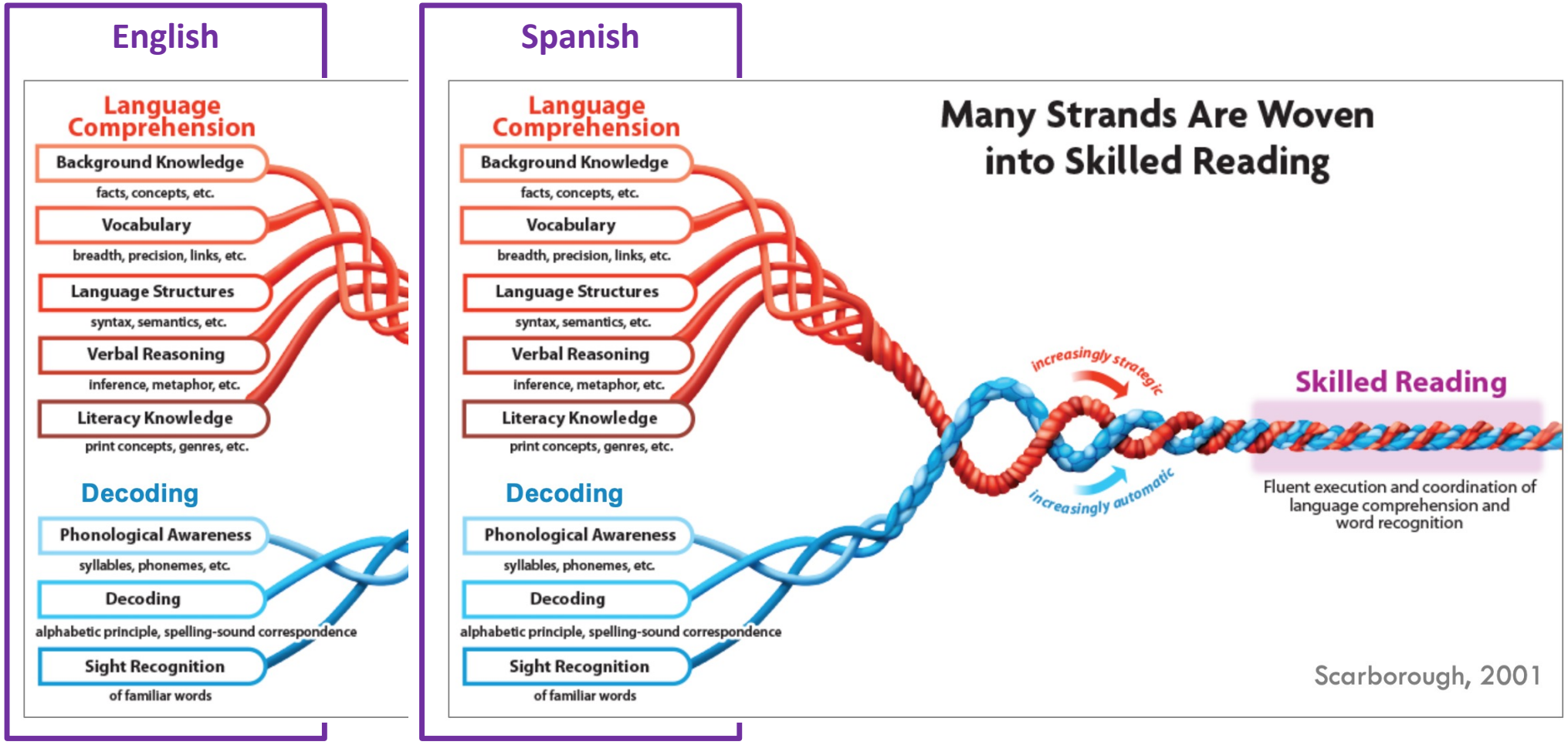
ELs x Literacy

- ELs' language- and code-based skills will be divided across their languages—but often not in a balanced way!

  Science-related vocabulary may be stronger in English;
  Home-related vocabulary may be stronger in Spanish.

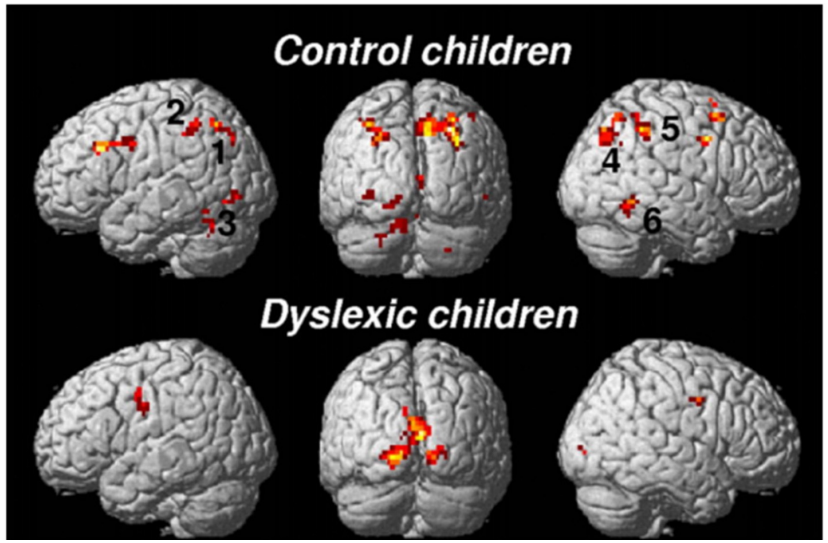
  Letter names may be stronger in English;
  Phonological awareness may be stronger in Spanish.

Scarborough's Rope with bilinguals



ELs x Disability

- ELs are NOT more likely (or less likely!) to have a neurodevelopmental disorder than a monolingual child
    - Socioeconomic (low SES, low parental education) and geopolitical factors (limited access to formal education, limited support) that often co-exist with EL status may influence test performance
- If a multilingual student has a disorder, that disorder will be present in all the languages the student uses
    - However, it may manifest differently depending on the characteristics of the two languages
- Reducing the number of languages a student is exposed to will NOT cure their disability

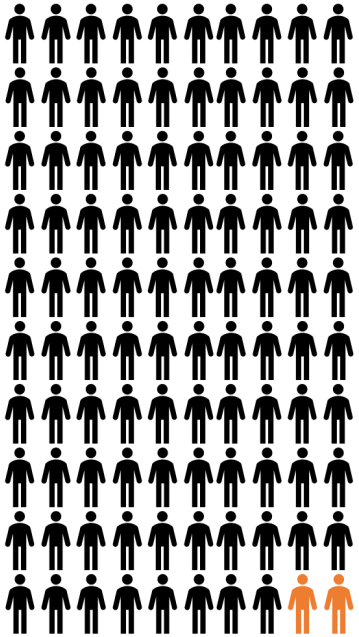


SourcE: fMRI images published in Peyrin et al. (2011) in *Brain Lang.*

Dyslexia in ELs

Being exposed to more than one language should **not impact** the prevalence of dyslexia

- But…what do we see in practice?



0.3% of ELs in Ohio are on IEPs for specific learning disability and **1.7%** of ELs in Ohio are on IEPs for speech and language

(Source: U.S. Department of Education, EDFacts Data Warehouse (EDW): "IDEA Part B Child Count and Educational Environments Collection," 2020-21)

Ideally, **15%** of ELs in Ohio who struggle to learn to read would be accurately diagnosed with dyslexia

Our preliminary data shows that **88%** of the ~150 ELs we tested in Ohio scored "at risk" on Tier 1 screeners

Under-identification

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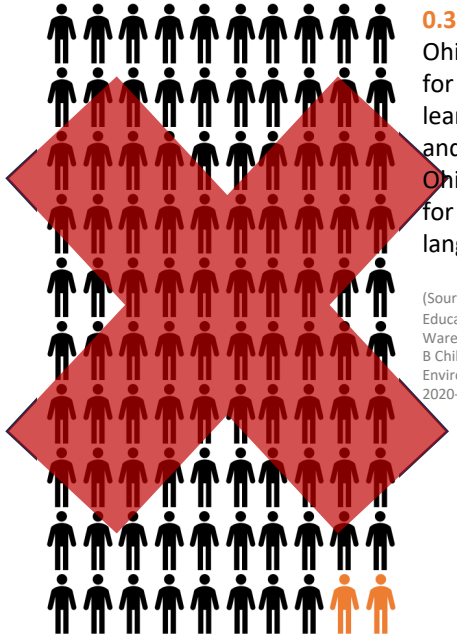

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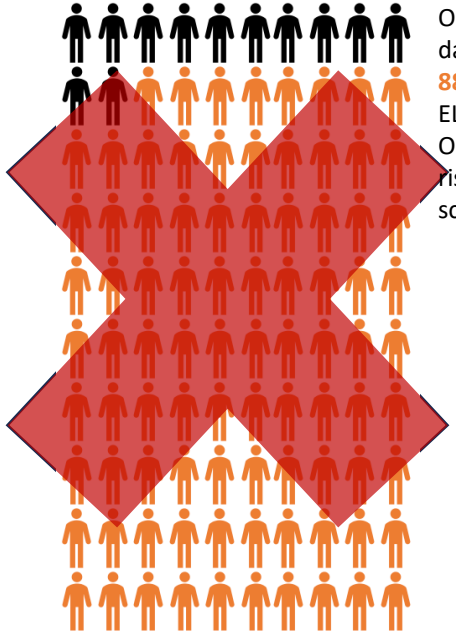

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Under-identification

Tier 1 Screening Results

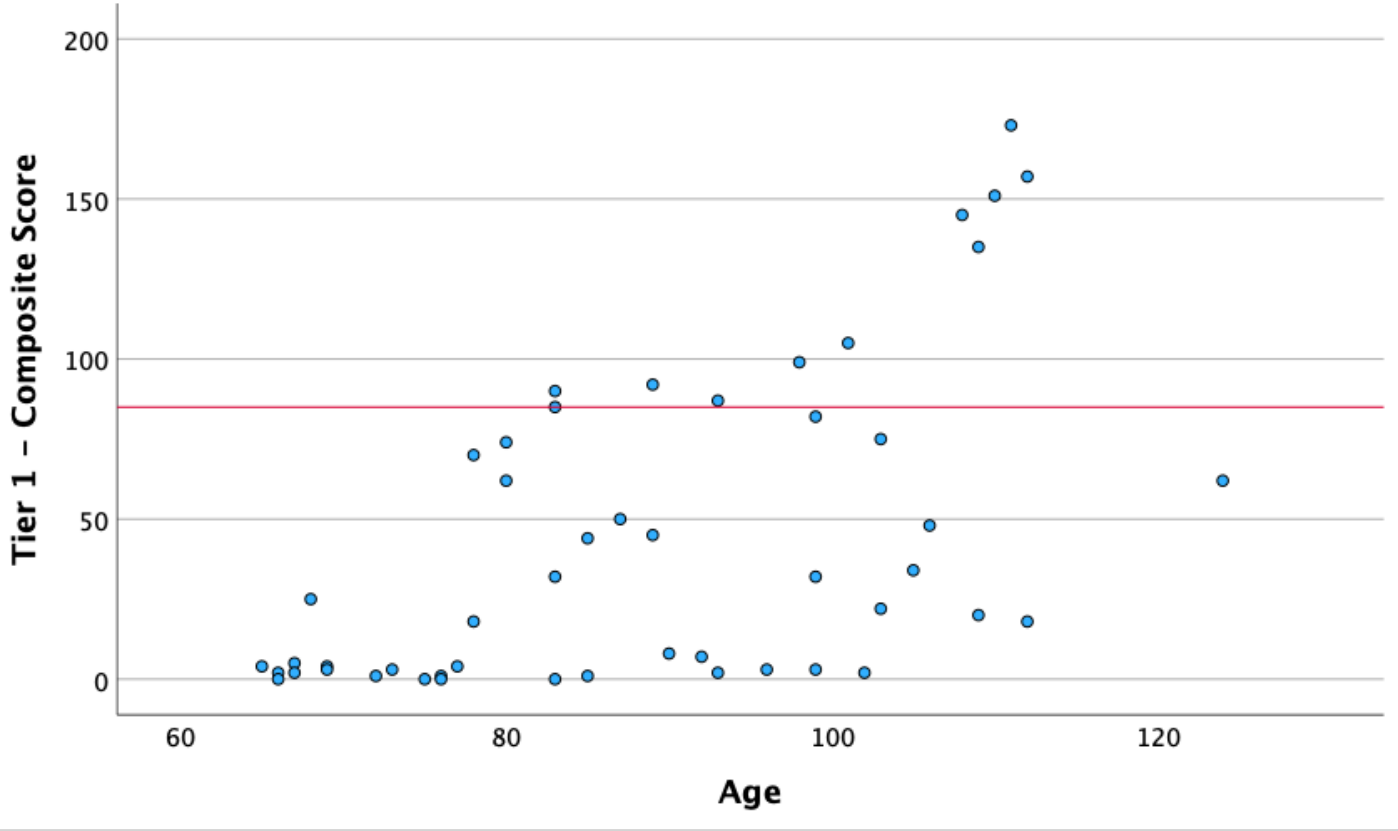
Data collected in Fall/Winter 2023-24

2 public school districts in OH

ELs in grades K-3rd

The red line signifies the cut point for reading risk

>80% of ELs scored in the “at risk” range



Tier 1 Screening Results

- Data collected in Fall/Winter 2023-24
- 2 public school districts in OH
- ELs in grades K-3rd
- The red line signifies the cut point for reading risk
- >80% of ELs scored in the “at risk” range

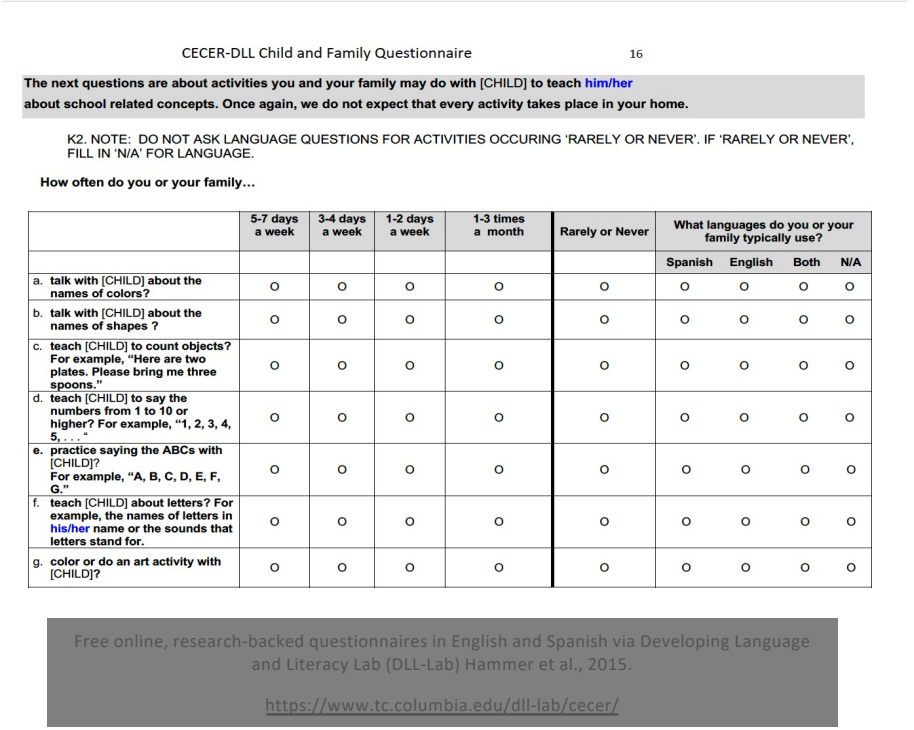
Our challenge is:

How can we disentangle which of the at-risk children actually have dyslexia *versus* which have been over-identified?

Strategies for disentangling dyslexia within language difference

STEP 1:
Gather information about language and literacy opportunities

- When was the student first exposed to English?
- What language(s) does the student currently hear in their environment?
  - How much of each?
- How much literacy instruction has the student received in English?
  - Was that instruction scaffolded so that the student could access it?
- How much literacy instruction has the student had in their home language?
- What opportunities for literacy are there in the home?
  - Home inventory of books, media, etc.
- What do I know about mom/dad's level of formal education?



CECER-DLL Child and Family Questionnaire 16

The next questions are about activities you and your family may do with [CHILD] to teach him/her about school related concepts. Once again, we do not expect that every activity takes place in your home.

K2. NOTE: DO NOT ASK LANGUAGE QUESTIONS FOR ACTIVITIES OCCURING 'RARELY OR NEVER'. IF 'RARELY OR NEVER', FILL IN 'N/A' FOR LANGUAGE.

How often do you or your family…

	5-7 days a week	3-4 days a week	1-2 days a week	1-3 times a month	Rarely or Never	What languages do you or your family typically use?			
						Spanish	English	Both	N/A
a. talk with [CHILD] about the names of colors?	o	o	o	o	o	o	o	o	o
b. talk with [CHILD] about the names of shapes ?	o	o	o	o	o	o	o	o	o
c. teach [CHILD] to count objects? For example, "Here are two plates. Please bring me three spoons."	o	o	o	o	o	o	o	o	o
d. teach [CHILD] to say the numbers from 1 to 10 or higher? For example, "1, 2, 3, 4, 5, . . . "	o	o	o	o	o	o	o	o	o
e. practice saying the ABCs with [CHILD]? For example, "A, B, C, D, E, F, G."	o	o	o	o	o	o	o	o	o
f. teach [CHILD] about letters? For example, the names of letters in his/her name or the sounds that letters stand for.	o	o	o	o	o	o	o	o	o
g. color or do an art activity with [CHILD]?	o	o	o	o	o	o	o	o	o

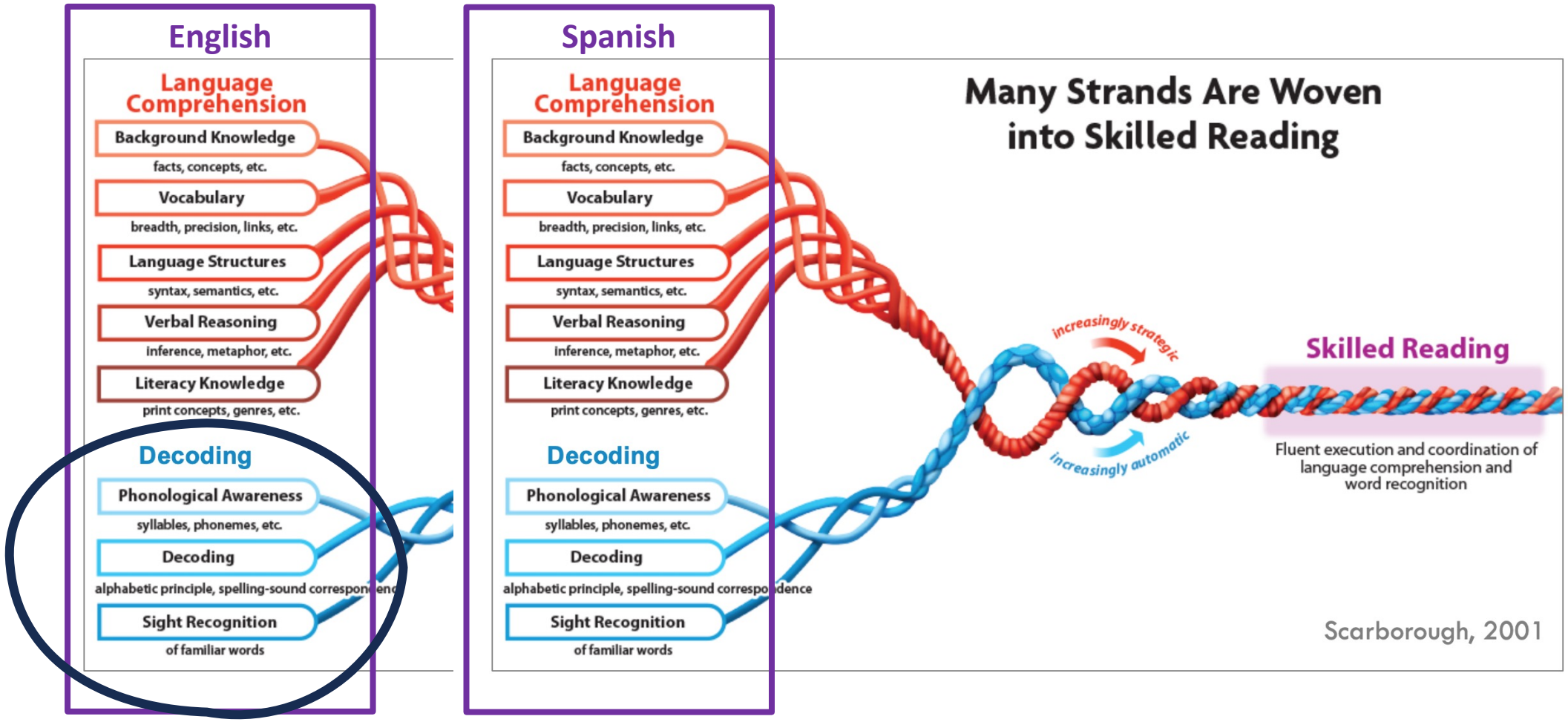
Free online, research-backed questionnaires in English and Spanish via Developing Language and Literacy Lab (DLL-Lab) Hammer et al., 2015.

https://www.tc.columbia.edu/dll-lab/cecer/

Steps:

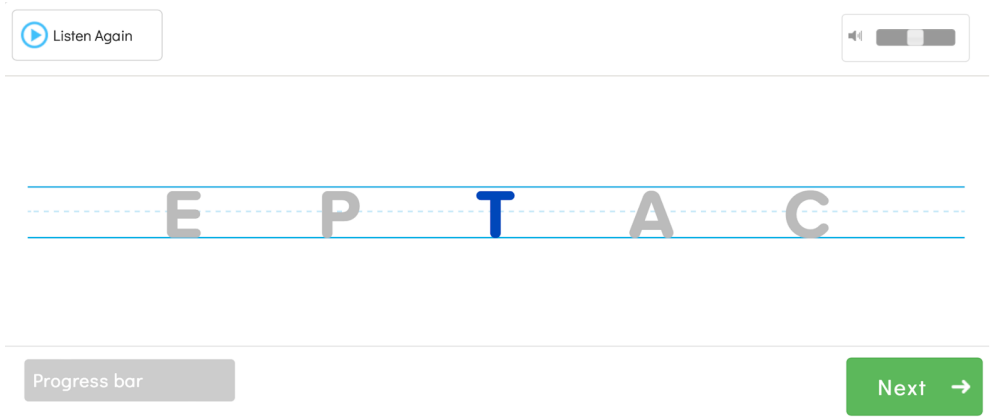
1. Gather information about language and literacy-learning opportunities
2. Consider student's reading skills in the home language
3. Consider the code-based skills that underlie reading
4. Consider the language-based skills that underlie reading

STEPS 2-4:
Consider which follow-up assessments to administer



STEP 2:
Consider students' reading skills in the home language

Students completed a self-administered computer-adaptive test that measures early decoding skills in Spanish.



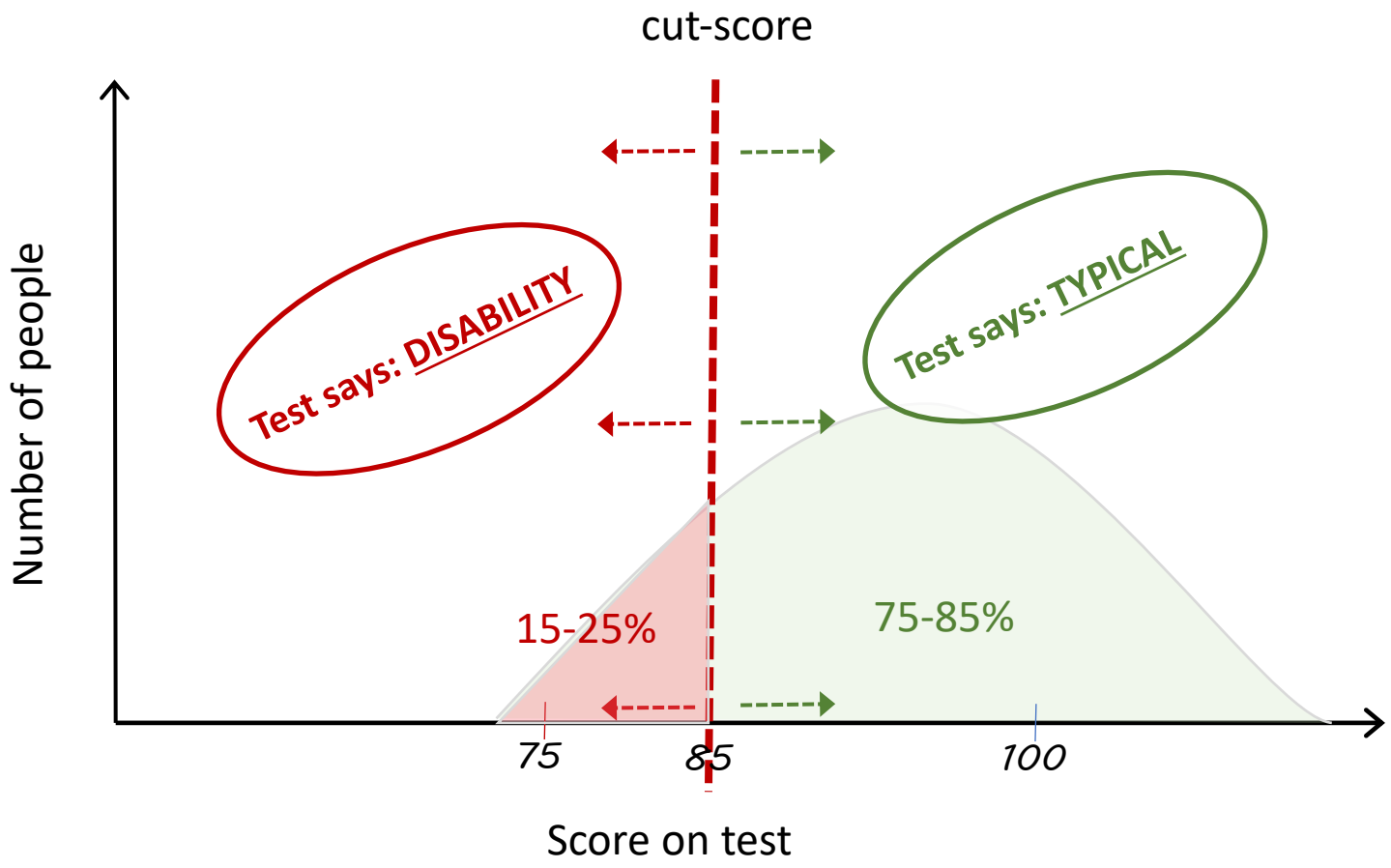
"*¿Qué letra dice /t/ como taco?*

The correct response is **T**.

"Encuentra la silába que dice /de/ como in la palabra dedo?

The correct response is **de.**

Diagnostic Assessment Histograms



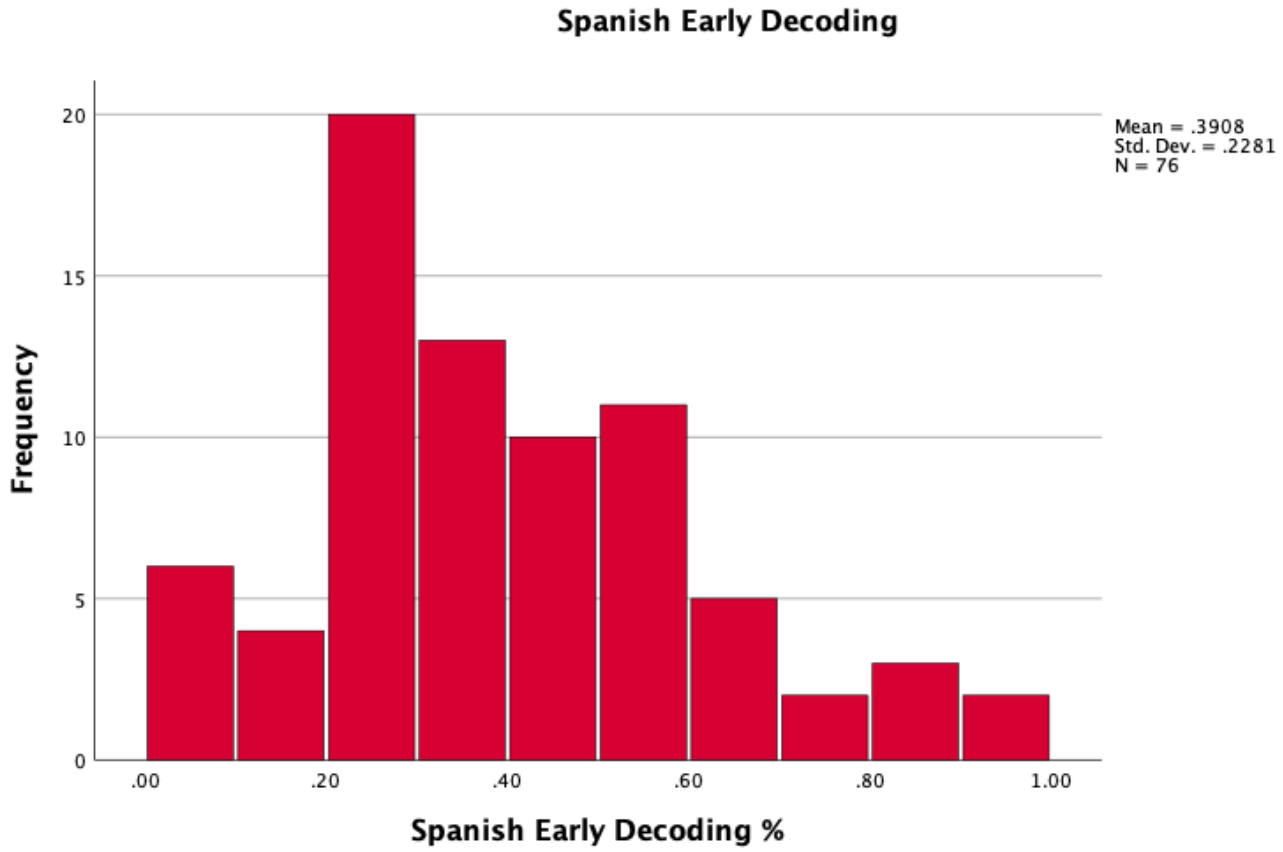
Sensitivity = 100%

The percentage of children with a disability that the test accurately identifies as having a disability

Specificity = 100%

The percentage of children with TD that the test accurately identifies as having TD

Results: Spanish Decoding

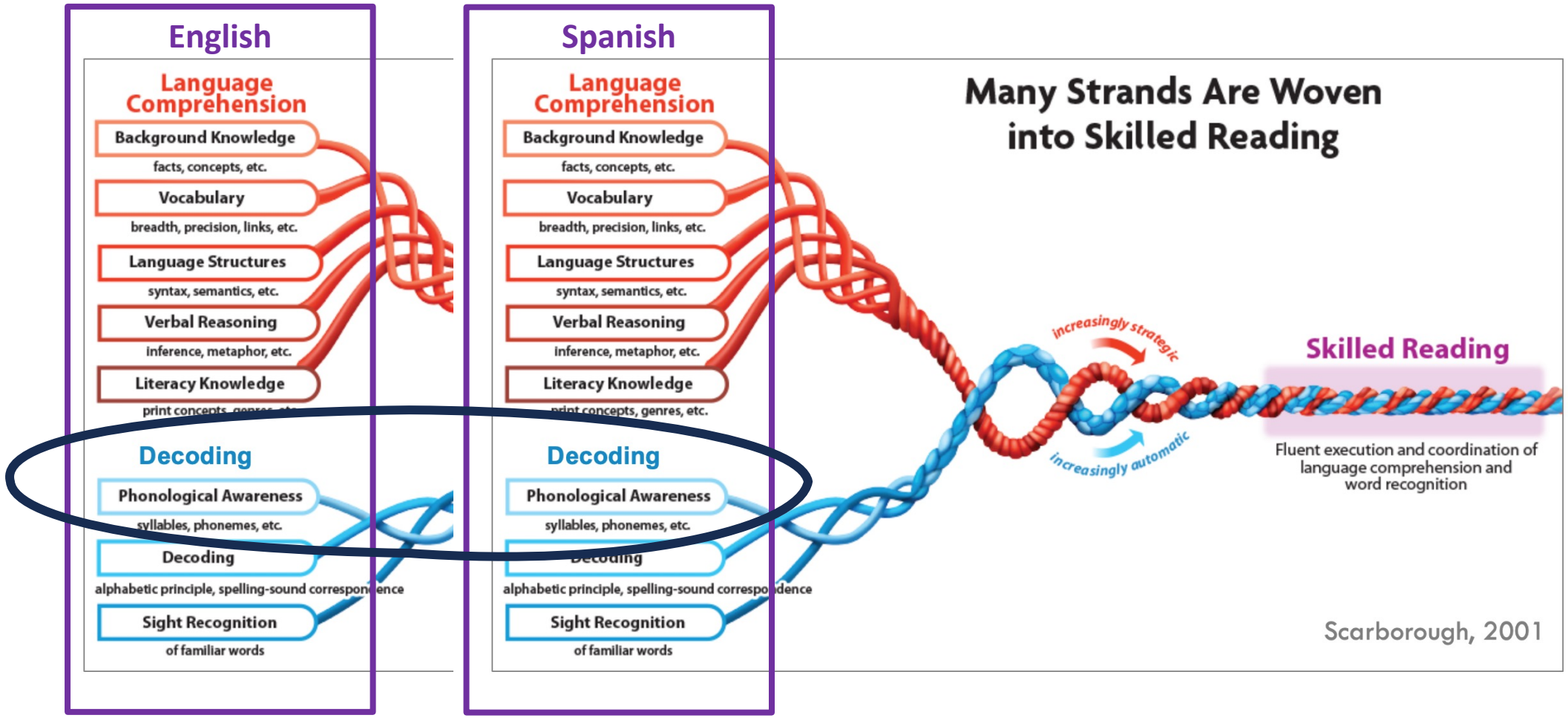


Mean	= .39
Mode	= 0
% below -1 SD	= 53%

We have to interpret these findings in light of the child's language and literacy history.

Why might EL students without dyslexia score poorly on tests of Spanish decoding?

STEP 3:
Consider the code-based skills that underlie decoding



3a. Sound Matching

Sound matching measures the ability to match initial and final sounds

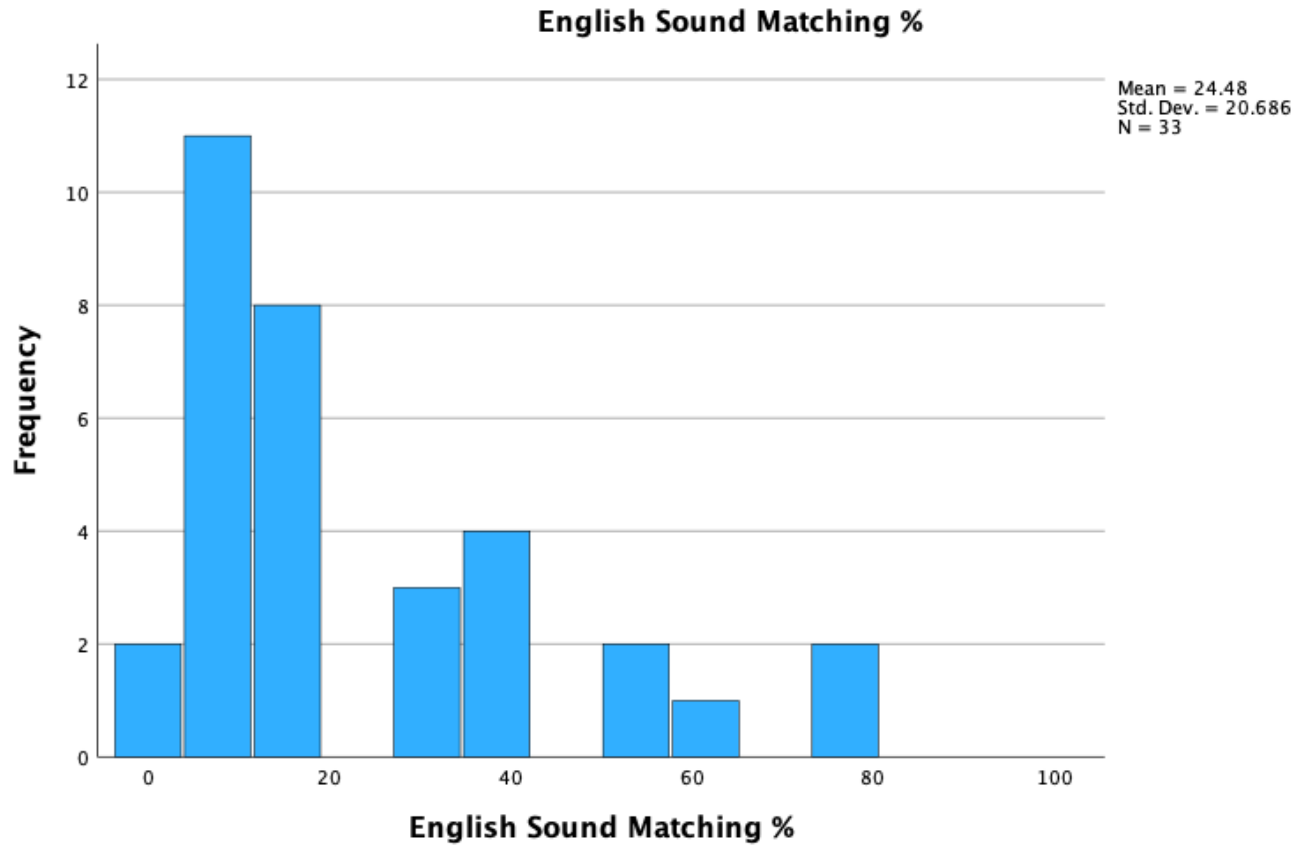
"Which of these picture words starts with the /s/ sound like sock: sun or bear?"

The correct response is sun.

"¿Qué palabra empieza con el sonido /s/ como sofa: siete o ratón?

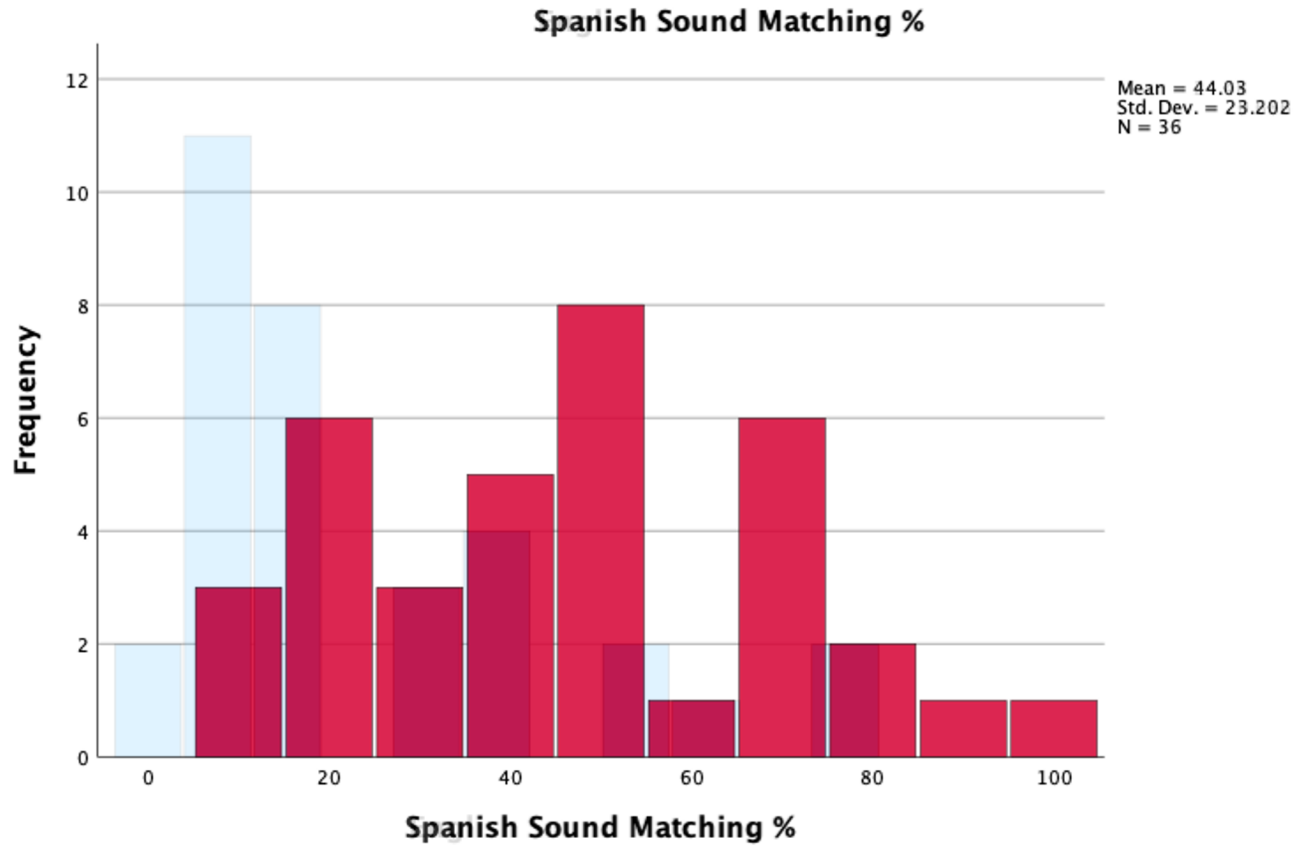
The correct response is siete.

English Sound Matching



Mean = 24
Mode = 19
% below -1 SD = 63%

Spanish Sound Matching



Mean = 44
Mode = 45
% below -1 SD = 26%

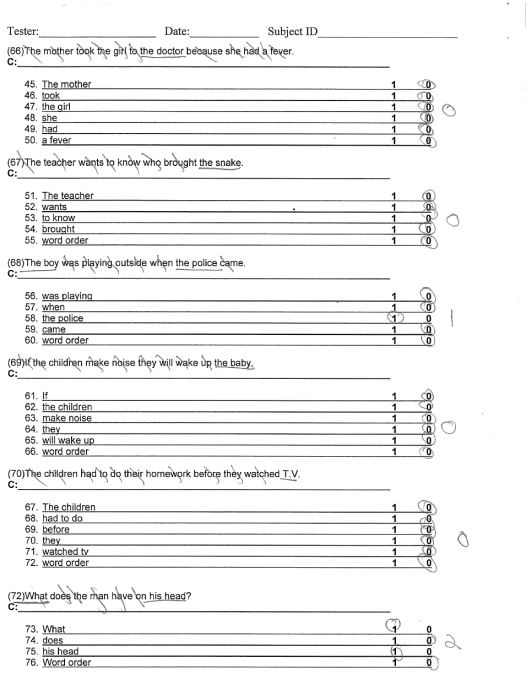
Interpret ELs' scores cross-linguistically

- "Best Language" approach
- Look at child's score in English and their score in home language
- Is the student capable of completing the task *in any language?*

Yes	No
✓ I am less worried about a neurodevelopmental phonological deficit	Continue to consider reasons why they may not have scored WNL: ❑ Unfamiliar with PA tasks in either language ❑ Other reason ❑ Dyslexia

BEST LANGUAGE analysis

CHILD A - English



Tester:_____ Date:_____ Subject ID_____

(66)The mother took the girl to the doctor because she had a fever.
C:_____

45. The mother	1	0
46. took	1	0
47. the girl	1	0
48. she	1	0
49. had	1	0
50. a fever	1	0

(67)The teacher wants to know who brought the snake.
C:_____

51. The teacher	1	0
52. wants	1	0
53. to know	1	0
54. brought	1	0
55. word order	1	0

(68)The boy was playing outside when the police came.
C:_____

56. was playing	1	0
57. when	1	0
58. the police	1	0
59. came	1	0
60. word order	1	0

(69)If the children make noise they will wake up the baby.
C:_____

61. If	1	0
62. the children	1	0
63. make noise	1	0
64. they	1	0
65. will wake up	1	0
66. word order	1	0

(70)The children had to do their homework before they watched T.V.
C:_____

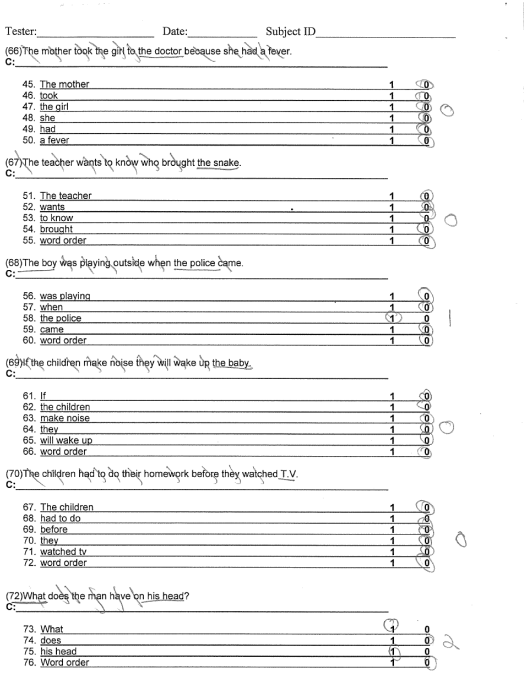
67. The children	1	0
68. had to do	1	0
69. before	1	0
70. they	1	0
71. watched tv	1	0
72. word order	1	0

(72)What does the man have on his head?
C:_____

73. What	1	0
74. does	1	0
75. his head	1	0
76. Word order	1	0

Score: 1 / 10

CHILD B - English



Tester:_____ Date:_____ Subject ID_____

(66)The mother took the girl to the doctor because she had a fever.
C:_____

45. The mother	1	0
46. took	1	0
47. the girl	1	0
48. she	1	0
49. had	1	0
50. a fever	1	0

(67)The teacher wants to know who brought the snake.
C:_____

51. The teacher	1	0
52. wants	1	0
53. to know	1	0
54. brought	1	0
55. word order	1	0

(68)The boy was playing outside when the police came.
C:_____

56. was playing	1	0
57. when	1	0
58. the police	1	0
59. came	1	0
60. word order	1	0

(69)If the children make noise they will wake up the baby.
C:_____

61. If	1	0
62. the children	1	0
63. make noise	1	0
64. they	1	0
65. will wake up	1	0
66. word order	1	0

(70)The children had to do their homework before they watched T.V.
C:_____

67. The children	1	0
68. had to do	1	0
69. before	1	0
70. they	1	0
71. watched tv	1	0
72. word order	1	0

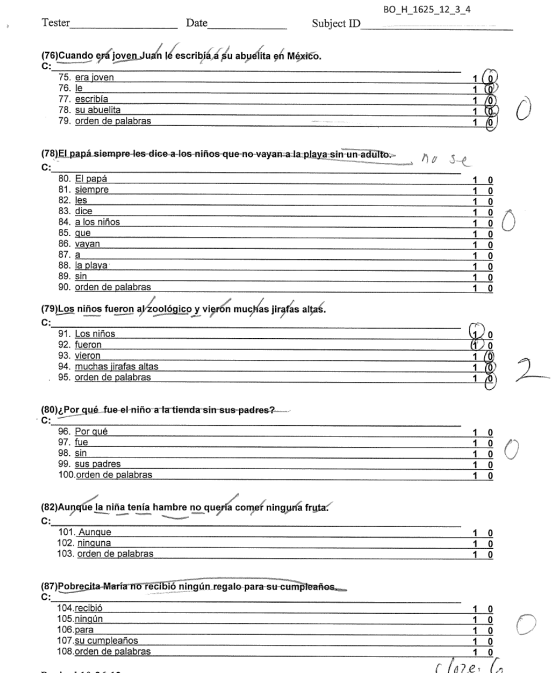
(72)What does the man have on his head?
C:_____

73. What	1	0
74. does	1	0
75. his head	1	0
76. Word order	1	0

Score: 0 / 10

BEST LANGUAGE analysis

CHILD A - Spanish



BO_H_1625_12_3_4

Tester_____ Date_____ Subject ID_____

(76)Cuando era joven Juan le escribía a su abuelita en México.

C:_____

75. era joven 1 0
76. le 1 0
77. escribía 1 0
78. su abuelita 1 0
79. orden de palabras 1 0

(78)El papá siempre les dice a los niños que no vayan a la playa sin un adulto.

C:_____

80. El papá 1 0
81. siempre 1 0
82. les 1 0
83. dice 1 0
84. a los niños 1 0
85. que 1 0
86. vayan 1 0
87. a 1 0
88. la playa 1 0
89. sin 1 0
90. orden de palabras 1 0

(79)Los niños fueron al zoológico y vieron muchas jirafas altas.

C:_____

91. Los niños 1 0
92. fueron 1 0
93. vieron 1 0
94. muchas jirafas altas 1 0
95. orden de palabras 1 0

(80)¿Por qué fue el niño a la tienda sin sus padres?

C:_____

96. Por qué 1 0
97. fue 1 0
98. sin 1 0
99. sus padres 1 0
100. orden de palabras 1 0

(82)Aunque la niña tenía hambre no quería comer ninguna fruta.

C:_____

101. Aunque 1 0
102. ninguna 1 0
103. orden de palabras 1 0

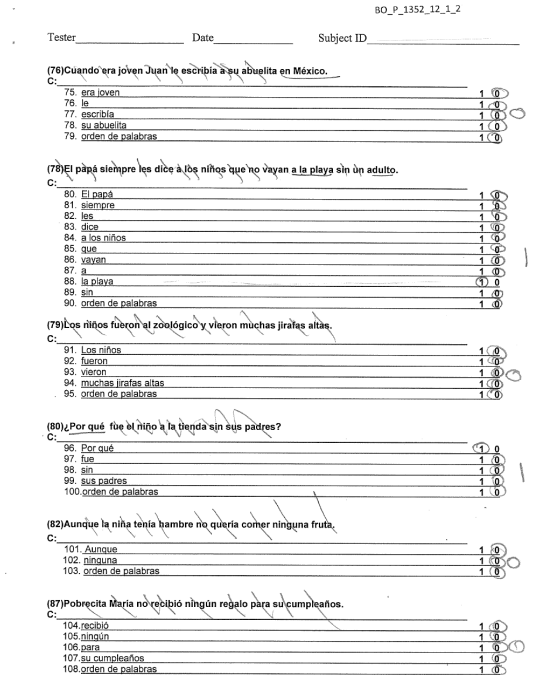
(87)Pobrecita María no recibió ningún regalo para su cumpleaños.

C:_____

104. recibió 1 0
105. ningún 1 0
106. para 1 0
107. su cumpleaños 1 0
108. orden de palabras 1 0

Score: 2 / 10

CHILD B - Spanish



BO_P_1352_12_1_2

Tester_____ Date_____ Subject ID_____

(76)Cuando era joven Juan le escribía a su abuelita en México.

C:_____

75. era joven 1 0
76. le 1 0
77. escribía 1 0
78. su abuelita 1 0
79. orden de palabras 1 0

(78)El papá siempre les dice a los niños que no vayan a la playa sin un adulto.

C:_____

80. El papá 1 0
81. siempre 1 0
82. les 1 0
83. dice 1 0
84. a los niños 1 0
85. que 1 0
86. vayan 1 0
87. a 1 0
88. la playa 1 0
89. sin 1 0
90. orden de palabras 1 0

(79)Los niños fueron al zoológico y vieron muchas jirafas altas.

C:_____

91. Los niños 1 0
92. fueron 1 0
93. vieron 1 0
94. muchas jirafas altas 1 0
95. orden de palabras 1 0

(80)¿Por qué fue el niño a la tienda sin sus padres?

C:_____

96. Por qué 1 0
97. fue 1 0
98. sin 1 0
99. sus padres 1 0
100. orden de palabras 1 0

(82)Aunque la niña tenía hambre no quería comer ninguna fruta.

C:_____

101. Aunque 1 0
102. ninguna 1 0
103. orden de palabras 1 0

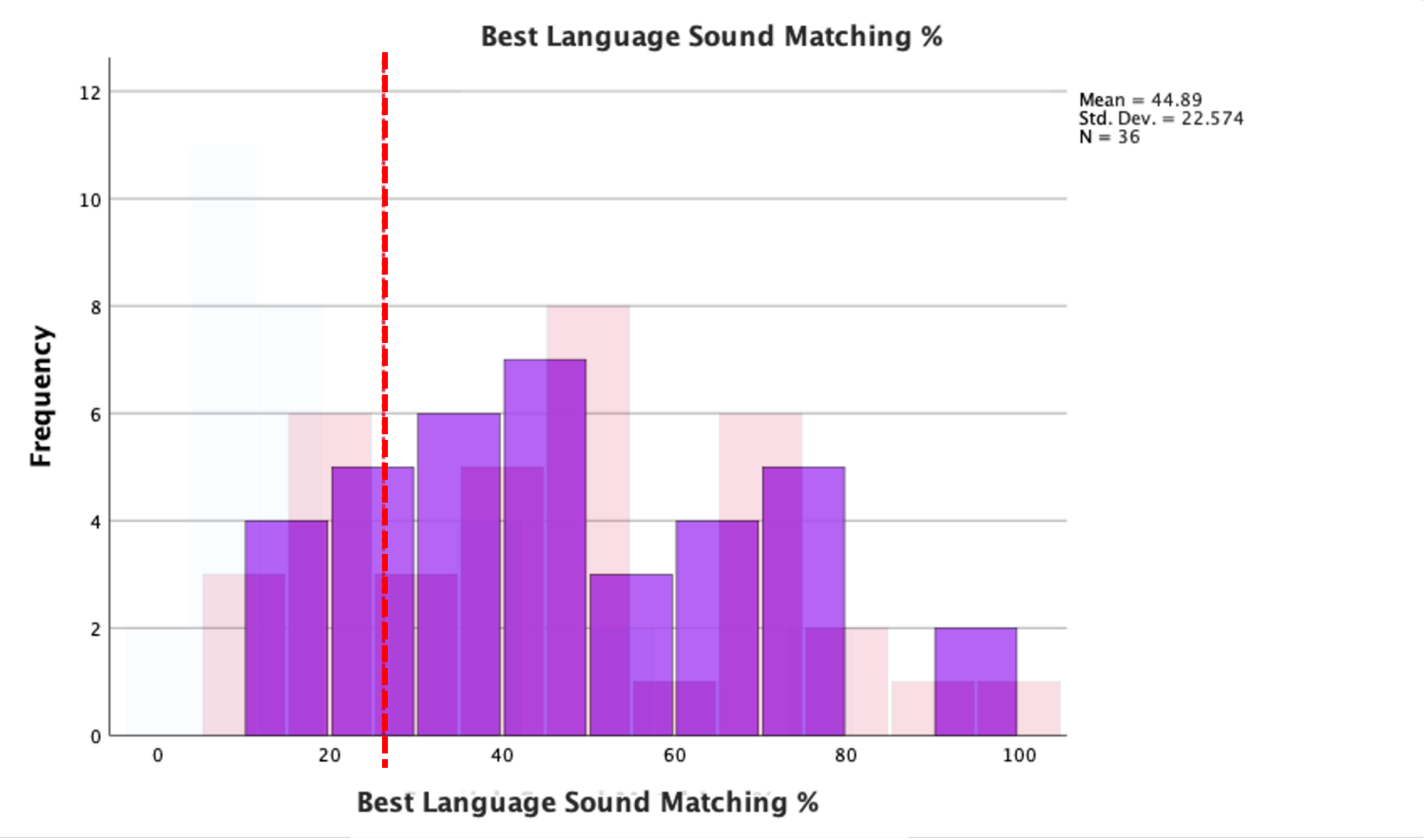
(87)Pobrecita María no recibió ningún regalo para su cumpleaños.

C:_____

104. recibió 1 0
105. ningún 1 0
106. para 1 0
107. su cumpleaños 1 0
108. orden de palabras 1 0

Score: 9 / 10

Best Language Sound Matching



Mean = 45
Mode = 45
% below -1 SD = 25%

3b. Blending Words

Blending Words measures the ability to synthesize sounds to form words.

"What word do these sounds make?"

cow boy

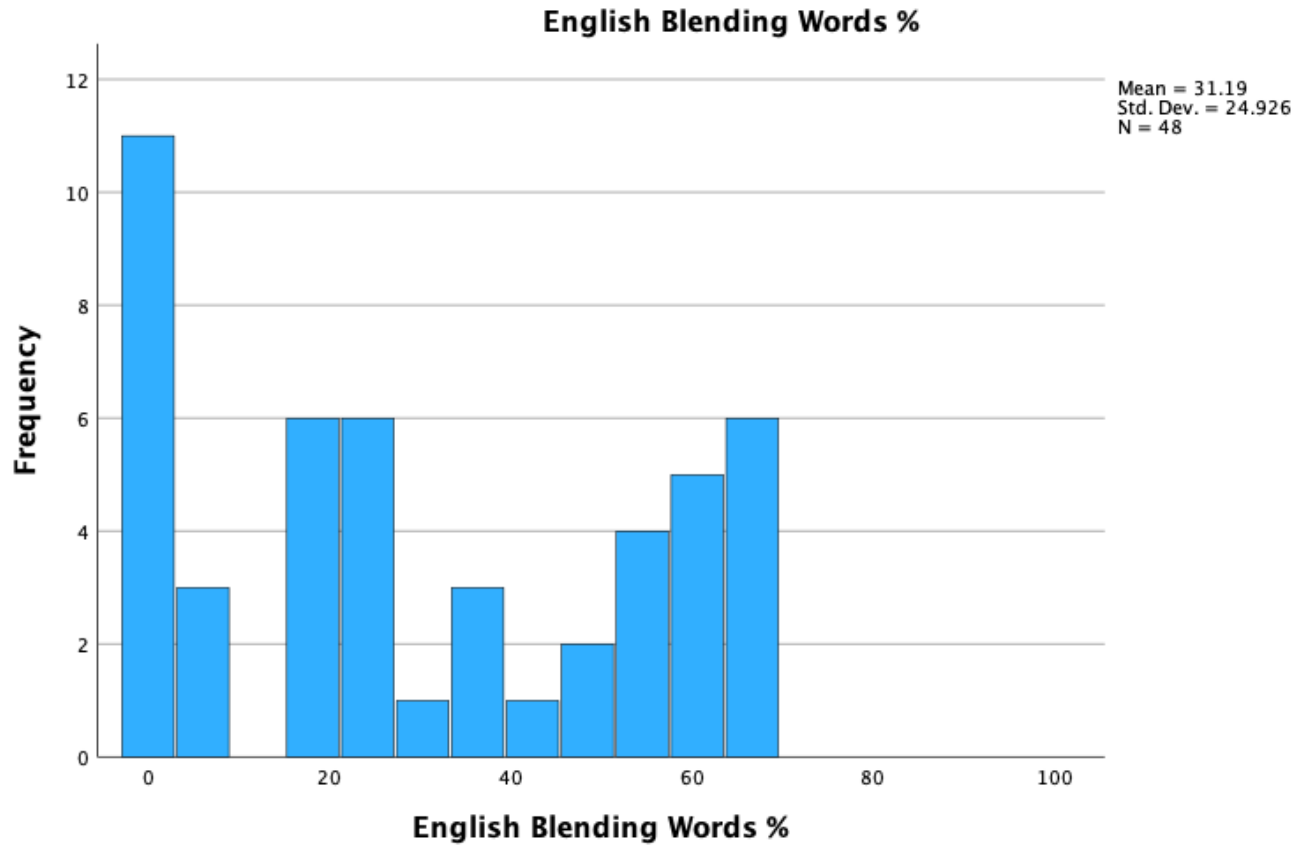
Correct response: cowboy

"¿Qué palabra se forma con estos sonidos?"

dul ce

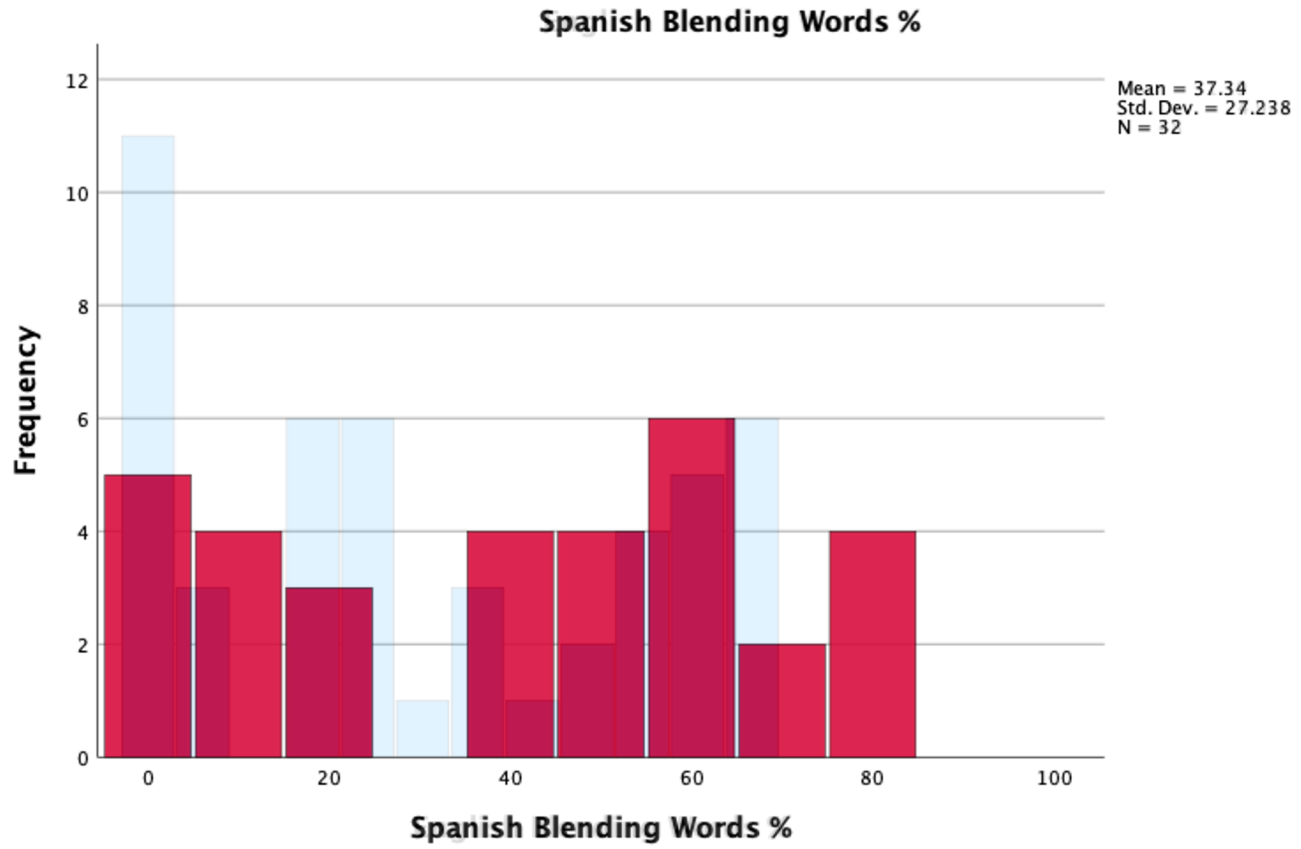
Correct response: dulce

English Blending Words



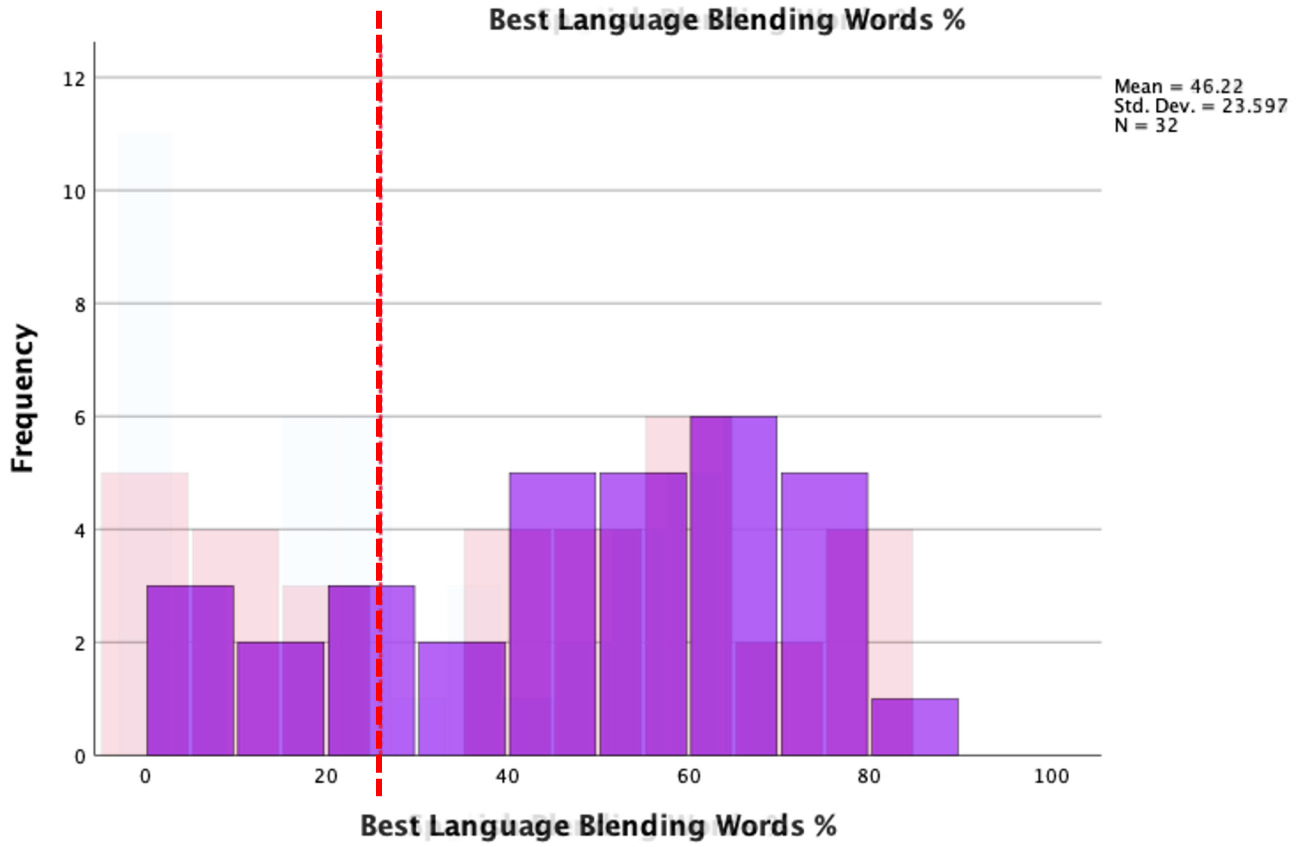
Mean = 31
Mode = 0
% below -1 SD = 54%

Spanish Blending Words



Mean = 37
Mode = 55
% below -1 SD = 50%

Best Language Blending Words



Mean = 46
Mode = 63
% below -1 SD = 25%

3c. Elision

Elision measures the ability to remove phonological segments from spoken words to form other words.

"*Say toothbrush.*"

"*Now say toothbrush without saying tooth*."

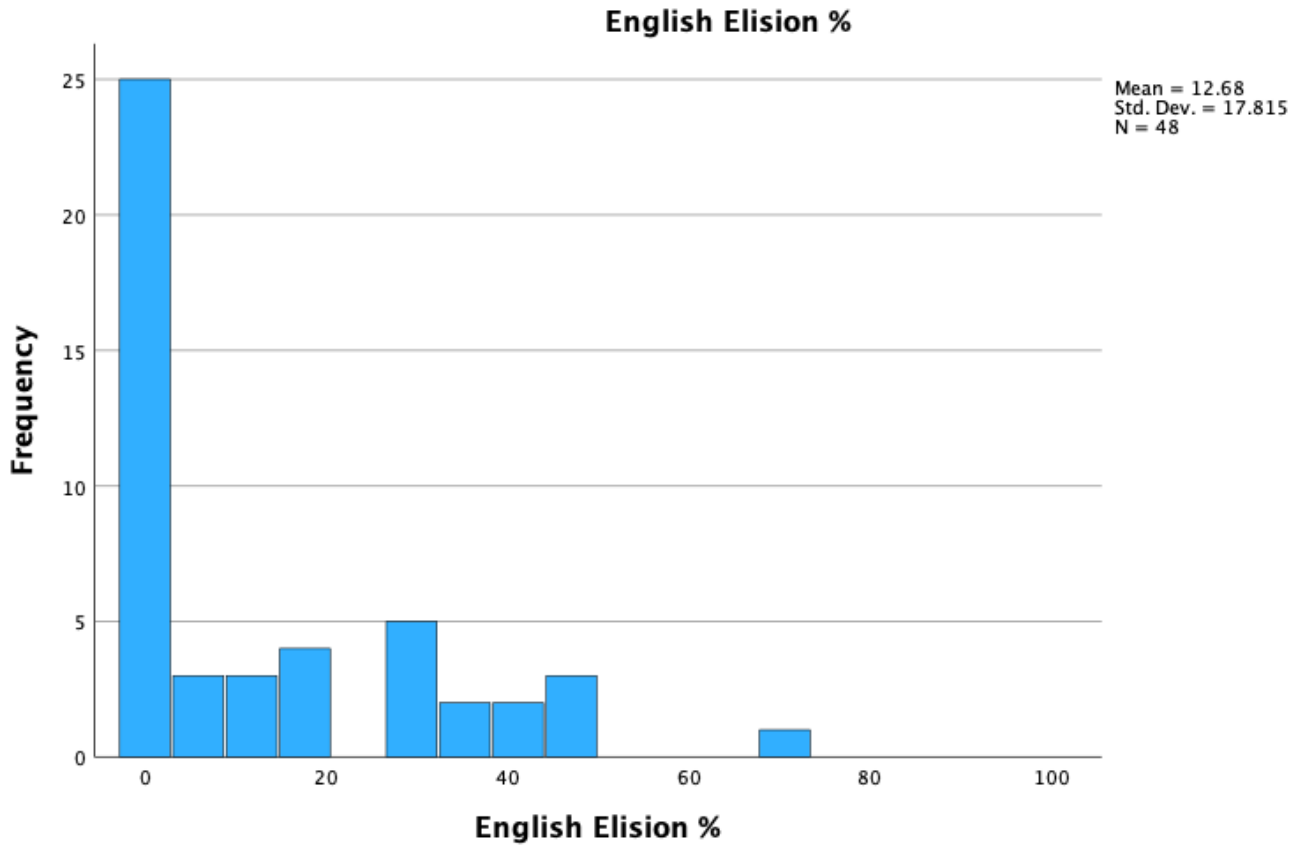
The correct response is brush.

"Di saltamontes."

"Ahora di saltamontes sin decir salta".

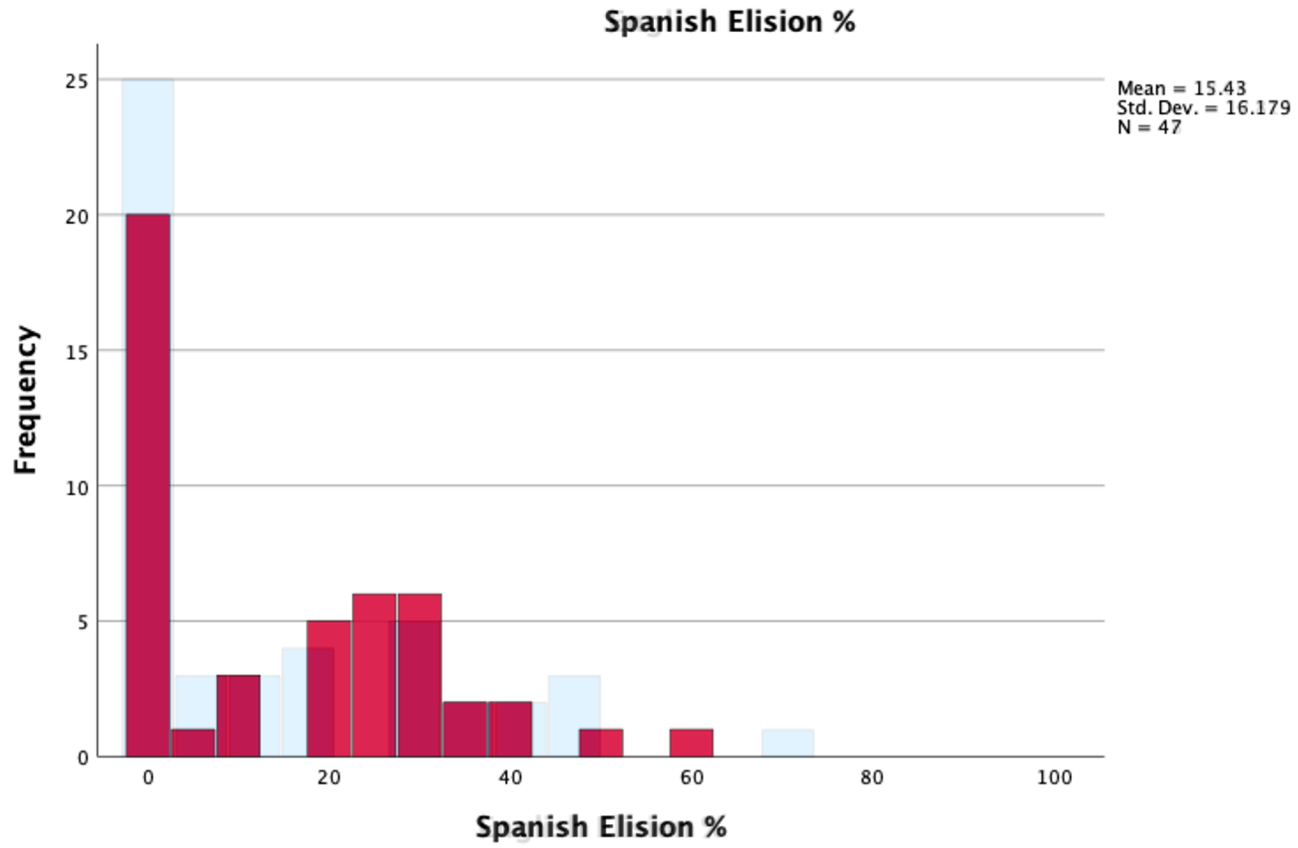
The correct response is montes.

English Elision



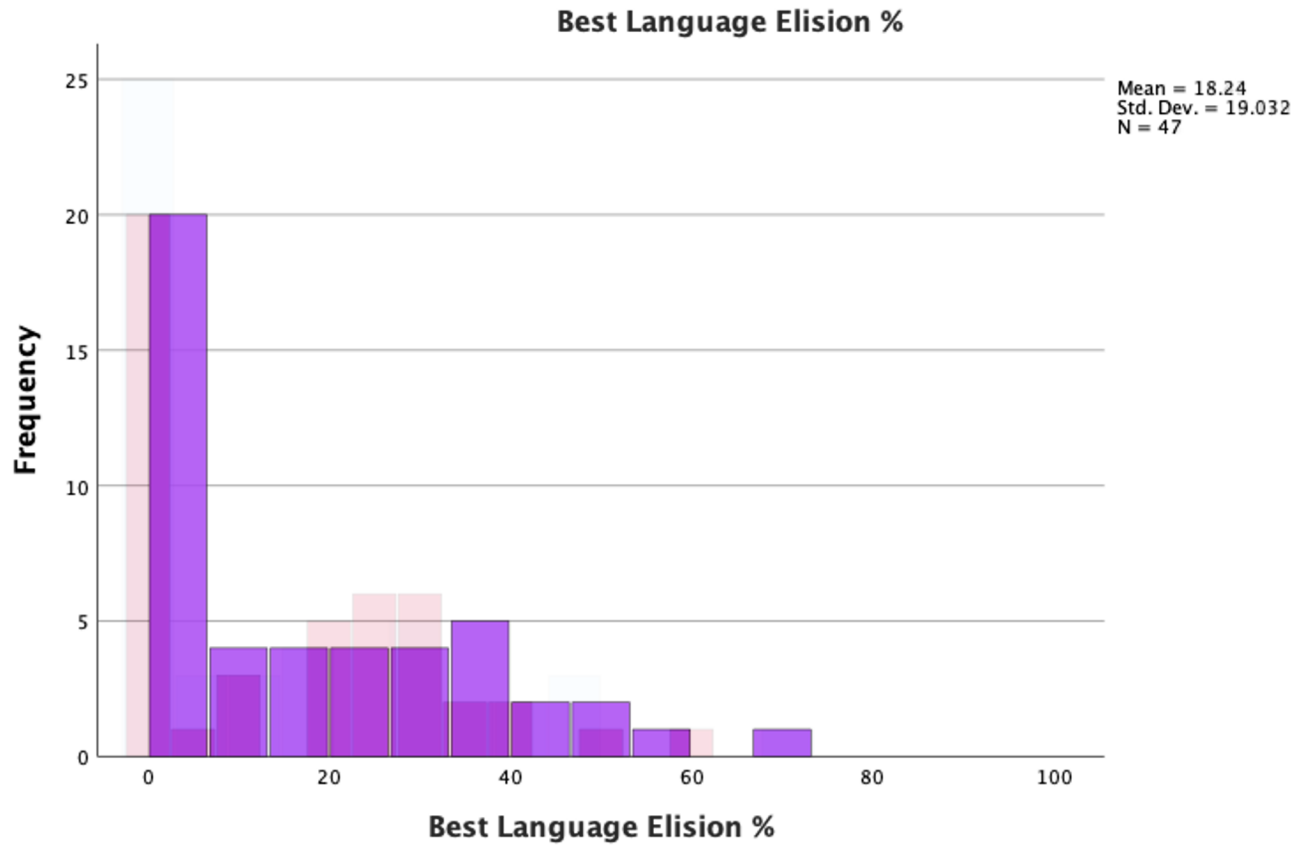
Mean = 13
Mode = 0
% below -1 SD = NA

Spanish Elision



Mean = 15
Mode = 0
% below -1 SD = NA

“Best Language” Elision



Mean	= 18
Mode	= 0
% below -1 SD	= NA

3d. Nonword Repetition

Nonword repetition measures the ability to repeat nonwords that range in length from 3 to 15 sounds.

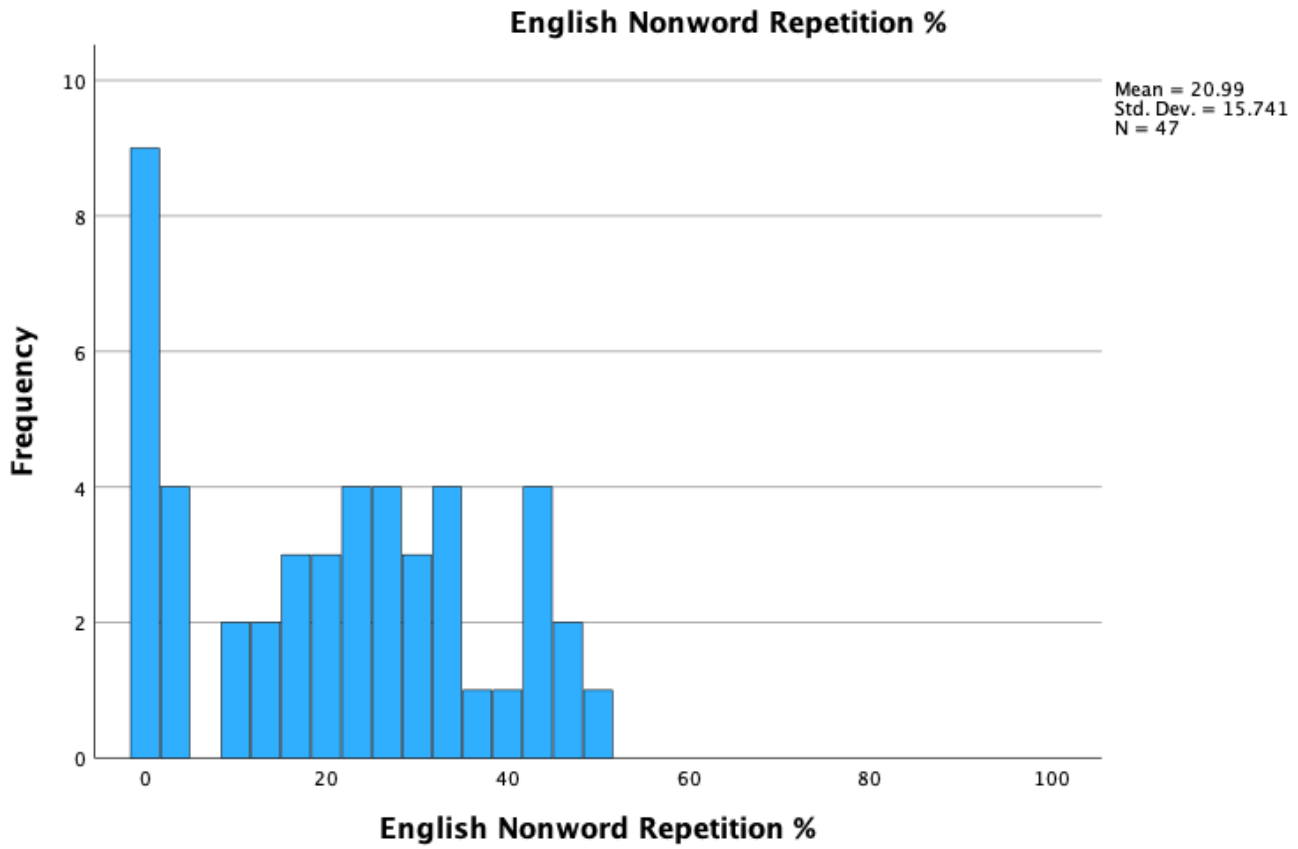
"I want you to listen to some made-up words. After you hear each made-up word, I want you to say it exactly as you heard it and as clearly as you can."

Recording plays: ballop

"Quiero que escuches algunas palabras inventadas. Después de escucharlas quiero que las repitas tal y como las oigas."

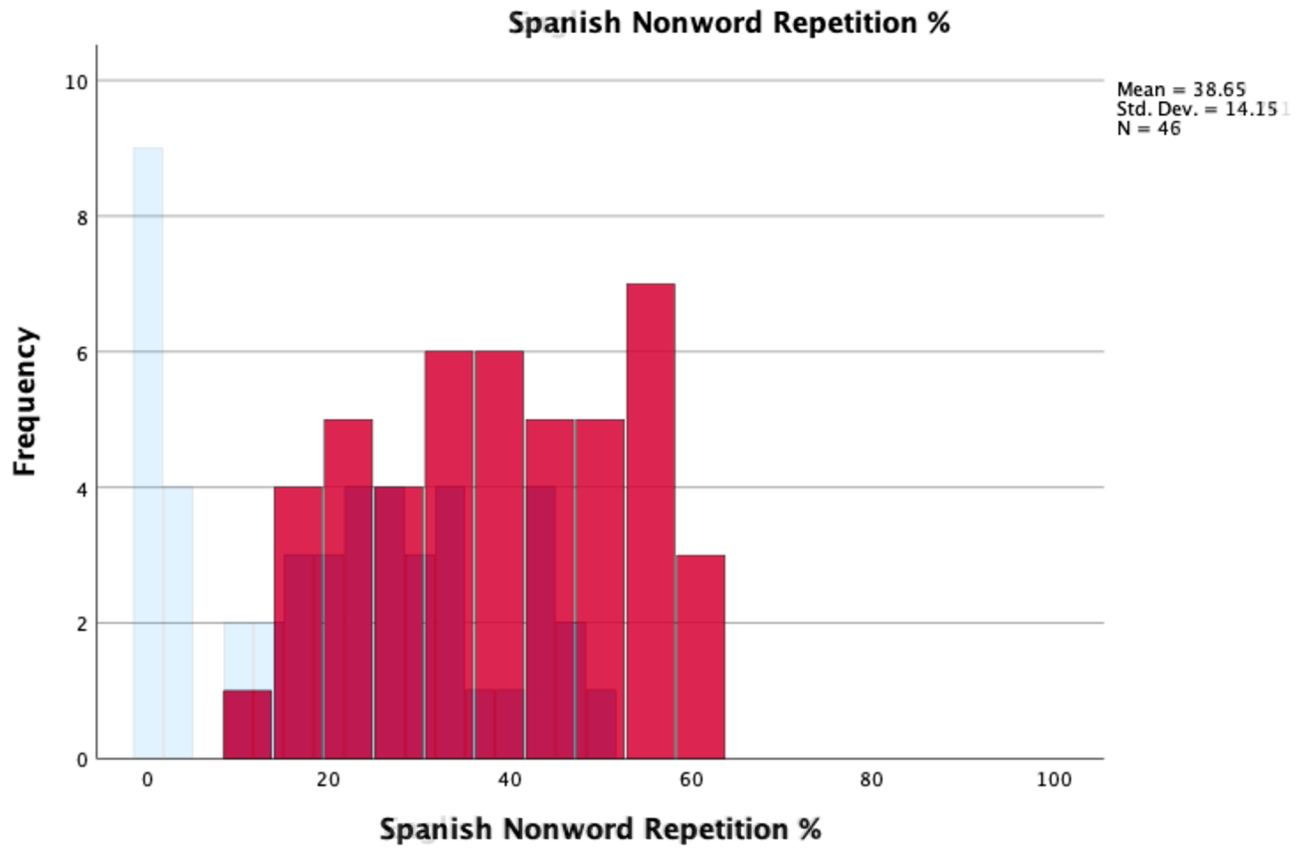
Recording plays: dalán

English Nonword Repetition



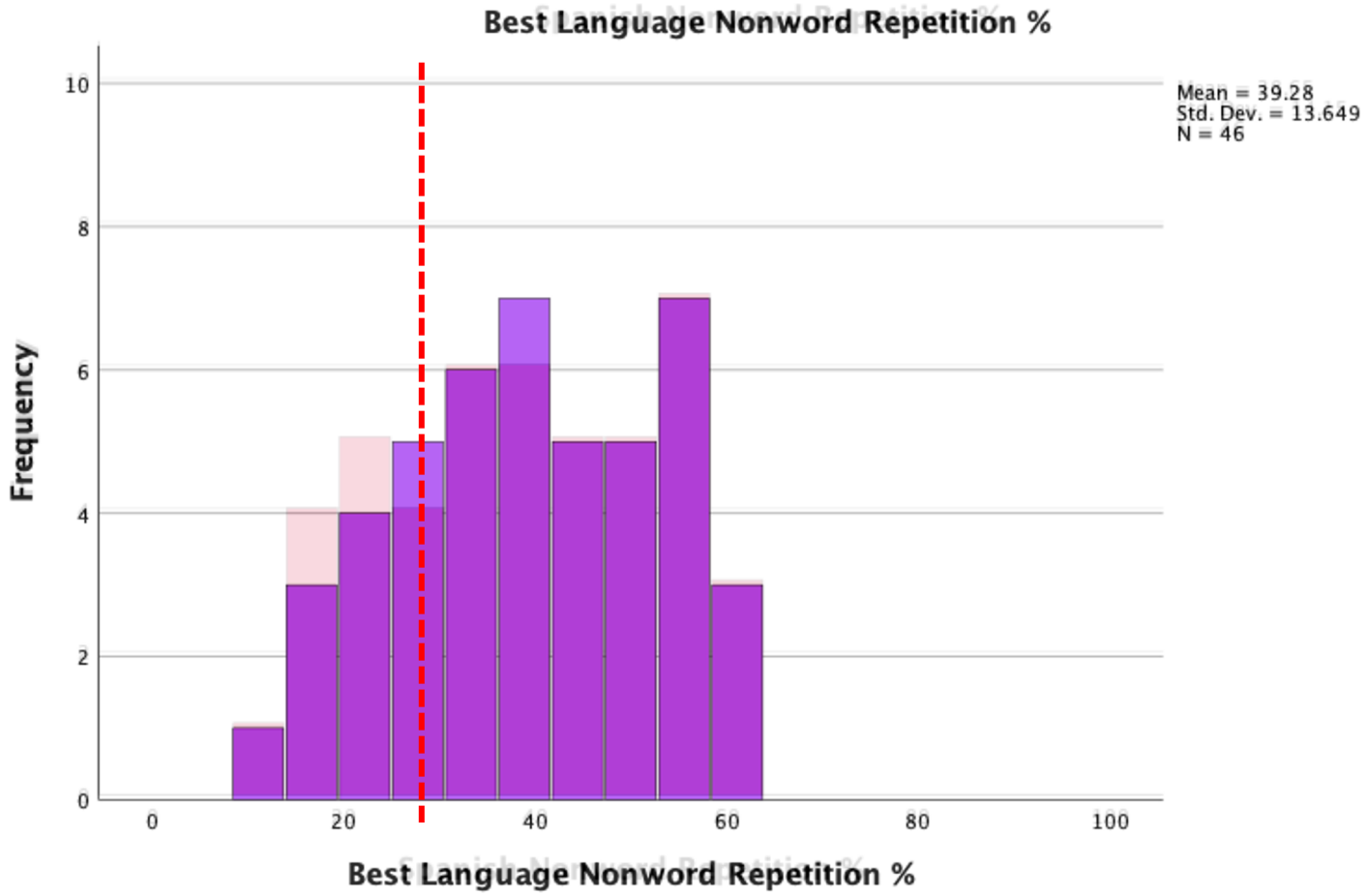
Mean = 20
Mode = 0
% below -1 SD = 72%

Spanish Nonword Repetition



Mean = 39
Mode = 56
% below -1 SD = 25%

“Best Language” Nonword Repetition



Mean = 39
Mode = 56
% below -1 SD = 25%

Phonological Awareness Takeaways!

- Phonological awareness is predictive of reading because it shows that kids are tuning in to the sounds of language which they will eventually need to map onto letters to decode

- For diagnostic purposes, we are less concerned about which language the child can perform the skill in --- rather, we care that they are capable of performing it in any language!

- Not all PA measures are the same!
  - Elision is difficult in both languages – maybe not be the best choice for young learners
  - Sound matching and blending words are good candidates
  - Nonword repetition is less directly related to reading, but can tell us about underlying ability

Go back to the Science of Reading…

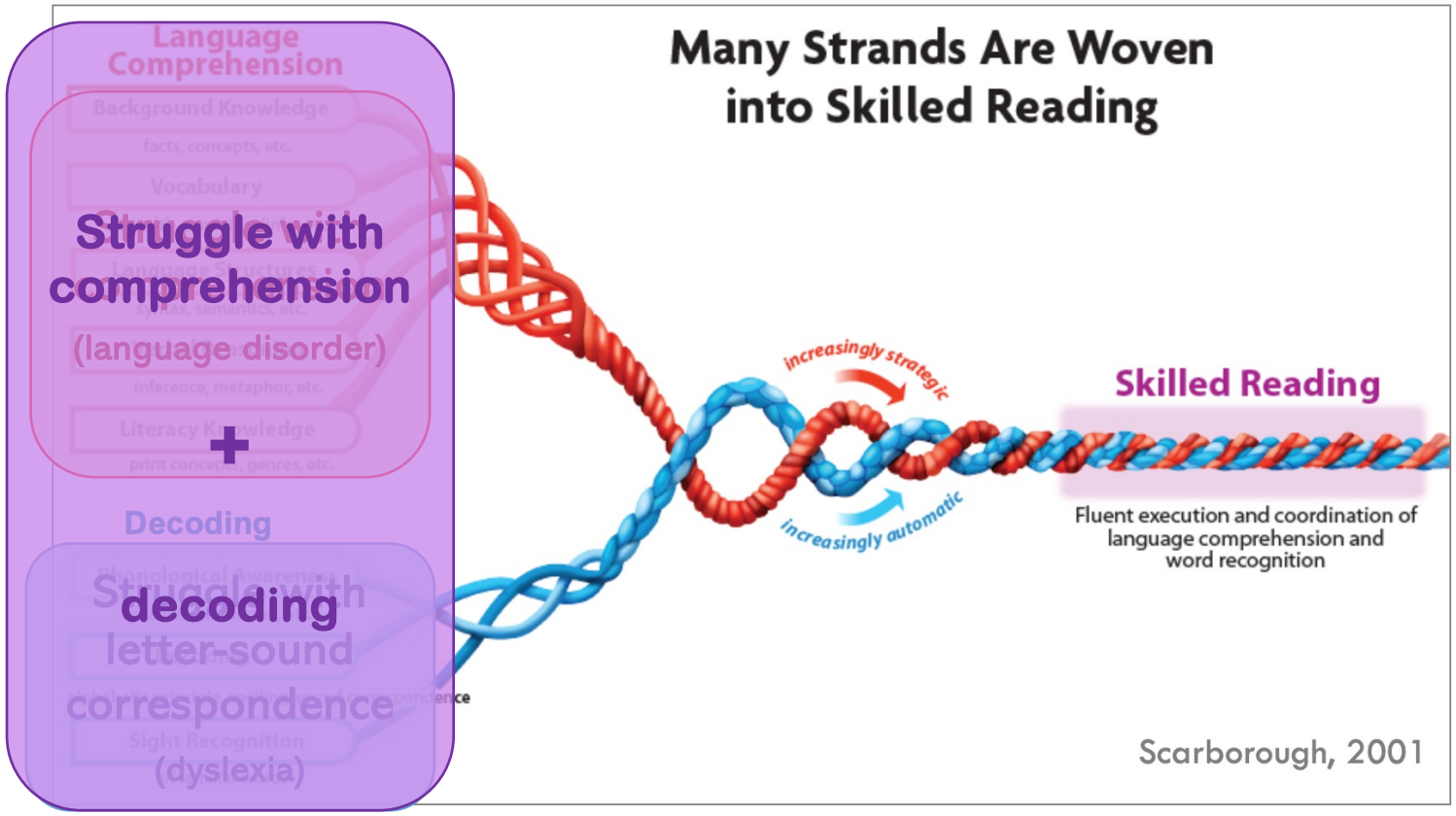
Lot of overlap in language and reading difficulties:

Among children with IEPs for language:

- ✓ 80% scored below average on standardized reading assessments
- ✓ 51% fit diagnostic criteria for dyslexia

Among children with IEPs for reading:

- ✓ 90% scored below average on standardized language assessments
- ✓ 55% fit diagnostic criteria for language disorder

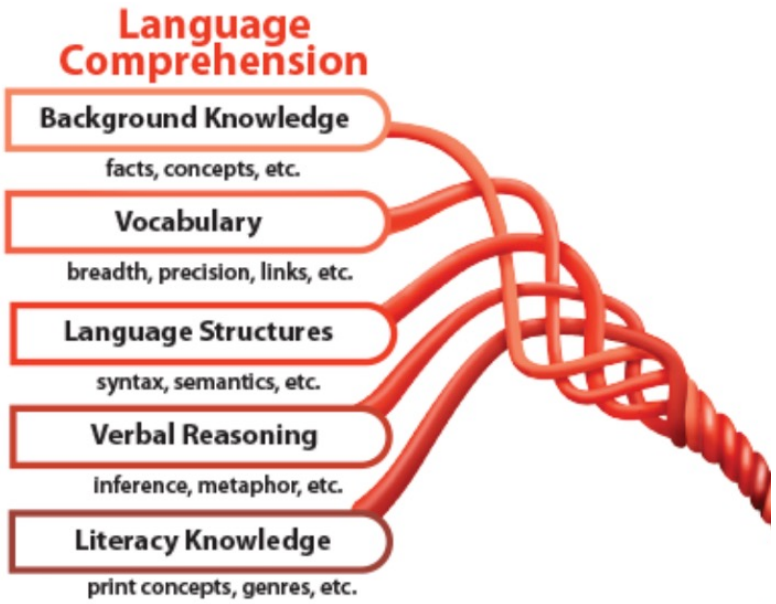


STEP 4:
Consider the language strands of the rope

- Experience-expectant

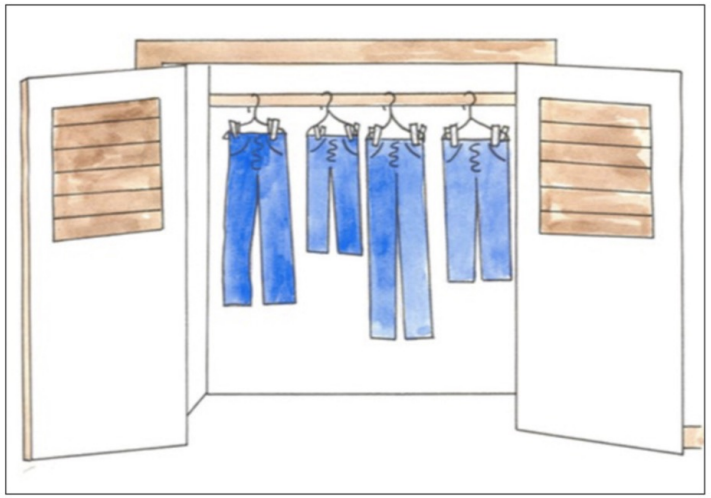
- Typically-developing children are evolutionarily programmed to acquire language by being exposed to speakers of that language
  - We can explicitly teach vocabulary, sentence frames, etc. to speed up acquisition *(especially true for emerging bilinguals!)*

- If a child can not use the language(s) in their environment, it's a strong indicator of a neurodevelopmental disability



Bilingual English Spanish Oral Screener (BESOS)

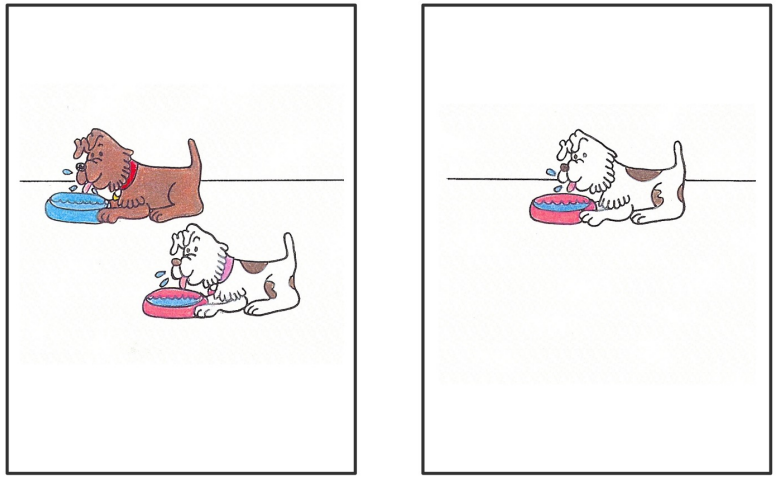
Semantics:



"What is different about these pants?"

Correct response: Some are short and some are long; different lengths/sizes

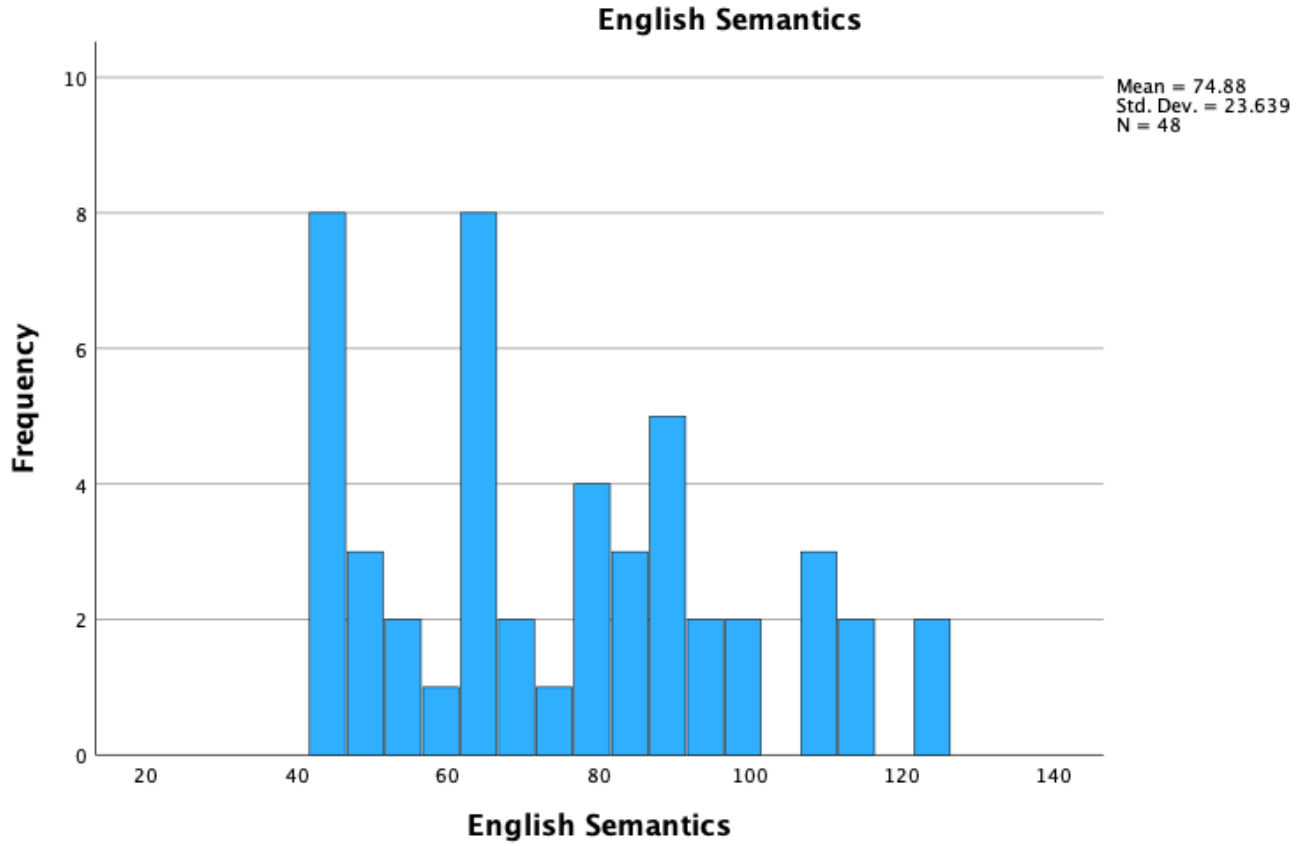
Morphosyntax / Grammar:



"Everyday these dogs drink water. This dog does it, too. What does he do everyday? Everyday the dog…"

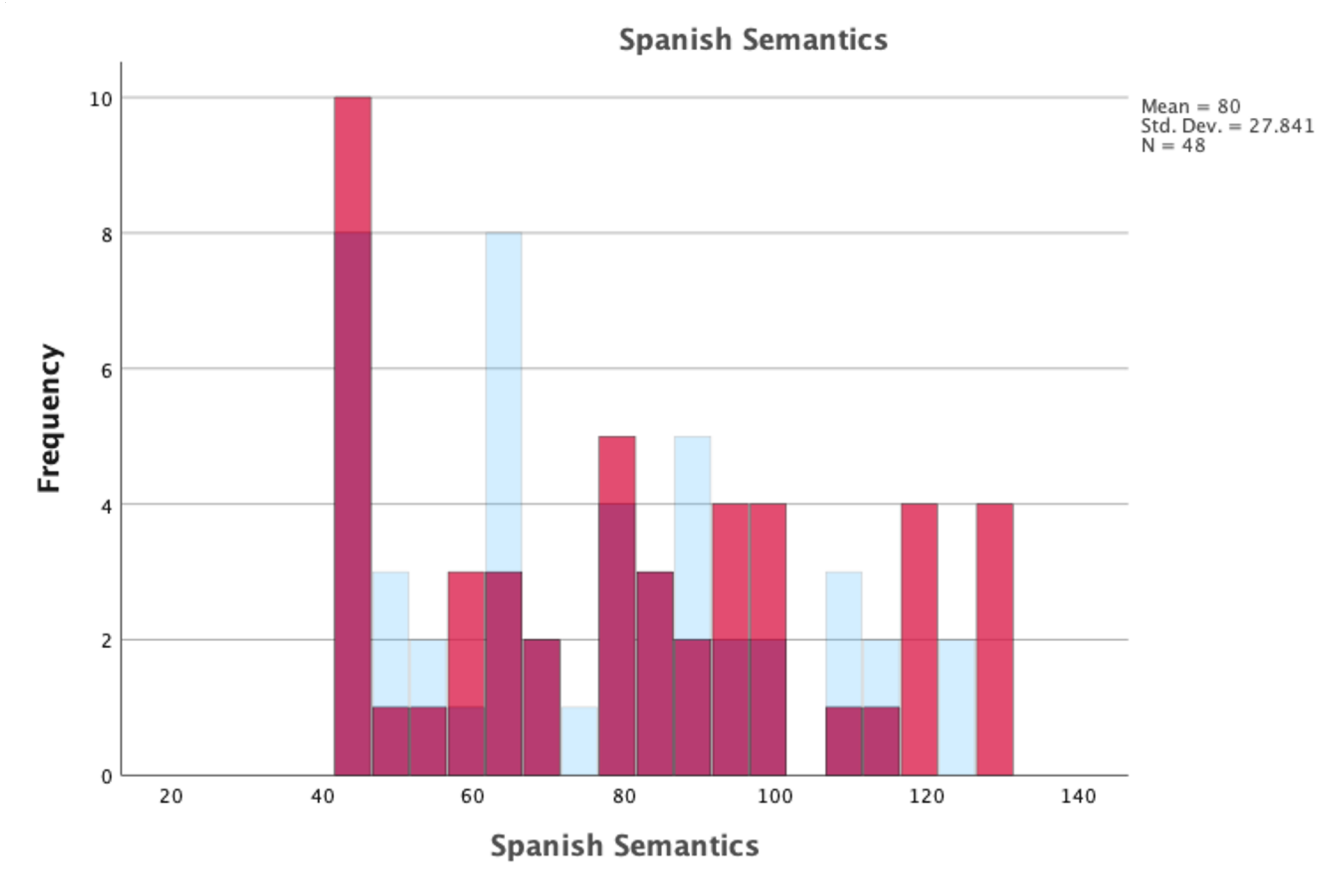
Correct response: drink**s** water

English Semantics



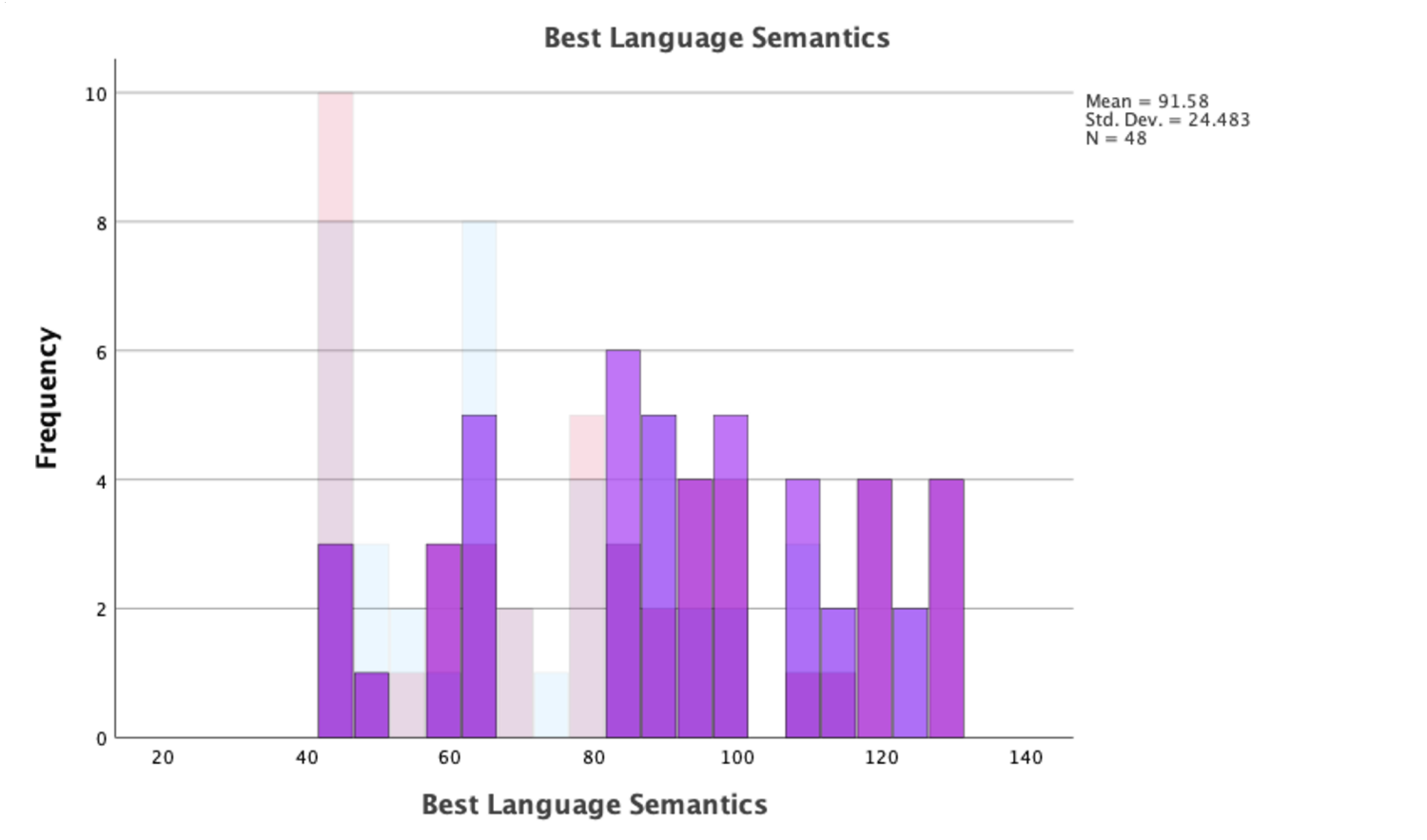
Mean	= 75
Mode	= 41
% below 80	= 60%

Spanish Semantics



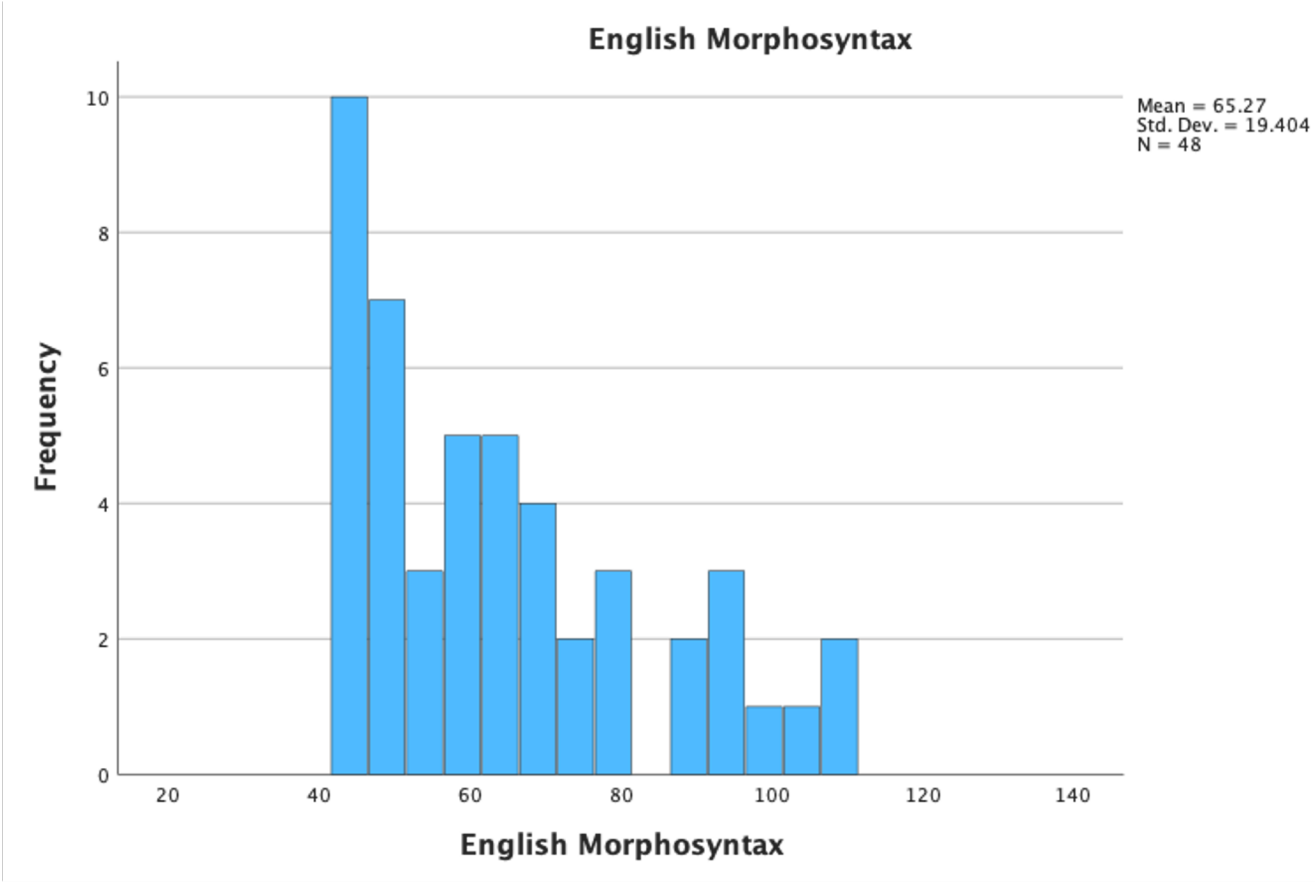
Mean	= 80
Mode	= 41
% below 80	= 52%

“Best Language” Semantics



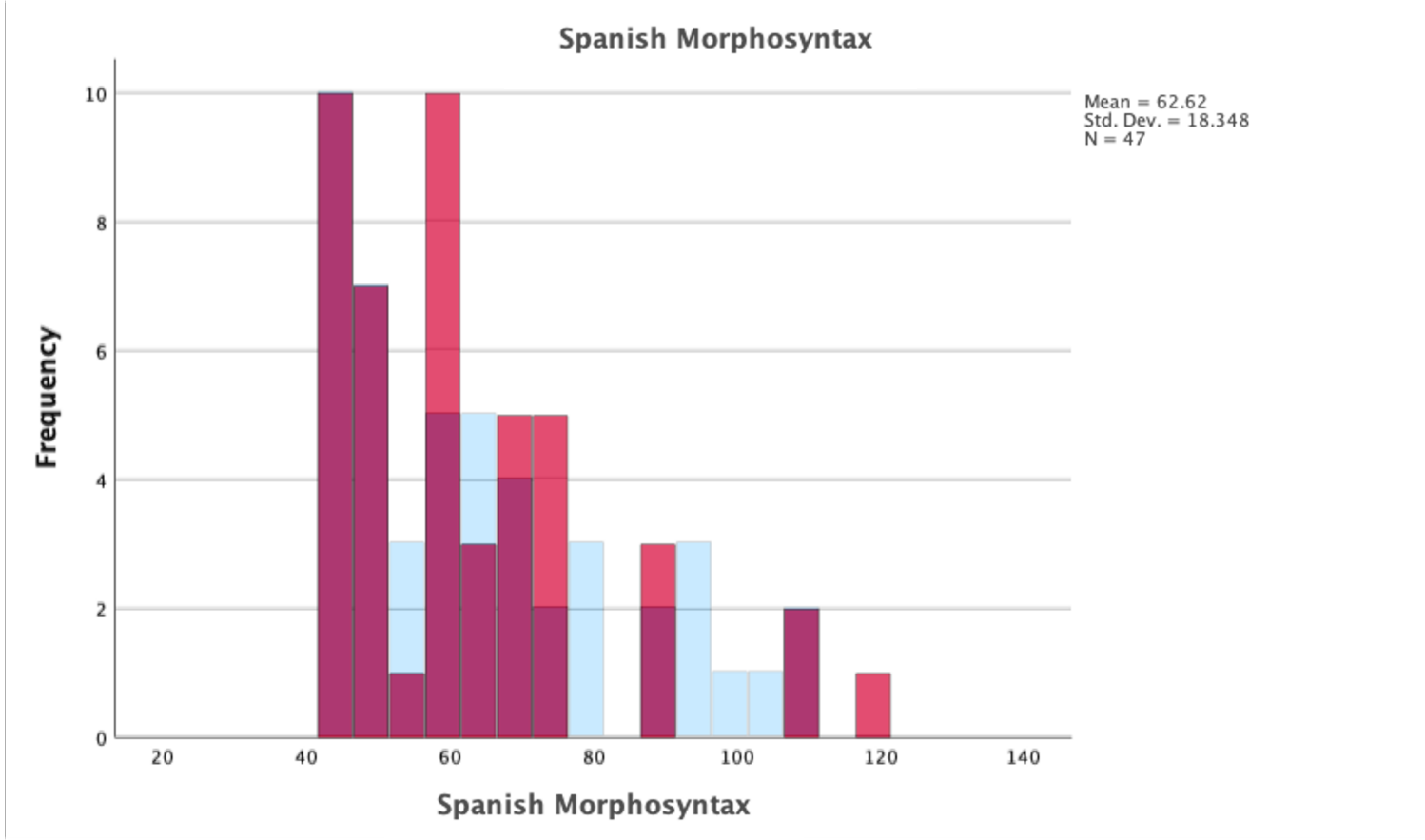
Mean	= 92
Mode	= 84
% below 80	= 23%

English Grammar



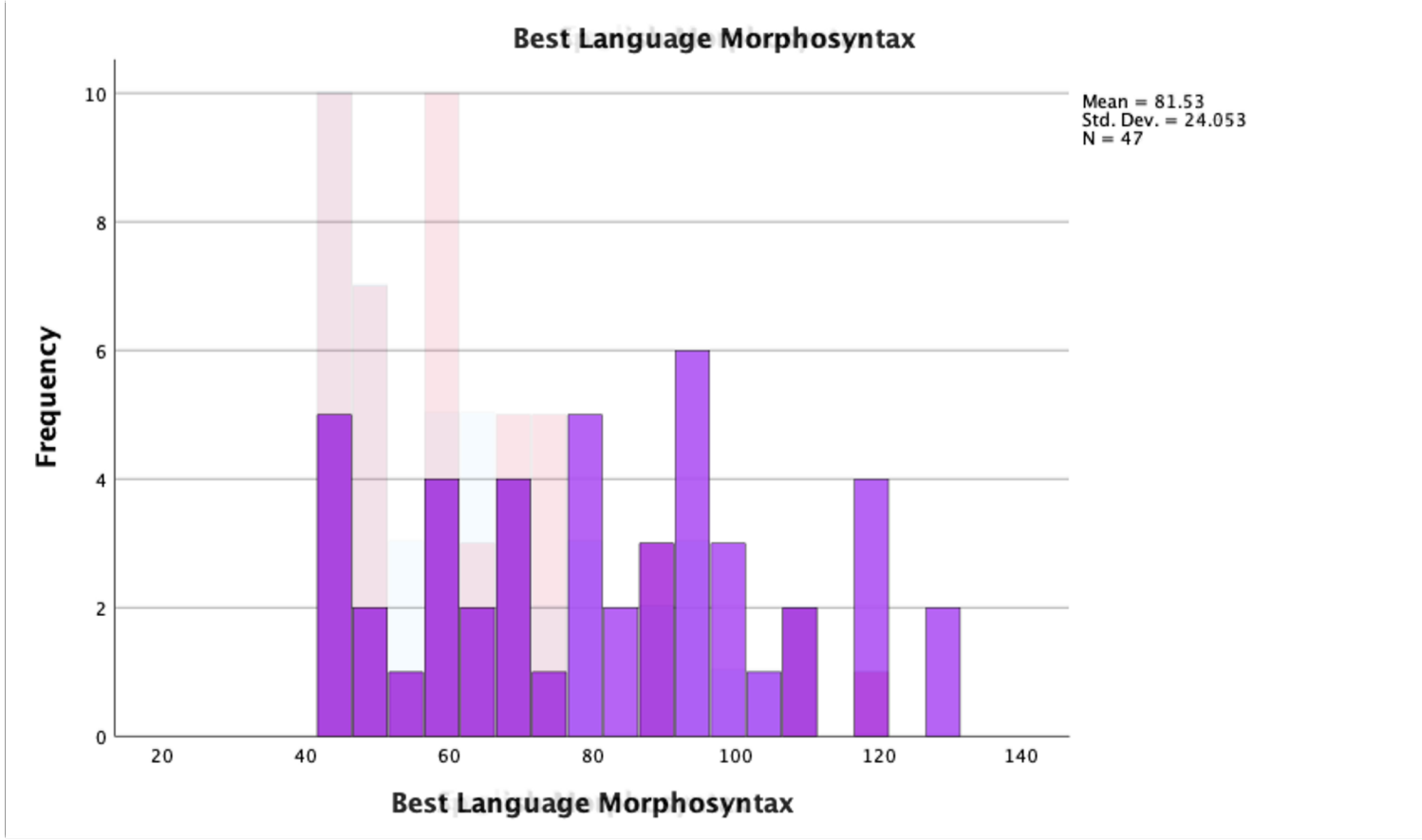
Mean	= 65
Mode	= 41
% below 80	= 81%

Spanish Grammar



Mean	= 62
Mode	= 41
% below 80	= 87%

“Best Language” Grammar



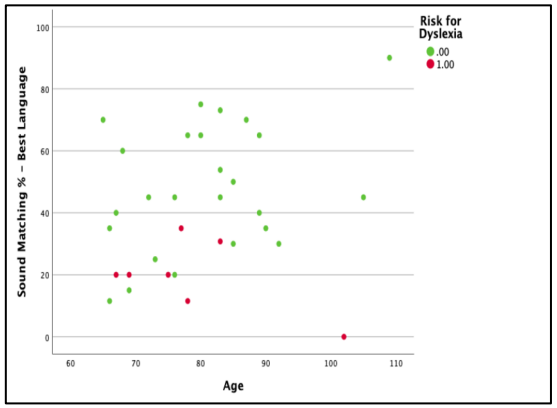
Mean	= 82
Mode	= 93
% below 80	= 46%

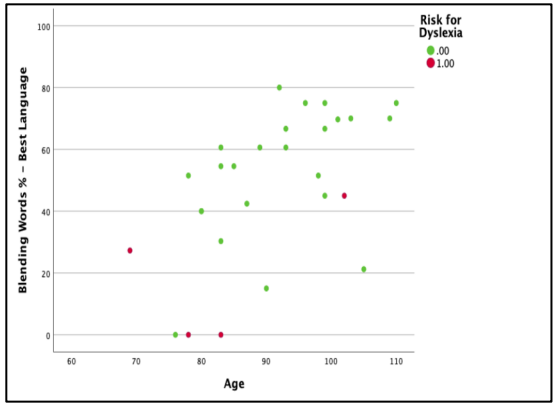
Putting it all together

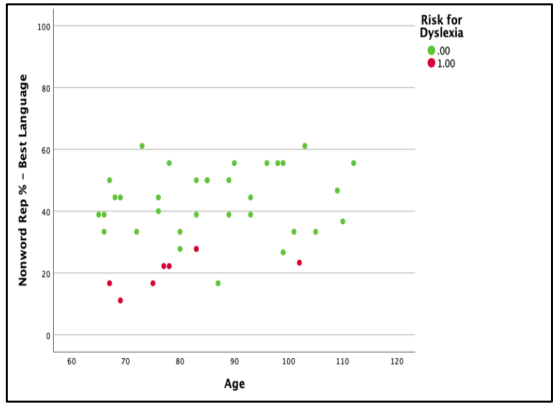
Converging evidence approach

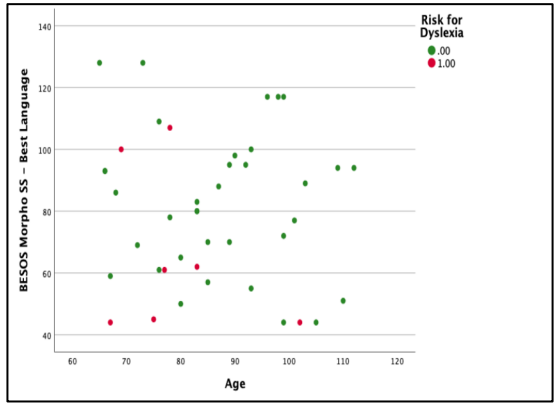
We re-classified ELs at “at risk” if they scored low on 4 of 5 follow-up measures in both of their languages

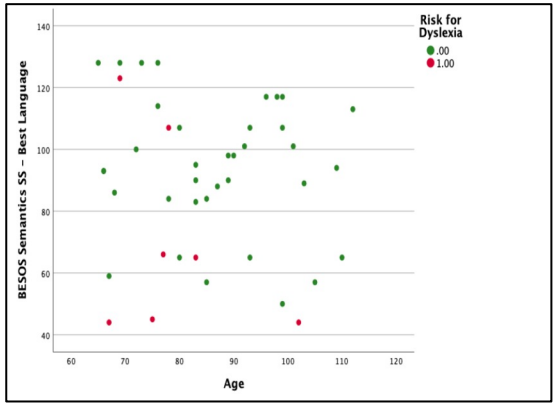
(i.e., students could not perform tasks in either language)











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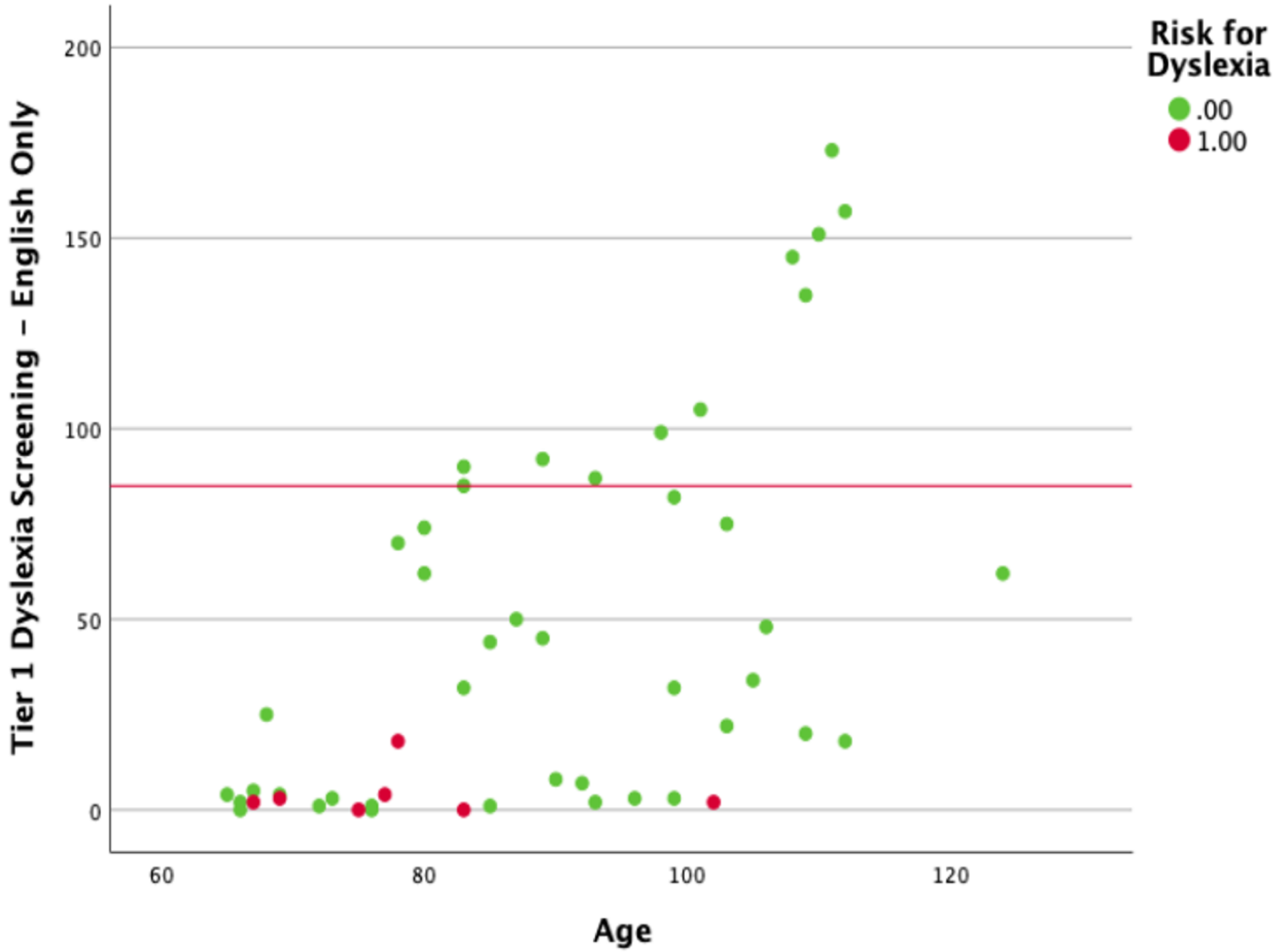

Big takeaways

Caution interpreting code-based skills:

Consider the home

- What is the home language environment?
- What home literacy activities does the family engage in (and in what languages)?

Consider the school

- Does the child have enough English knowledge to access classroom instruction?
- Is the assessment sensitive enough to capture emerging skills that are still in process of developing / solidifying?

Consider a disorder

- Does the child have typically-developing language skills in both langauges?
- Could the child have a neurodevelopmental disorder, like dyslexia?

Main takeaways

01

Consider the child's language and literacy-learning opportunities

02

Consider the child's exposure to explicit and systematic teaching of the skill (and in what language)

- Spanish decoding may not tell us everything, either

03

Expand to the language strands of the rope! And consider the child's *entire* linguistic repertoire --- English only gives us part of what they can do!

Questions? Comments? Thoughts?

Thank you!

PrattAT@uc.edu

twitter: @PRATTAS