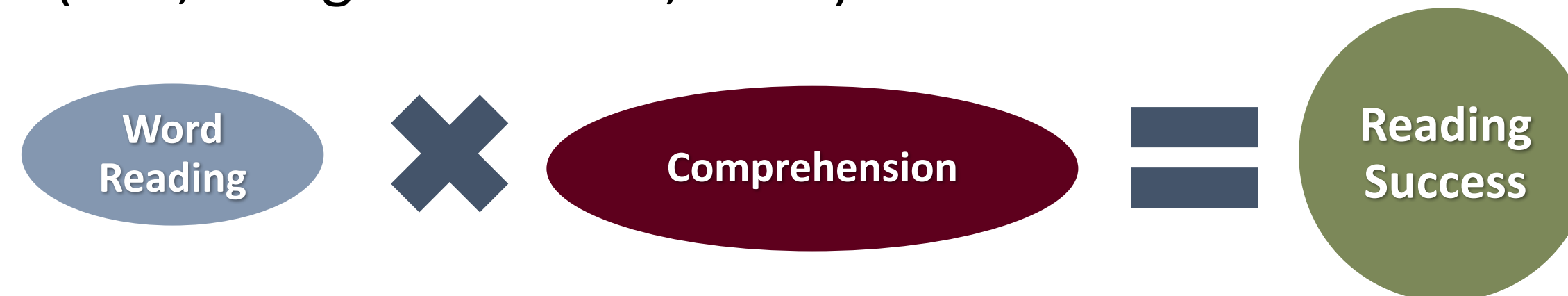


Language Contributions to Early Word Reading Success

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Introduction

- Due to the high prevalence of Developmental language disorder (DLD) and dyslexia in schools, there is a demand to identify these early on in order to prevent language and literacy failure.
- Currently, most schools screen students individually, which is time consuming and not cost effective. Many of these assessments do not assess all areas of reading and language important to screen.
- Successful reading is defined as the product of word reading and comprehension (Simple View of Reading (SVR; Gough & Tunmer, 1996).



- We developed a universal kindergarten screener using the SVR model to be used for identifying children in poor reader subgroups such as dyslexia, developmental language disorder (DLD), or both dyslexia and DLD to be administered effectively and efficiently in a classroom setting.
- The screener measures children's knowledge of sounds (phonology; PA) and letters (orthography; OA) and grammar (morphological awareness; MA)

Research Question

Do PA, OA, and MA uniquely predict word reading success in typically developing children (TLD) and those with developmental language disorder (DLD)?

Hypothesis

We predicted that all three linguistic factors (PA, OA, MA) would have a different and unique influence on word-reading success in typically developing children and in those with DLD and/or dyslexia.

Methods

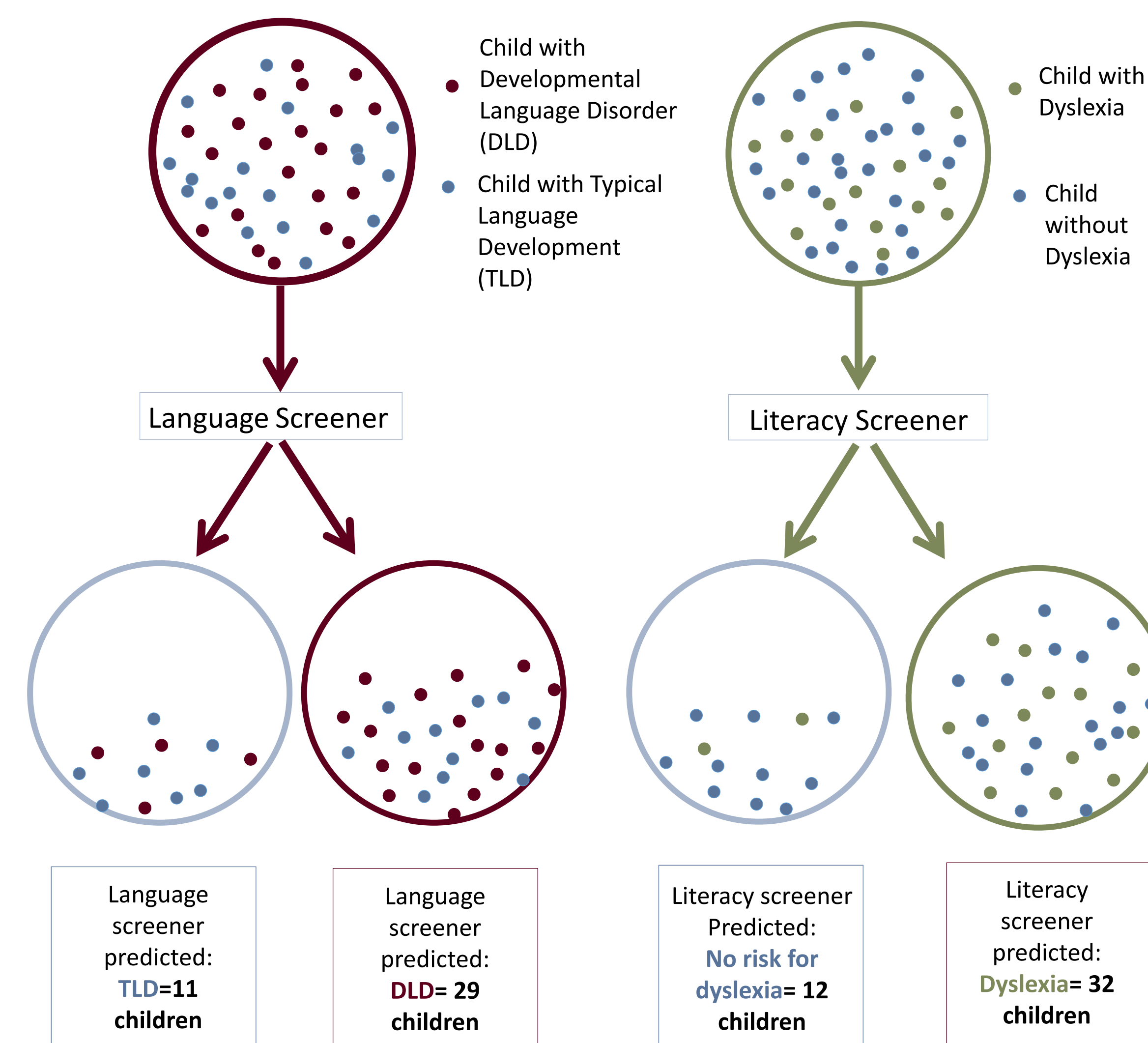
- 630 kindergarten children (6;0; years; months) from the public-school system were screened to identify 22 students with TLD and 22 students with DLD.
- The children were 84.8% Caucasian and there was a 34.4% difference between the groups on race.
- The children were administered the following standardized assessments (Table A):

Table A	DLD		TLD	
	M	SD	M	SD
Language (CELF-5 SC, WS, FS, RS subtests) *	81.64	6.24	105.55	5.52
Nonverbal IQ (PTONI)	95.86	14.64	102.64	21.8
Word Reading (WJ-IV Letter-Word ID)	87.36	13.28	96.73	10.42

Core Language Score*

Results

Figure 1. Population Tested in Session 1



Sensitivity and specificity analysis was applied to our data. We used a cutoff score of:

- 12 or below on the language screener to identify children at risk for Developmental Language Disorder (Table 1);
- 12 or below on the literacy screener to identify children at risk of Dyslexia (Table 2).

Table 1 Language Screener		Session 1 Outcome	
Screener Prediction	Predicted DLD	Actual DLD	Actual TLD
	Predicted TLD	False Negative	True Negative
Sensitivity= $\left(\frac{18}{(18+4)}\right) \times 100 = 81.82\%$		18 True Positive	11 False Positive
Specificity= $\left(\frac{7}{(11+7)}\right) \times 100 = 38.89\%$		4 False Negative	7 True Negative

Table 2 Literacy Screener		Session 1 Outcome	
Screener Prediction	Predicted Dyslexia	Actual Dyslexia	Actual No Dyslexia
	Predicted No Dyslexia	False Negative	True Negative
Sensitivity= $\left(\frac{13}{(13+2)}\right) \times 100 = 86.67\%$		13 True Positive	19 False Positive
Specificity= $\left(\frac{10}{(10+19)}\right) \times 100 = 34.48\%$		2 False Negative	10 True Negative

Discussion

- The language classroom screener showed acceptable sensitivity and specificity for identifying children at risk for DLD
 - (sensitivity = 82% and specificity = 39%).
- The literacy classroom screener showed acceptable sensitivity and specificity for identifying children at risk for dyslexia
 - (sensitivity = 87% and specificity = 34%).
- Therefore, these whole classroom screens show potential for efficient identification of children at risk for DLD and dyslexia who may benefit from further assessment.
- The efficient nature of the whole classroom screen will save time and resources in addition to allowing for early identification of at-risk children.
- Further research should compare our language and literacy screeners with other individually administered screeners that are known to be highly valid.
- Until follow up validity research is conducted, we may want to raise the cut-point (errring on the side of more false positives) to ensure we capture every possible at-risk child.

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References

Gough, Philip B, and William E Tunmer. "Decoding, Reading, and Reading Disability". *Remedial and Special Education* 7.1 (1996): 6-10.

