

University of Montana

## ScholarWorks at University of Montana

---

University of Montana Conference on Undergraduate Research (UMCUR)

---

### Language Contributions to Early Word Reading Success

Allison Beall

*University of Montana, Missoula*, [ab184040@umconnect.umt.edu](mailto:ab184040@umconnect.umt.edu)

Maria Begger

*University of Montana, Missoula*, [maria.begger@umconnect.umt.edu](mailto:maria.begger@umconnect.umt.edu)

Mary Fahlman

*University of Montana, Missoula*, [mary.fahlman@umconnect.umt.edu](mailto:mary.fahlman@umconnect.umt.edu)

Melissa Phelan

*University of Montana, Missoula*, [melissa.phelan@umconnect.umt.edu](mailto:melissa.phelan@umconnect.umt.edu)

Samantha Hege

*University of Montana, Missoula*, [samantha.hege@umconnect.umt.edu](mailto:samantha.hege@umconnect.umt.edu)

*See next page for additional authors*

Follow this and additional works at: <https://scholarworks.umt.edu/umcur>

## Let us know how access to this document benefits you.

---

Beall, Allison; Begger, Maria; Fahlman, Mary; Phelan, Melissa; Hege, Samantha; and Tolbert, Sophia, "Language Contributions to Early Word Reading Success" (2020). *University of Montana Conference on Undergraduate Research (UMCUR)*. 2.

[https://scholarworks.umt.edu/umcur/2020/socialsciences\\_poster/2](https://scholarworks.umt.edu/umcur/2020/socialsciences_poster/2)

This Poster is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in University of Montana Conference on Undergraduate Research (UMCUR) by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact [scholarworks@mso.umt.edu](mailto:scholarworks@mso.umt.edu).

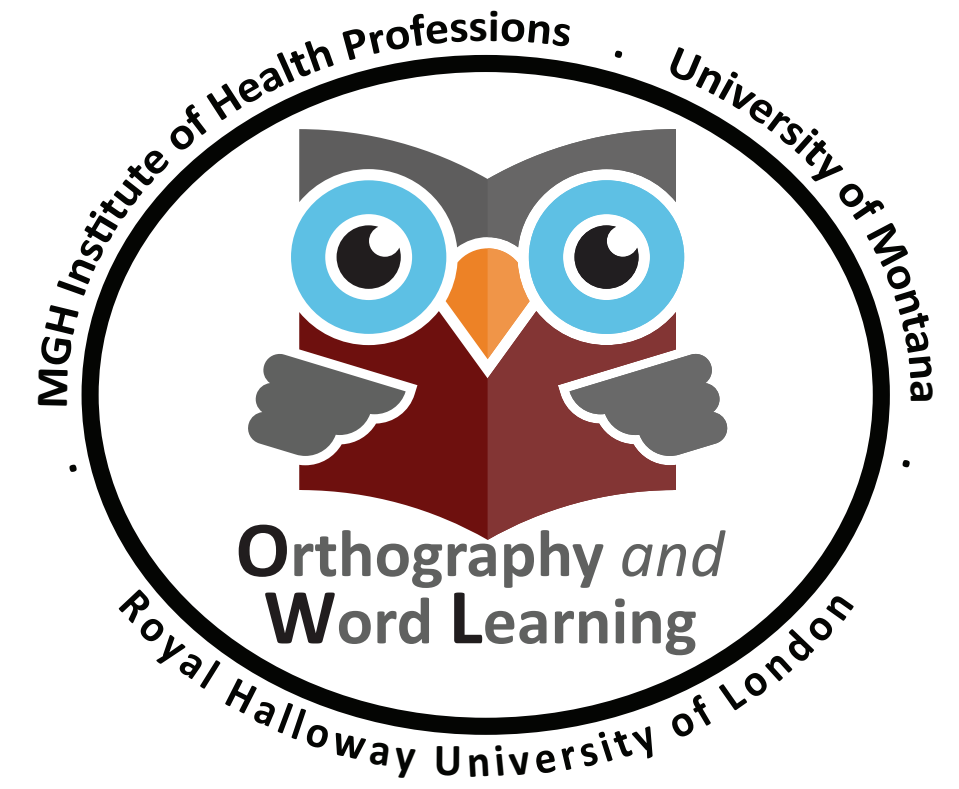
---

**Presenter Information**

Allison Beall, Maria Begger, Mary Fahlman, Melissa Phelan, Samantha Hege, and Sophia Tolbert

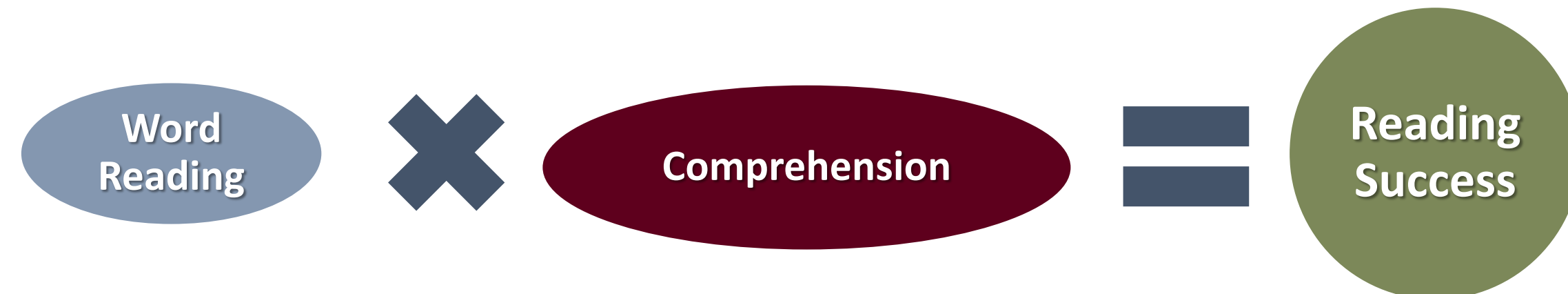
# Language Contributions to Early Word Reading Success

Undergraduate Researchers: Allison Beall, Maria Begger, Mary Fahlman, Melissa Phelan, Samantha Hege & Sophia Tolbert  
Mentors: Julie A. Wolter PhD, CCC-SLP & Crystle N. Alonzo PhD, CCC-SLP



## 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 area 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 in schools in an effective and efficient 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 participated: 22 students with TLD and 22 students with DLD.
- The children were 84.8% Caucasian and there were 34.4% differences between the groups on race.
- The children were administered the following standardized assessments (Table 1):

Table 1	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\*

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 2);
- 12 or below on the literacy screener to identify children at risk of Dyslexia (Table 3).

Table 1 Language Screener		Session 1 Outcome	
Screeener Prediction	Predicted DLD	Actual DLD	Actual TLD
	True Positive	18	13
False Positive	11	2	10
False Negative	4	7	10
True Negative	7	10	19

Table 2 Literacy Screener		Session 1 Outcome	
Screeener Prediction	Predicted Dyslexia	Actual Dyslexia	Actual No Dyslexia
	True Positive	13	13
False Positive	19	2	10
False Negative	2	7	10
True Negative	10	10	19

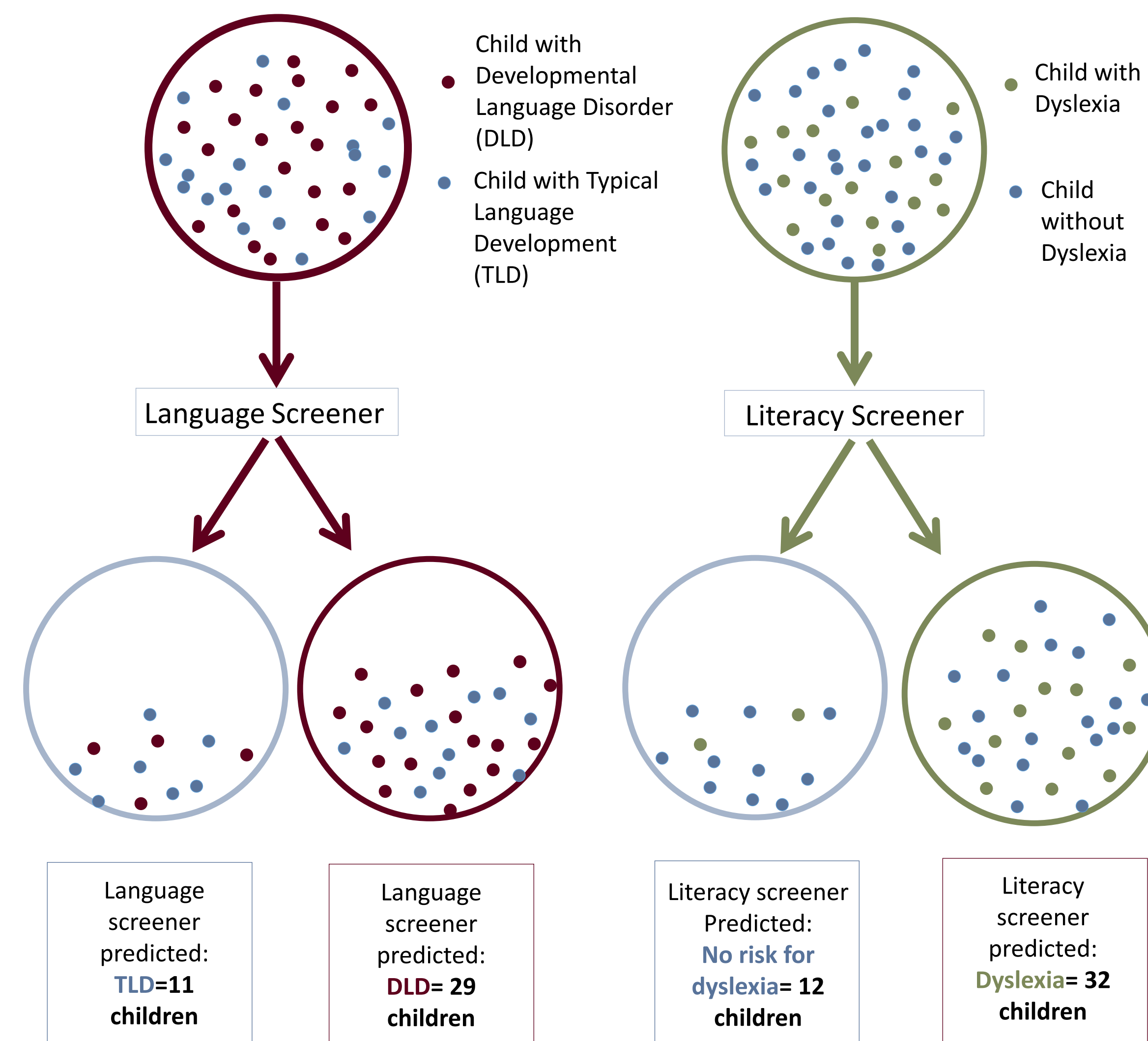
  

Sensitivity =  $\frac{18}{(18+4)} \times 100 = 81.82\%$   
 Specificity =  $\frac{7}{(11+7)} \times 100 = 38.89\%$

Sensitivity =  $\frac{13}{(13+2)} \times 100 = 86.67\%$   
 Specificity =  $\frac{10}{(10+19)} \times 100 = 34.48\%$

## Results

Figure 1. Population Tested in Session 1



## 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 conducted, may want to raise the cut point (erring on the side of more false positives) to ensure we capture every possible at-risk child.

### Acknowledgments

Research in collaboration with Dr. Tiffany Hogan, Dr. Jessie Ricketts, & Rouzanna Komesidou and supported by NIDCD of the National Institutes of Health, R01DC016895; Special Thanks to SLHOS students who volunteered in the LLEAD LAB.

### References

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

