

# The Relative Contributions of Phonological Awareness, Processing Speed, Working Memory, and Word Knowledge in Predicting Reading Delay



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## Introduction

- Previous research has demonstrated that phonological awareness (PA), processing speed (PS), working memory (WM), and word knowledge (WK) all contribute to reading development Torgensen, Wagner, & Rashotte (1994)
- No investigation has explored the relative extent to which each construct significantly predicts reading delay

## Objective

- Determine the extent to which PA, PS, WM, and WK are significant predictors of reading delay

## Results

- A Discriminant Function Analysis was used to predict group membership based on the four cognitive measures
- The DFA revealed a significant predictive effect of the constructs on reading delay,  $\lambda = 0.73, \chi^2(4) = 45.12, p < .001, \text{canonical } R^2 = 0.27$
- The DFA correctly classified 81% of the sample
- Processing speed and phonological awareness best predicted reading delay

	Normal		Delayed	
N	116		34	
	M	SD	M	SD
Age	9.9	2.1	9.1	2.6
Grade	4.7	2.1	3.8	2.5
PA	9.7	2.3	7.1	2.0
PS	11.9	3.4	8.1	2.7
WM	10.5	3.1	7.9	2.8
WK	11.1	2.7	9.2	3.1

## Method

### Sample

- Archival data from two samples recruited in southwestern Ontario were included:
  - ✓ An elementary school sample of typically-developing children (n=91)
  - ✓ A clinical sample of school-aged children referred for assessment (n=59)
- Samples were combined, grouped based on WIAT-III reading proficiency, defined as:
  - ✓ Normal: Word Reading standard score  $\geq 85$
  - ✓ Delayed: Word Reading standard score  $< 85$

### Neuropsychological Measures

- PA = CTOPP-2 Elision and Blending Words
- PS = WISC-V Coding
- WM= WISC-V Digit Span
- WK= WISC-V Vocabulary

## Conclusions

- The findings support evidence that phonological awareness and processing speed are cognitive domains important to reading development
- The findings emphasize the importance of including these domains in the assessment of children know or suspected of a reading delay

## References

Torgensen, J.K., Wagner, R.K., & Rashotte, C.A. 1994. Development of reading-related phonological processing abilities: New evidence of bi-directional causality from a latent variable longitudinal study. *Developmental Psychology*, 30(1), 73-87.

