



Replication of the Reading Tendency Index (RTI) with a Canadian mixed-language sample of school-aged children

Amanda M. O'Brien^{1,2}, Joseph E. Casey¹, Robin J. Richardson¹, Erin M. Picard^{1,3}, & Jeffrey A. Stanley⁴

¹Department of Psychology, University of Windsor, Ontario, Canada; ²Hospital for Sick Children, Toronto, Canada; ³Windsor-Essex Catholic District School Board, Ontario, Canada; ⁴Wayne State University, Detroit, Michigan, USA

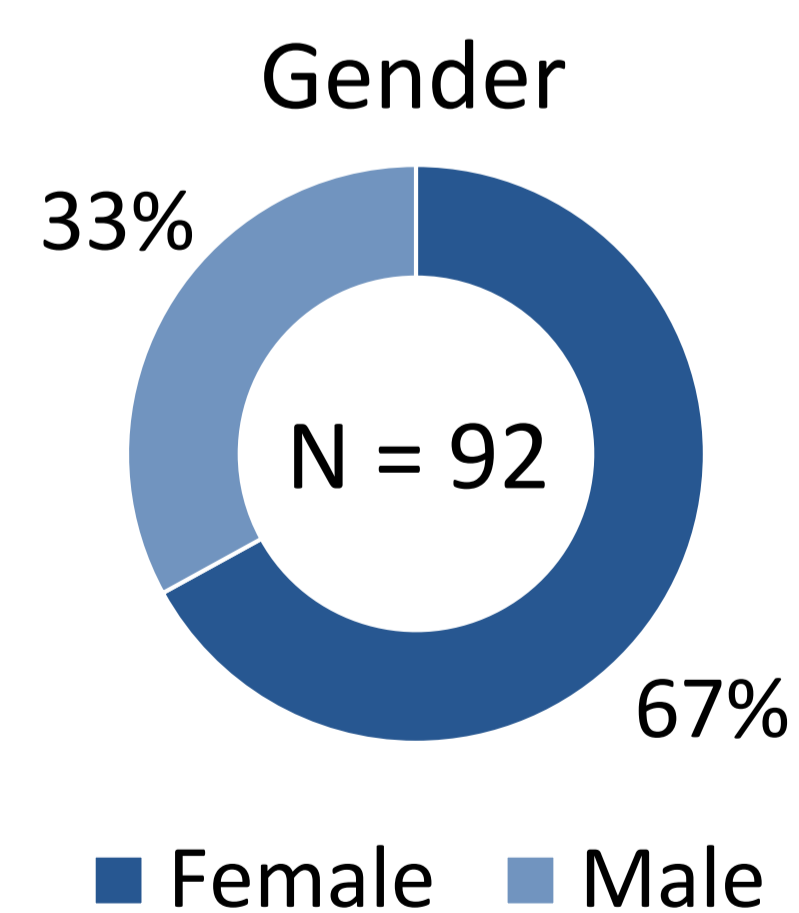
Introduction

- Fluent reading requires both decoding and sightword recognition skills, as supported by neuroscientific evidence for the dual-route theory of reading^{1,2}.
- Classifying struggling readers based on their tendency to rely on a single reading strategy may inform interventions.
- The Reading Tendency Index (RTI) compares performance on two lexical decision tasks (LDTs) that rely on either decoding or sightword reading^{3,4}.
- This comparison score (RTI) classifies readers into one of 3 reading tendency groups: Decoders, Sightword, or Balanced³.
- The original RTI study was limited by a male-only clinical sample and administration in an fMRI scanner⁴.

Objective

To replicate the RTI classifications with a larger sample of school-aged children using LDTs administered on a laptop computer in a school setting.

Method



40% French Immersion

$M_{age} = 9.96$
(range: 7–14)

pLDT
Phonologic LDT:
low frequency words
vs. pseudowords

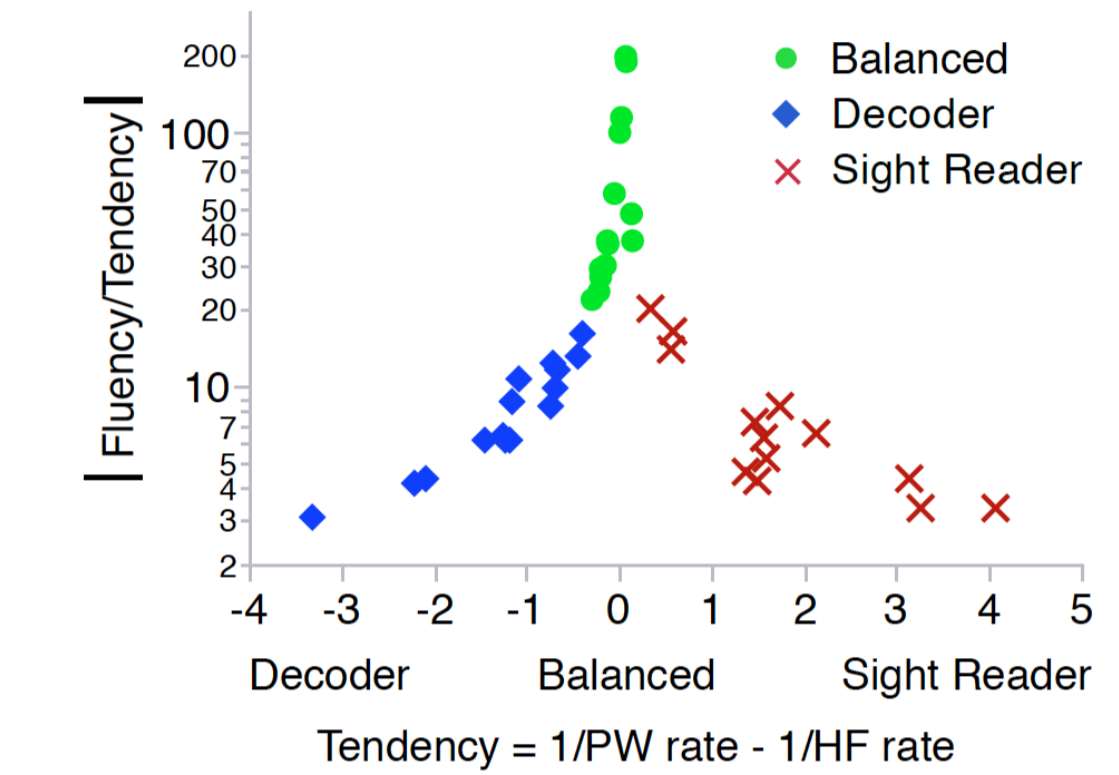
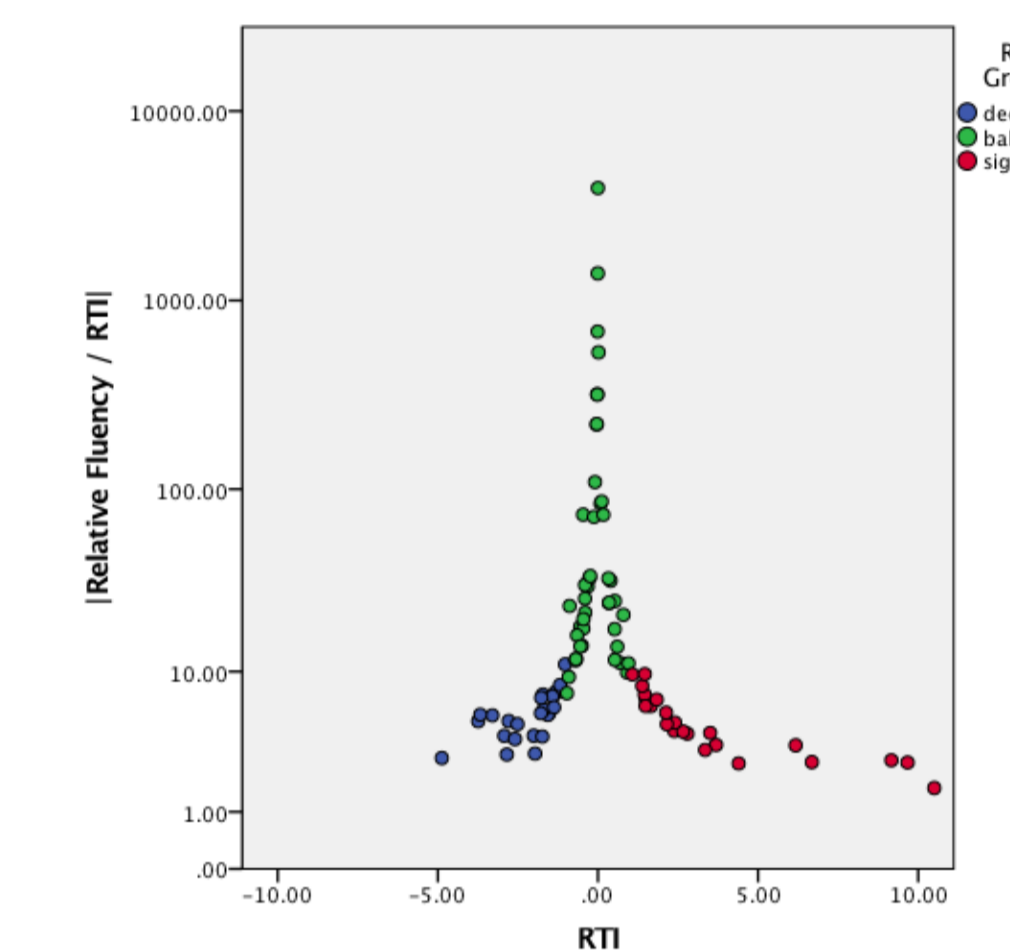
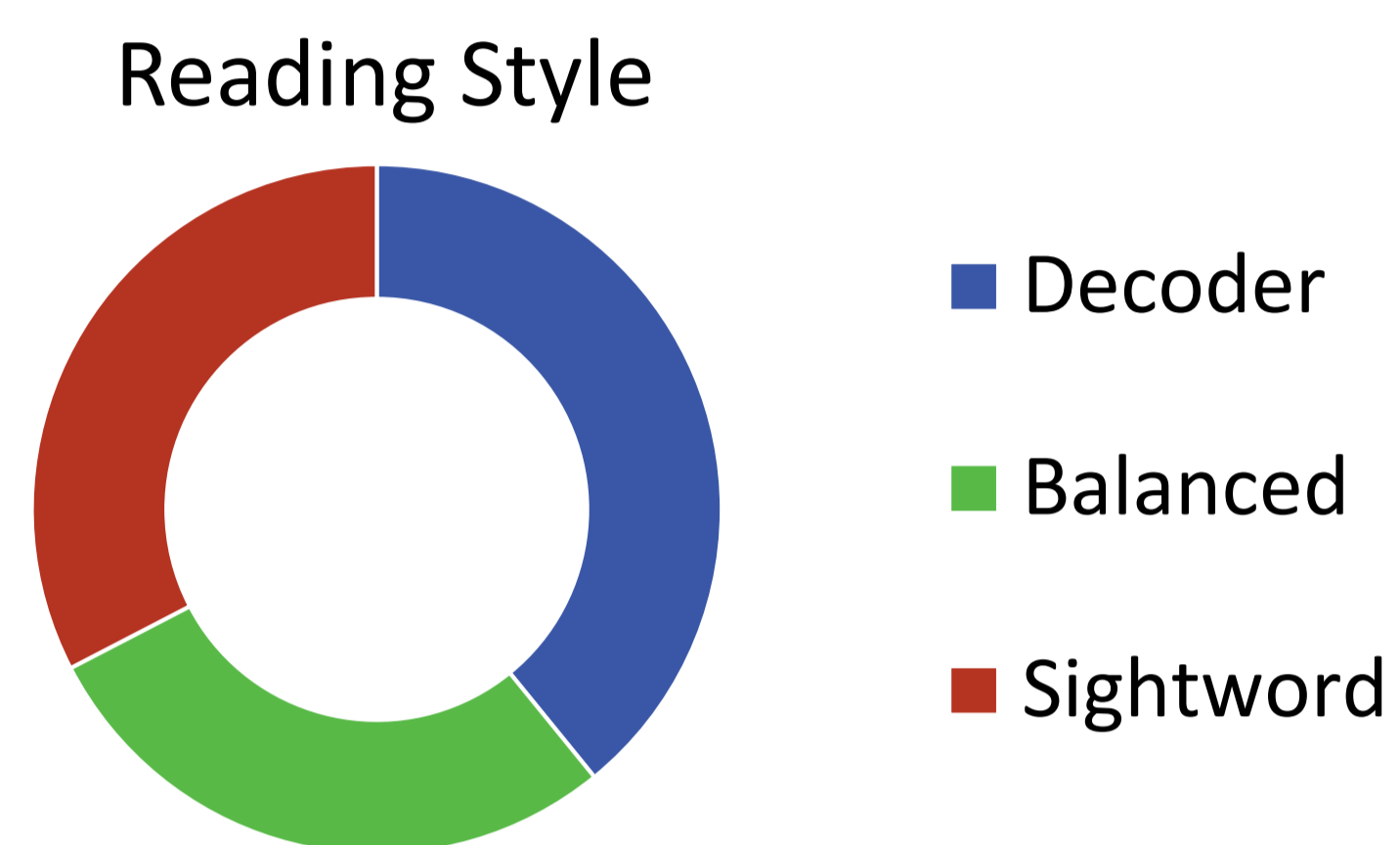
oLDT
Orthographic LDT:
high frequency words
vs. consonants

WIAT-III
• WR, PD, SP
GORT-5
• Fluency (Rate, Accuracy)
• Comprehension

N = 70

Results

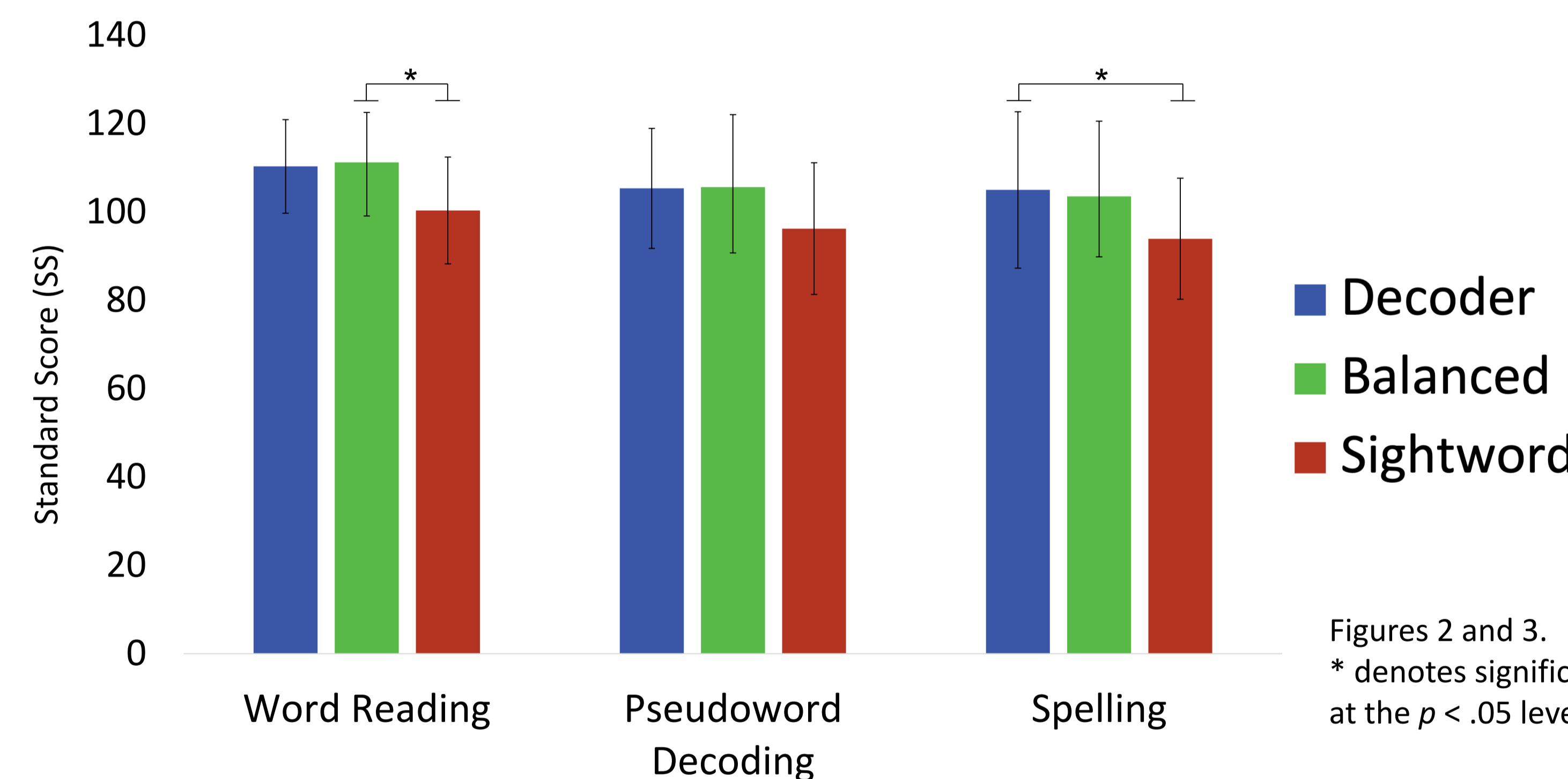
Three groups based on reading tendency index were replicated in the mixed-language sample. No differences in LDT output variables were found between language groups, so language samples were combined.



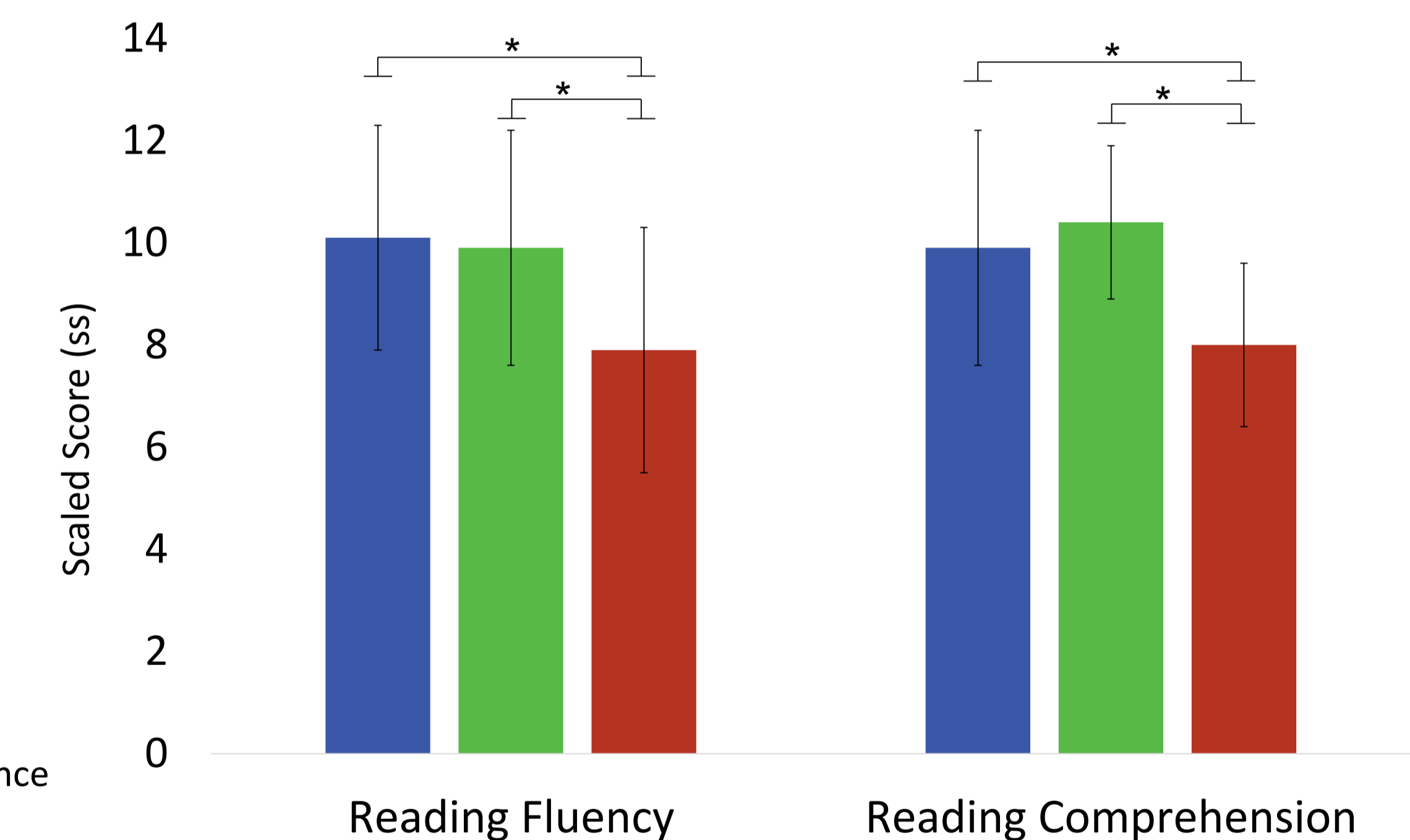
Plots of RTI group distribution based on tendency (x-axis) and accuracy (y-axis) for current study (left) and original study³ (right).

MANOVA revealed an effect of RTI group on reading ability, $F(9,60) = 2.5, p = .02$

Performance on the WIAT-III



Performance on the GORT-5



Conclusions

- The RTI protocol was replicated in a larger mixed-language sample of school-aged children when administered on a laptop in a classroom setting.
- Participants were grouped based on reading tendency, with the SW group (who tend not to use decoding skills well) performing lowest on standardized measures of word reading, spelling, fluency, and comprehension.
- This study provides preliminary validation of the RTI protocol as a potential screening tool for reading tendencies in school-aged children and may inform individualized reading interventions.

For a pdf of the poster and a list of references, scan the QR code



Replication of the Reading Tendency Index (RTI) with a Canadian mixed-language sample of school-aged children

Amanda M. O'Brien^{1,2}, Joseph E. Casey¹, Robin J. Richardson¹, Erin M. Picard^{1,3}, & Jeffrey A. Stanley⁴

¹Department of Psychology, University of Windsor, Ontario, Canada; ²Hospital for Sick Children, Toronto, Canada; ³Windsor-Essex Catholic District School Board, Ontario, Canada; ⁴Wayne State University, Detroit, Michigan, USA

References



University
of Windsor



1. Humphreys, G. W., & Evett, L. J. (1985). Are there independent lexical and nonlexical routes in word processing? An evaluation of the dual-route theory of reading. *Behav. Brain Sci.*, 8, 689-739.
2. Bergmann, J., & Wimmer, H. (2008). A dual-route perspective on poor reading in a regular orthography: evidence from phonological and orthographic lexical decisions. *Cogn Neuropsychol*, 25(5), 653-676.
3. Mohl, B., Jones, L. L., Ofen, N., Robin, A. L., Rosenberg, D. R., Diwadkar, V. A., . . . Stanley, J. A. (2018). Novel reading index for identifying disordered reading skill development: A preliminary study. *Applied Neuropsychology: Child*, 7(4), 287-297.
4. Wechsler, D. (2009). *Wechsler Individual Achievement Test* (3 ed.). San Antonio, TX: NCS Pearson.
5. Wiederholt, J. L., & Bryant, B. R. (2012). *Gray Oral Reading Tests - Fifth Edition: Examiner's manual*. Austin, TX: PRO-ED.