

# Stroop Interference impacts both languages of proficient bilinguals. Word reading is rapid and automatic for Deaf signers who do not use speech.

## Automaticity of Lexical Access for Sign and Print in Deaf and Hearing Bilinguals: Cross-linguistic Evidence from the Stroop Task

Rain G. Bosworth, Sarah Tyler, Eli Binder & Jill P. Morford

### QUESTIONS

1. Can the Stroop interference effect be observed in both L1 and L2 of deaf bilinguals?
2. What is the impact of script similarity of the two languages used by a bilingual on the magnitude of Stroop interference?

### PARTICIPANTS

Bilingual (L1/L2) Groups	Script Similarity	N
Hearing English-Spanish	High	34
Hearing English-Korean	Moderate	15
Hearing English-Chinese	Low	22
Deaf ASL-English	None	15

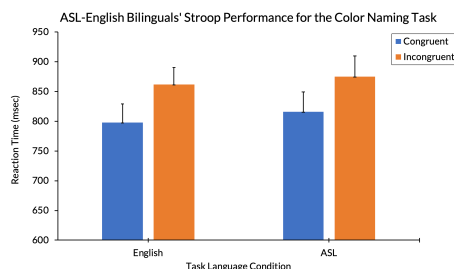
All participants lived in the U.S. and attended schools in which written work was completed in English. Hearing participants rated their proficiency in both languages; only participants who reported balanced proficiency or English dominance were included. Deaf participants completed the ASL-CT to assess ASL proficiency.

### METHODS

- 4 task conditions
  1. L1 color naming
  2. L1 word reading
  3. L2 color naming
  4. L2 word reading
- Incongruent and Congruent conditions, mixed across trials
- 2 blocks each, order counterbalanced
- 200 trials per block
- Dependent Measures:
  1. Reaction Time (in milliseconds)
  2. RT incongruent - RT congruent = Stroop Interference Scores

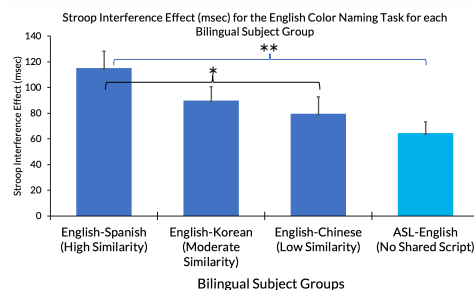
### RESULTS

#### 1. Stroop Interference affects both languages in Deaf ASL-English Bilinguals



Significant main effect of Congruency:  $p < 0.001$   
Significant main effect of Language:  $p < 0.05$   
No Congruency x Language Interaction: n.s.

#### 2. Script-Similar Bilinguals (English-Spanish) experience greater Stroop Interference than do Script-Dissimilar Bilinguals (English-Chinese & ASL-English)



Significant main effect of Group:  $F(3, 82) = 5.66, p = 0.001, \eta^2 = .17$

### How the Stroop Task Works:

The classic Stroop Task indexes automaticity in practiced and unpracticed tasks (Stroop, 1935)



Unpracticed Task = Color Naming  
→ Predict MORE interference  
Practiced Task = Word Reading  
→ Predict LESS interference

Read the word/sign:	(examples)	Name the color of the print/hand:
BLUE	Blue	PURPLE
BLUE	Azul	GREEN
YELLOW	黄	BLUE
GREEN	녹색	YELLOW
PURPLE		GREEN

