Number Stroop Effect (NSE) in digits: strong, present in adults & children of various backgrounds and cultures, but facilitation depends on experience with numbers.

NSE with number words: language-specific, depends on the phonological transparency of a language. NSE in phonologically opaque or ideographic systems. No effect in transparent system.

NSE in ASL: mixed results
NSE was found in the study using only not iconic number signs (6 – 9) presented sequentially. It wasn’t found in a study using only not iconic number signs (1 – 5) presented simultaneously.

Why?
• Impact of iconicity?
• Impact of age first language of acquisition (AoA)?
• Study design difference?

Number Stroop Effect patterns in ASL are different from those of Arabic digits.

Delayed 1st language acquisition impacts processing of both number signs and digits:
• Slower RT
• Late learners are more affected by task switch cost
• Stronger interference of irrelevant information.

ASL

Number condition Size condition

- L1 + L2 + LL1

Number first Size first

400 600 800 1000 1200

C I N

Arabic digits

Number condition Size condition

- L1 + L2 + LL1

Number first Size first

400 600 800 1000

C I N

CONGRUITY (Congruent, Incongruent, Neutral)

References:

DISCUSSION
• No canonical NSE in ASL: due to phonological component in processing of ASL number signs?
• High individual difference: different strategies of ASL number processing?
• Impacted automatic number processing in LL1 (linguistic and by digits) → mathematical underachievement of LL1 signers?