

# Novel sign learning in young deaf children: the role of referential cues and visual attention

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## Introduction

When mapping words to objects, children interpret adult gaze<sup>1</sup> and points<sup>2</sup> as reliable referential cues in spoken language

Deaf infants learning sign language follow caregiver gaze beginning at an early age<sup>3</sup>

Deaf mothers are sensitive to their child's focus of attention and monitor child gaze when providing sign input<sup>4,5</sup>

Deaf children exposed to sign language from an early age are adept at gaze shifting to alternate attention between linguistic and visual information<sup>6</sup>

**Gaze and pointing cues should be timed to direct a child to an object without missing key linguistic input in signed interactions.**

## Current study

- Do referential cues (point and gaze) support novel word (sign) learning in young deaf children?
- Does the timing of the cue (before or after the sign label) affect gaze patterns during novel word learning?
- Do children show changes in gaze behavior with age?

## Methods

Training phase: 6 novel sign-novel picture pairs introduced, 4 exposures each

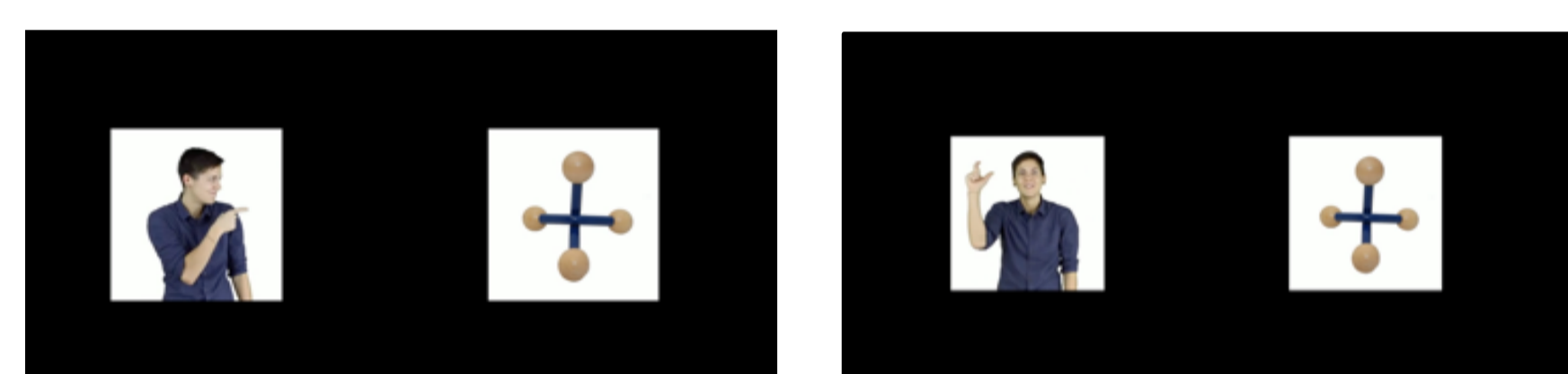
Test phase: novel sign presented with target and distractor pictures

Measures: Proportion of gaze to sign and picture during training and test

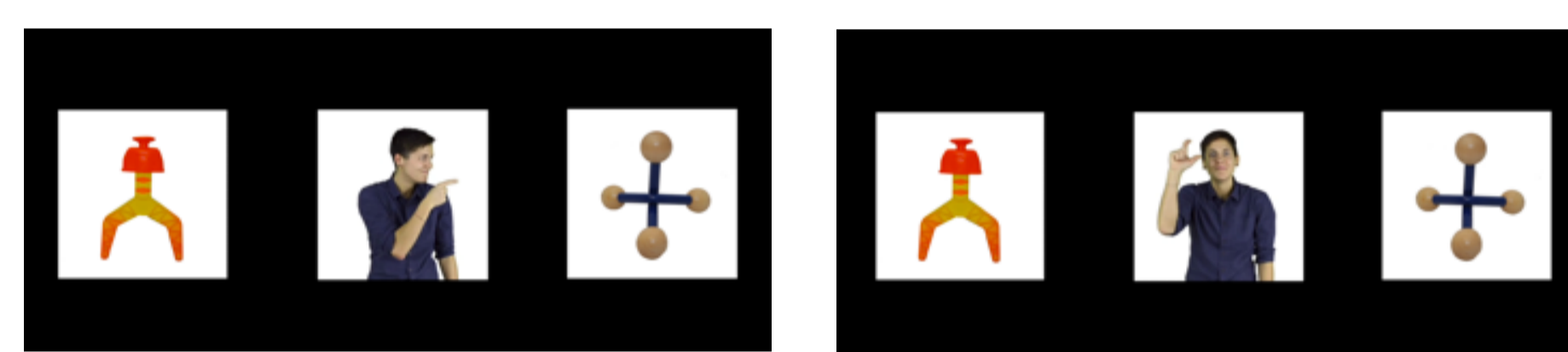
Participants: Deaf/hh children ages 18-60 months

Exp 1: M = 43 mos, n = 32; Exp 2: M = 44 mos, n=33

### Exp. 1: One-picture training



### Exp. 2: Two-picture training



### Test trials



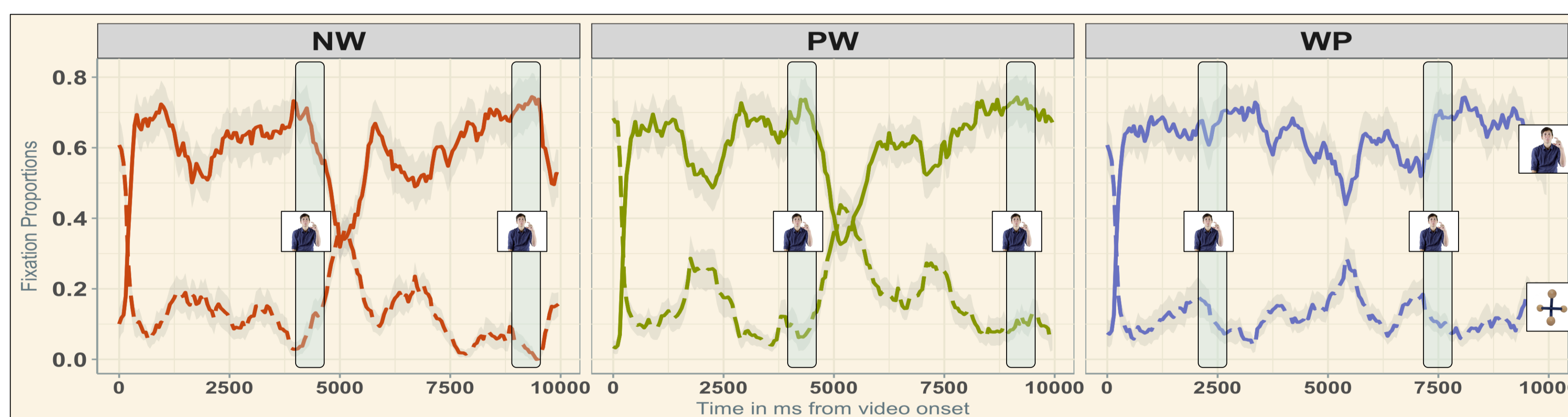
### Training Conditions:

No-cue (NW) (Exp 1): *SEE WHAT? NOOP. COOL! SEE WHAT? NOOP!*

Point-Word (PW): *POINT WHAT? NOOP! WOW! POINT WHAT? NOOP!*

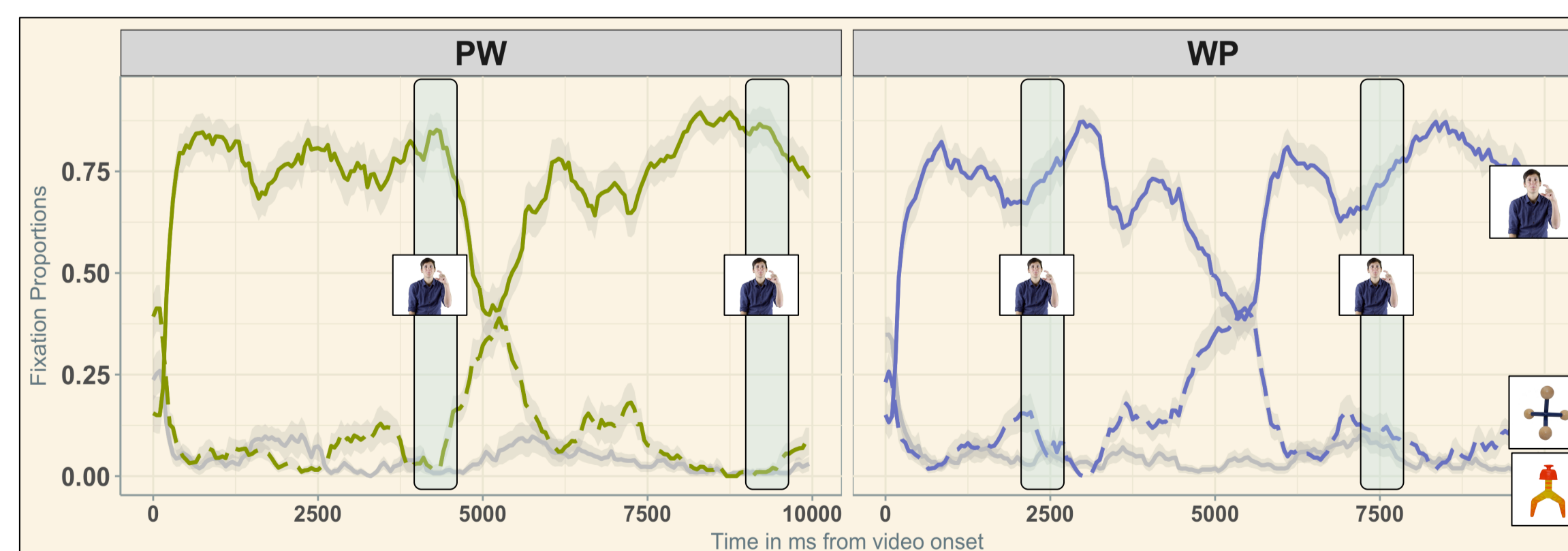
Word-Point (WP): *NOOP WHAT? POINT. COOL! NOOP WHAT? POINT.*

## Results



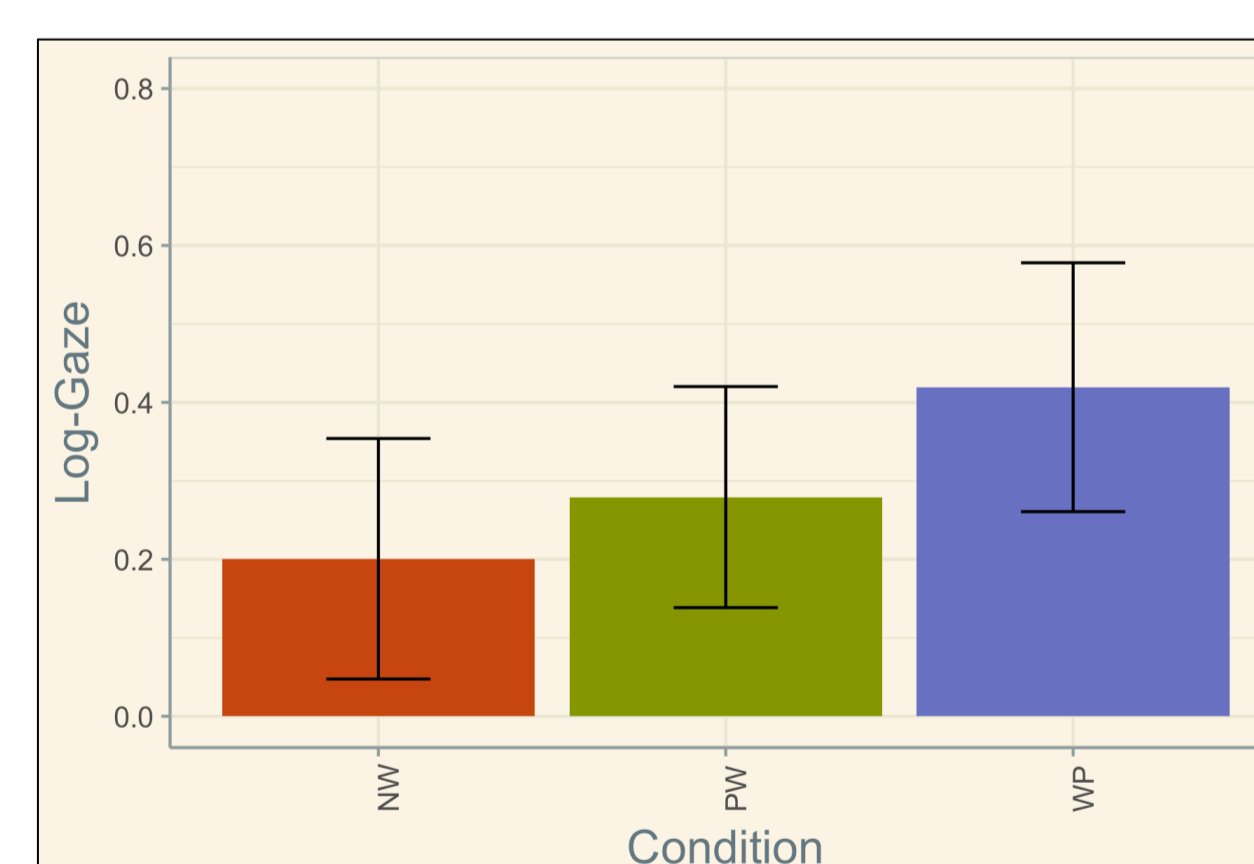
### Training phase

- Across conditions and experiments, children spent the majority of the time looking at the sign video
- Shifts to picture occur during semantically "light" signs (e.g. *COOL!*)

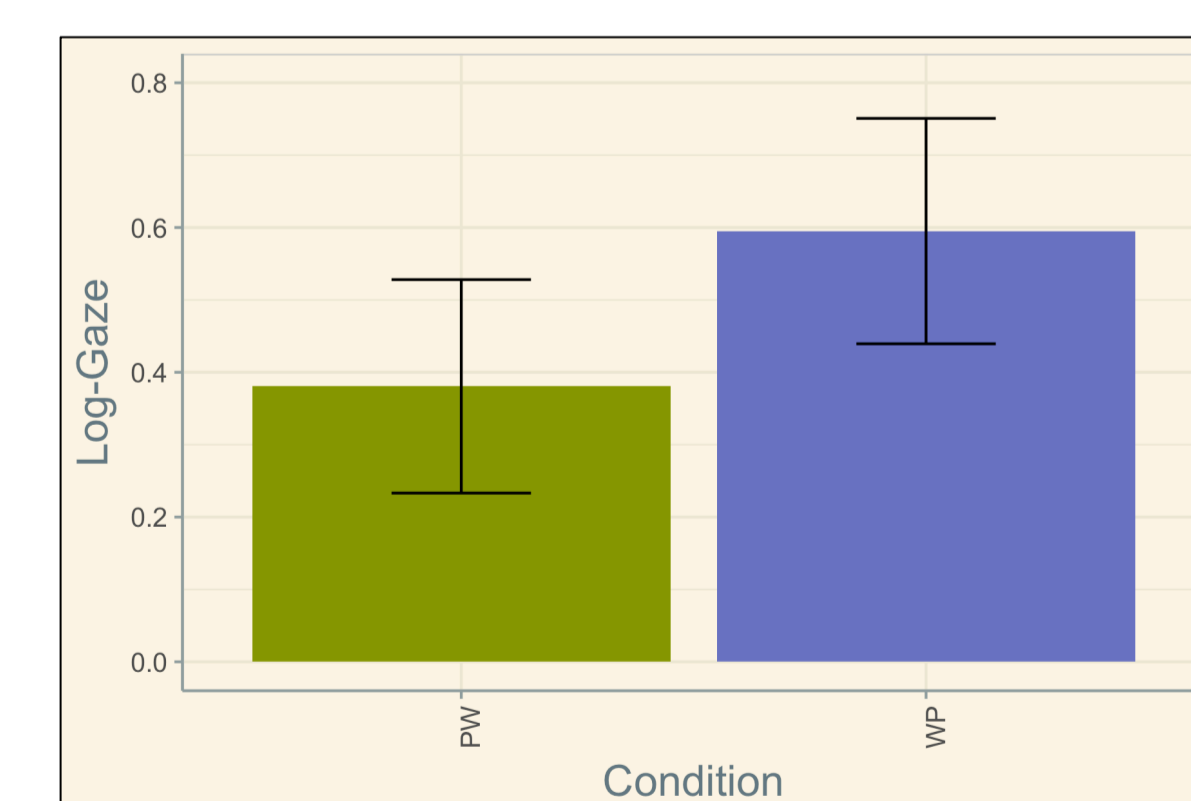


### Test phase

- From 600-4000ms after target onset, most looks to target (vs. distractor) in word-point condition (ns)
- Age is a significant predictor of target looking during test across conditions



Exp 1: Target (vs. Distractor) preference by condition (NW, PW, WP)



Exp 2: Target (vs. Distractor) preference by condition (PW, WP)

## References

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## Discussion

- Referential cues support novel sign-novel picture mapping in ASL
- Deaf children learning ASL are highly sensitive to the timing of input, and shift gaze in a way that optimizes perception of critical linguistic information
- Providing the sign *before* the gaze shift may lead to increased learning of novel signs, as the label is fully perceived before shifting attention to the object