### Introduction

- Grammatical interventions for young children traditionally increase the number of exposures of target forms through utilization of implicit teaching approaches that rely on typical acquisition processes, as opposed to explicit approaches in which instructors attempt to engage the learners' metacognitive abilities in the learning process.
- Previous research conducted by Finestack (Finestack, 2014; Finestack & Fey, 2009) suggests that both children with typical language development and children with language impairment are better able to learn grammatical forms when taught with implicit instruction.
- Although implicit teaching approaches facilitate language learning in young children with language impairment, most interventions employing implicit-only approaches require numerous sessions over long periods of time to achieve only moderate effects (Leonard, Camarata, Pawlowska, Brown, & Camarata, 2006, 2008).

### Study Purpose

- The previously discussed research by Finestack (Finestack, 2014; Finestack & Fey, 2009) compared across groups such that children randomly were assigned to an explicit instruction group or an implicit instruction group. With such a design, differences in children's cognitive profiles (e.g., language ability, cognitive abilities) cannot be accounted for. The current study was designed to combat this weakness.
- The purpose of this study is to evaluate the language learning of 4 to 6 year old typically developing children using a make-belief paradigm to determine if the explicit advantage is maintained when cognitive variables are tightly controlled.

### Research Question

- Do typically developing children have greater accuracy in producing newly taught grammatical forms when taught with explicit instruction compared to implicit instruction?

### Participants

- Participants will include twenty 4 to 6 year old children with typical development. These children will speak English as a first language and will include both male and female participants.

### Study Design

- Children will be asked to complete two experimental probes. In each probe, children will be taught a novel grammatical form.
- For each participant, one of the forms will be taught with explicit instruction (i.e., explicit presentations of the target form) and one form will be taught with implicit instruction (i.e., only examples of the form).
- The forms will be taught via computer using a make-belief paradigm. Participants will be told that a space creature just came to earth and that the creature uses the same words we do, but there is something different about the way the creature talks. The participants will have to figure out the space creature’s language.

#### Novel Grammatical Forms: Gender Rule

- Gender Rule: "When it’s a boy, you have to add sh/f to the end. When it’s a girl, you don’t add anything to the end."

#### Novel Grammatical Forms: Person Rule

- Person Rule: "When the creature talks about herself or if you talk about yourself, you have to add sh/f to the end. When you or the creature talk about someone else, you don’t add anything to the end."

### Eye Tracking Task

- To test learning, participants heard an audio recording of a sentence, viewed two images, and click the button to indicate the picture that best matched the recording.
- Eye tracking data was collected on 10 items that contained a marked form and 10 that contained an unmarked form.

### Data Analysis

- Accuracy of grammatical form learning is measured by button data and is compared between explicit and implicit instruction.
- Pupil diameter is compared between explicit and implicit instruction.
- Fixation duration on target probes is compared among explicit and implicit instruction.

### Acknowledgements

Many thanks to additional members of our team, including Hannah Lee, Sumaya Noor, and Katherine Bangert. This study was supported by the UMN Undergraduate Research Program. The authors have no financial or nonfinancial relationships to disclose.