

# Evaluation of a Deductive Approach to Teach Grammatical Forms to Children with Primary Language Impairment

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Study supported by National Institutes of Health R03DC011365; The author has no financial or nonfinancial relationships to disclose



## Introduction

- One of the core language weaknesses of children with primary language impairment (PLI; Tomblin et al., 2003) is poor use of grammatical forms.
- Current grammatical treatment approaches for children PLI yield only moderately significant gains after extensive treatment periods (e.g., Leonard et al., 2004; 2006; 2008).
- Traditional treatments use inductive approaches (e.g., providing models and recasts of problematic forms at a high frequency) in which the learner is expected to implicitly acquire and generalize target grammatical forms.
- Deductive approaches in which the instructor aims to make the learner explicitly aware of the underlying language pattern by directly presenting the pattern or pedagogic rule may be more effective than traditional approaches alone.

## **Research Questions**

- 1. Does a combined deductive-inductive teaching approach lead to more accurate use of novel grammatical forms than an inductive-only approach for 5- through 8-year-old children with PLI?
- 2. What are the language and cognitive profiles of the participants who are successful learners when taught with a combined deductive-inductive approach?

### **Participants**

Characteristic	Explicit n = 12	Implicit n = 13	
Age (years)			
Mean	6.77	7.34	
SD	0.62	0.71	
Min-Max	5.50-7.75	5.92-8.08	
Female:Male Ratio	2:10	6:7	
White:Other Ratio	5:7	4:9	
Nonverbal IQ <sup>a</sup> (SS)			
Mean	96.83	85.39	
SD	19.18	12.77	
Min-Max	71-124	67-107	
SPELT-3 <sup>b</sup> (SS)			
Mean	77.58	71.31	
SD	17. <del>4</del> 8	17.77	
Min-Max	40-94	44-95	
TACL-3 <sup>c</sup> (SS)			
Mean	93.75	77.62	
SD	18.69	15.03	
Min-Max	64-121	55-117	

<sup>a</sup>Standard score with Mean = 100, SD = 15 based on the Leiter-R. <sup>b</sup>Standard score with Mean = 100, SD = 15 based on the Structured Photographic Expressive Language Test-3. <sup>c</sup>Standard score with Mean = 100, SD = 15 based on the Test for Auditory Comprehension of Language,  $3^{rd}$  Edition

#### Method

- Participants randomly assigned to deductive-inductive (Explicit) group or inductive-only (Implicit) group.
- Each group attempted to learn three novel grammatical forms using a computer space game format in which they played three games that required them to learn to talk like a creature from outer space.

## • Novel Form A: Gender Marking

 Explicit rule: "When it is a boy, you have to add sh/f/ip to the end. When it is a girl, you don't add anything to the end."



## • Novel Form B: Habitual Aspect Marking

 Explicit rule: "When the animal is always doing the action, you have to add sh/f/ip to the end. When the animal has been doing the action for a short amount of time, you don't add anything to the end."

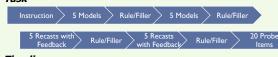


#### Novel Form C: First Person Marking

 Explicit rule: "When the creature talks about herself or if you talk about yourself, you have to add sh/f/ip to the end. When you or the creature talks about someone else, you don't add anything to the end."



Task



## • Timeline



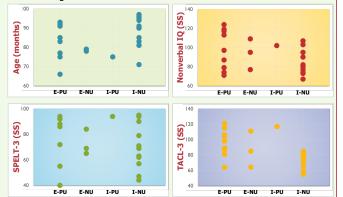
### Results

 A 80% level of accuracy was used to distinguish Pattern-users from Non-users for each group.

	Gender		Habituation	
	Explicit	lmplicit	Explicit	Implicit
	n = 12	n = 13	n = 12	n = 13
Pattern-user		1	4	0
Non-user		12	8	13
Fisher's Exact (2-sided) p •	0.001 0.69		0.04 0.45	

	Person		
	Explicit n = 12	Implicit n = 11	
Pattern-user	8	2	
Non-user	4	9	
Fisher's Exact (2-sided)			
þ	0.04		
Φ	0.49		

 Cognitive and language profiles of Pattern-users (PU) and Non Pattern-users (NU) with Explicit (E) and Implicit (I) instruction for gender form



## **Conclusions**

- A combined deductive-inductive approach does appear to lead to more accurate use of novel grammatical forms than an inductive-only approach across novel target forms.
- There is not a clear indication of a cognitive and/or language profile that is most likely to benefit from explicit instruction.
- Future research will evaluate explicit instruction when targeting true grammatical forms.

Many thanks to the children and families who participated in this study.