

An Evaluation of Grammatical Language Interventions for Children with Autism Spectrum Disorders

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Introduction

- There is a subset of children with Autism Spectrum Disorders (ASD) for whom morphosyntax is significantly impaired (Condouris et al., 2003). These weaknesses may reduce the functional use of language for children with ASD.
- Most grammar interventions provided by speech-language pathologists rely on implicit, inductive teaching techniques resulting in modest gains over a long period of time (Leonard et al., 2004; 2006).
- Previous work (Finestack & Fey, 2010) revealed an advantage for an explicit, deductive approach when teaching children with primary language impairment; however, it is unknown if children with ASD would benefit from this approach.

Research Questions

- Do children with ASD produce a novel grammatical form with greater accuracy if taught using an explicit rather than implicit intervention?
- Are the approaches differentially efficacious when teaching two novel grammatical forms varying in complexity?

Participants

Characteristic	N=8
Age (years)	
Mean	6.6
Min-Max	4.4-7.10
Female:Male Ratio	2:6
Diagnosis	
Autism Spectrum Disorder	5
Asperger's Syndrome	1
PDD-NOS	2
Nonverbal IQ ^a (SS)	
Mean	91.6
SD	17.39
Min-Max	73-115
SPELT-3 ^b (SS)	
Mean	70.25
SD	15.27
Min-Max	52-90

^aStandard score with Mean = 100, SD = 15 based on the Leiter International Performance Scale-Revised. ^bScaled score with Mean = 100, SD = 15 based on the Structured Photographic Expressive Language Test – 3rd Edition.

Method

- Randomized 2x2 counter-balanced group assignment:

		GRAMMATICAL FORM	
		Pronoun	Gender
INSTRUCTIONAL METHOD	Implicit	Implicit Pronoun	Implicit Gender
	Explicit	Explicit Pronoun	Explicit Gender

- Examiners asked the children to try to learn two novel grammatical markings using a game that included two creatures from outer space that use English words, but talk a little differently.
- One form taught using implicit instruction with models only. One form taught using explicit instruction which embedded the presentation of the pattern guiding the novel form among models.
- Explicit presentations:

Pronoun: "When the creature talks about itself, or if you talk about yourself, you have to add /j/ to the end; when you or the creature talks about someone else, you don't add anything to the end."



Now I cook-f. Now you cook.

Gender: "If it's a boy you have to add /f/ to the end; if it's a girl, you don't add anything to the end."



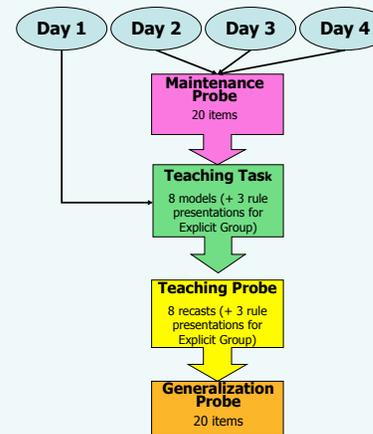
Jake can eat-sh. Sara can eat.

- A phoneme (/f/ or /j/) was added to the sentence verb to indicate sentence subject gender or person.

- Each child completed up to four, 20 min sessions for each grammatical form.

- During the Teaching Task, the computer auditorily presented the model sentences containing the novel marking with a picture depicting the sentence.

- For each probe, the computer prompted the children to complete the sentence like the space creature would: "Now I ___.", "Jake can ___."

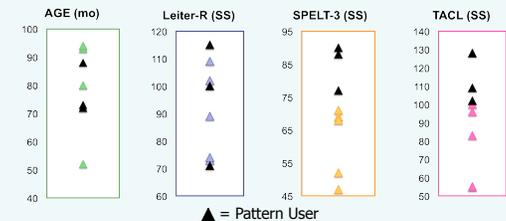


Results

- For each novel grammatical target, participants were classified as either a:
 - Pattern User = accurate, contingent use of novel form in 80% of opportunities on the Maintenance Probe
 - Non-Pattern User = inconsistent or noncontingent use of novel form on the Maintenance Probe

Pronoun	Pattern User	Non-Pattern User
Explicit Teaching	2	2
Implicit Teaching	0	4
Gender	Pattern User	Non-Pattern User
Explicit Teaching	1	3
Implicit Teaching	0	4

- Fisher's Exact tests:
 - Combined: $p = 0.20$; $\Phi = 0.48$
 - Pronoun: $p = 0.43$; $\Phi = 0.58$
 - Gender: $p = 1.00$; $\Phi = 0.38$
 - Pronoun vs. Gender: $p = 1.00$; $\Phi = 0.22$
- Pattern Users tended to have stronger language and cognitive skills than Non Users.



Conclusions

- Results are trending towards an advantage for explicit instruction, largely driven by performance on the pronoun marker.
- Higher language skills differentiated children who became Pattern Users over those who did not, while age and NVIQ were not factors.
- Additional participant recruitment and data collection is ongoing to more clearly distinguish the effects of an explicit approach to language instruction.

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