

Teaching Grammatical Forms with an Explicit Approach to Children with ASD

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Introduction

- Many children with language impairment, including subset of children with ASD, experience weaknesses in grammatical language (Leonard, Eyer, Bedore, & Grela, 1997; Rice & Wexler, 1996; Roberts, Rice, & Tager-Flusberg, 2004).
- Studies examining the use of implicit techniques, such as models and recasts, to teach grammatical forms to children with language impairment indicate only modest gains over long time periods (e.g., Leonard et al., 2004, 2006; Plante et al., 2014).
- Researchers found that incorporating explicit instruction with implicit techniques resulted in gains in accuracy over a short time period (Bolderson et al., 2011, Calder, et al., 2018, Kulkarni et al., 2014, Smith-Lock et al., 2013); however, many children did not reach levels of mastery and failed to generalize and maintain learning.
- The purpose of the study was to determine if the use of a teaching approach that combined implicit and explicit techniques leads to more accurate use of grammatical forms than an implicit-only approach for children with ASD.

Participants

- Three monolingual English-speaking children with ASD symptomology and weaknesses in language development.

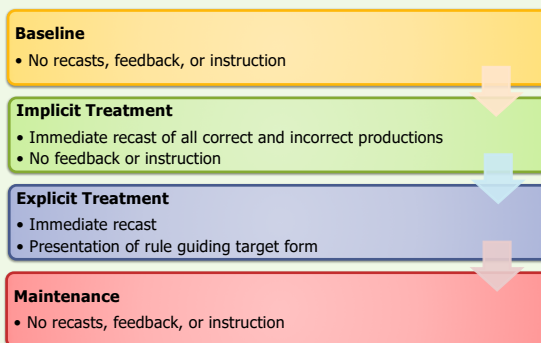
Measure	Participant 1	Participant 2	Participant 3
Age	6:8	5:6	9:1
Leiter-R ^a SS	67	70	70
SPELT-3 ^b SS	88	102	<40
TACL-3 ^c SS	89	94	49
Target Form ^d (Pre-treatment Accuracy)	"Do" questions (0%)	"Is/Are" questions (37%)	Past "ed" (0%)

^a Leiter-R = Leiter International Performance Scale- Revised ; ^b SPELT-3 = Structured Photographic Expressive Language Test- 3rd Edition; ^c TACL-3 = Test for Auditory Comprehension of Language- 3rd Edition; ^d Identified by the Rice-Wexler Test of Early Language Impairment prior to treatment

Method

- Study Design: single-subject multiple baseline design replicated across three participants
- All participants completed the following phases: baseline sessions, implicit-only treatment (models and recasts), and implicit-explicit treatment (addition of rule presentation).
- Short-term maintenance sessions occurred immediately following implicit-explicit phase; long-term maintenance sessions occurred 1 week, 1 month, and 2 months following the last short-term maintenance session.

- For each session, the participants listened to a short story that included 12 models of the grammatical target. Then, they completed a play activity with at least 12 opportunities to produce the target form.

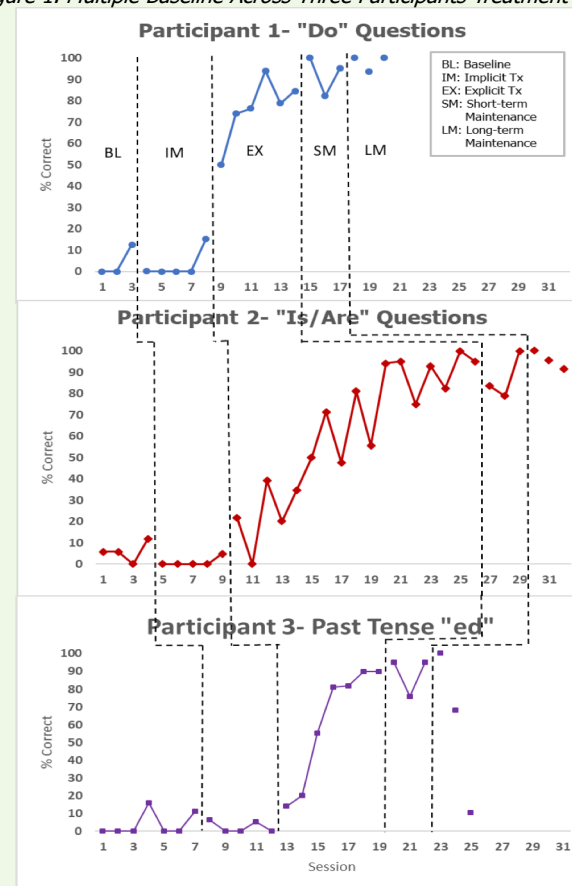


Results

- All participants established 0-16% accuracy on their grammatical targets across baseline sessions. After switching to the implicit-only treatment phase, the accuracy on the target forms continued to stay low between 0-15%.
- Percent non-overlapping data (PND) between baseline and the implicit-only phase was 20% for Participant 1 and 0% for Participants 2 and 3, indicating minimal to no difference between the two phases.
- After switching to the explicit treatment phase, all participants showed an upward trend and reached mastery (80% accuracy for 3 consecutive sessions) in 6-17 sessions.
- The PND between the implicit-only and implicit-explicit phases was 100% for Participants 1 and 3 and 94% for Participant 2, suggesting a substantial difference in treatment effectiveness between the implicit-only and implicit-explicit teaching approaches.
- All participants maintained their target forms with 76-100% accuracy for the short-term maintenance phases. Participants 1 and 2 maintained accuracy above 90% for the long-term maintenance phase, but the accuracy for Participant 3 decreased from 100% (1 week post) to 10% (2 months post).

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Figure 1. Multiple Baseline Across Three Participants Treatment Results



Conclusions

- The findings support the inclusion of explicit techniques in treatment to teach grammatical forms to children with ASD.
- With explicit instruction, the participants reached mastery with as few as 6 sessions and as many as 17. This dosage represents greater efficiency than reported in previous studies of implicit techniques.
- Although all participants reached mastery levels ($\geq 80\%$), long-term maintenance revealed mixed results. Researchers should continue to examine the long-term effect of explicit teaching approach.