

EVALUATING THE IMPACT OF PREREQUISITE SKILLS ON THE OUTCOMES OF AUDITORY-VISUAL CONDITIONAL DISCRIMINATION TASKS



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INTRODUCTION

- Discrete trial instruction (DTI) is a common teaching procedure, which often involves a visual array and vocal cue. This requires the learner to engage in an auditory-visual conditional discrimination (AVCD). Limited research has demonstrated what skills are considered prerequisites for AVCD.
- Limited research with residential facility students who are aged 15-21 years and diagnosed with autism spectrum disorder (ASD).
- Replicate and extend skills assessment evaluated by Kodak et al. (2015) to novel population.
- Evaluate whether outcomes on skills assessment correlate with outcomes on AVCD task.

METHODS

Participants and Setting:

- 4 students with ASD, ages 17-21 years old
 - 3 vocal-verbal, 1 AAC user
- Residential facility in New England

Dependent Variables(s):

- Unprompted correct responses during skills assessment and AVCD tasks
- Number of sessions to mastery for AVCD tasks

Design:

- Adapted-alternating treatments design to compare comparison-first and sample-first efficiency

PROCEDURE

Skills Assessment

- Generalized Imitation and Echoics, Auditory Discrimination, Auditory Matching, Visual Discrimination, and Identity Matching.
- Correct responding (unprompted and prompted) was reinforced with an edible.
- Incorrect responding received no consequence.

Average Percent of Correct Responding Across Each Prerequisite Skill Evaluation

Participant	Identity Matching	Imitation & Echoics	Auditory Discrimination	Auditory Matching	Visual Discrimination
Steve	100*	100*	33	44	31
Nathan	95*	41	44	30	36
Martin	100*	98*	53	60	70*
Peter	83*	100*	72*	40	71

Note: * denotes skill demonstrated at mastery criteria at the conclusion of skills assessment condition.

AVCD

- **Baseline:** A three-choice array of stimuli were presented in front of the participant and delivery of the sample stimulus (e.g., “whole note”, “quarter rest”) varied based upon the condition. During sample-first, the sample was presented first. During comparison-first, the comparison array was presented first followed by the sample stimulus.
- Sample-First and Comparison-First
 - Two different training procedures were conducted consecutively. The only difference between training procedures was the order in which the sample and comparison stimuli were presented.
 - Time-delay (model prompt) was faded after two consecutive sessions above 67% correct responding (unprompted or prompted). If responding for a target fell below 33% correct responding across two sessions, a more intrusive prompt level was implemented for that target.
 - Mastery criterion was 89% or above unprompted correct responding for two consecutive sessions for a set.
 - Correct responses (unprompted and prompted) were consequted with a piece of edible.
 - Incorrect responses or no responses were consequted with an error correction procedure (covering the materials, re-presenting the cue, immediate model prompt, no reinforcement provided).

Number of Prerequisite Skills and AVCD Outcomes Across Participants

Participant	Number of Prerequisite Skills	Comparison-First	Sample-First
Steve	2	19 ^{DC} 9* ^{DC}	19 ^{DC} 9* ^{DC}
Nathan	1	12 ^{DC}	12 ^{DC}
Martin	4	21 9*	10 7*
Peter	3	6	6

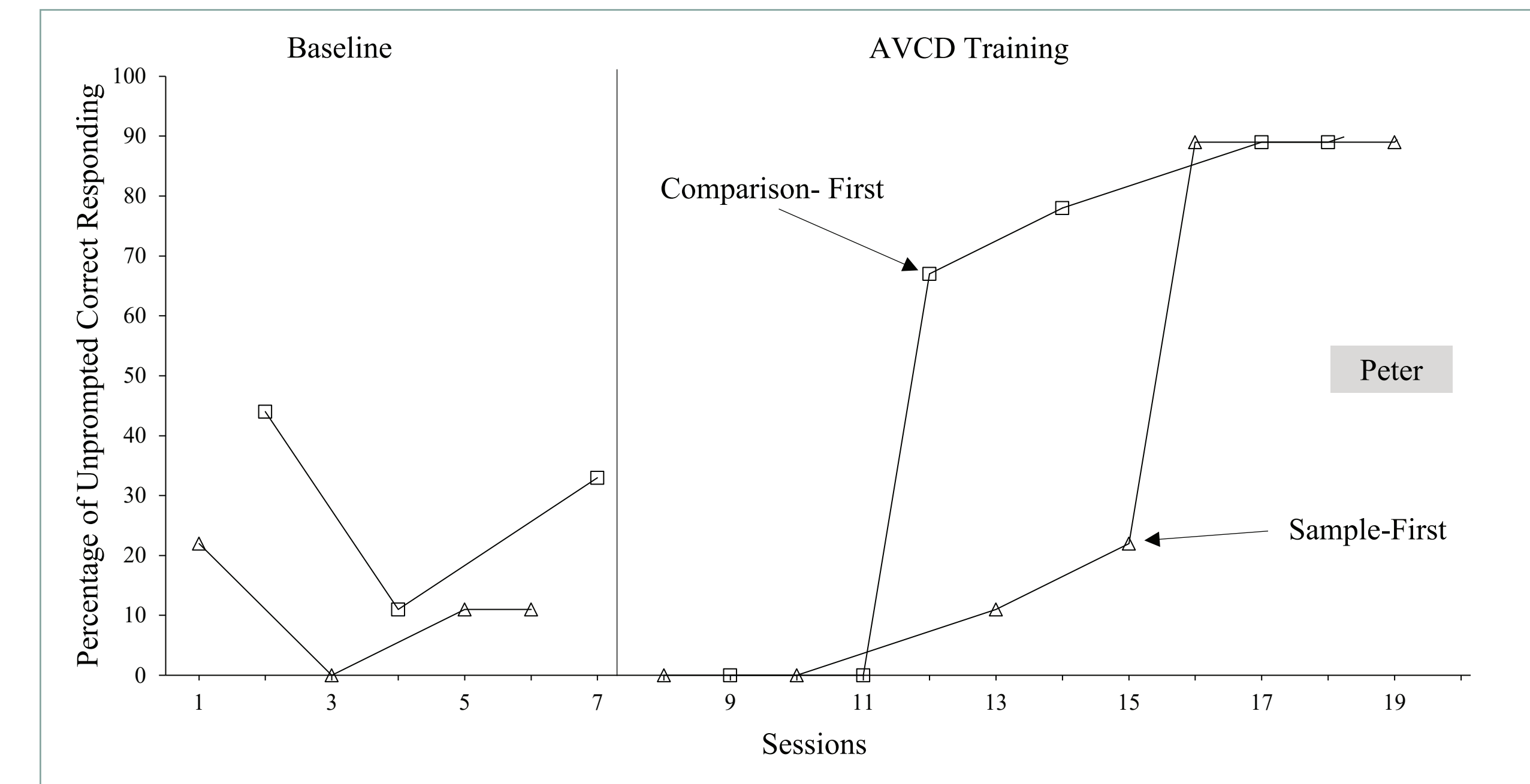
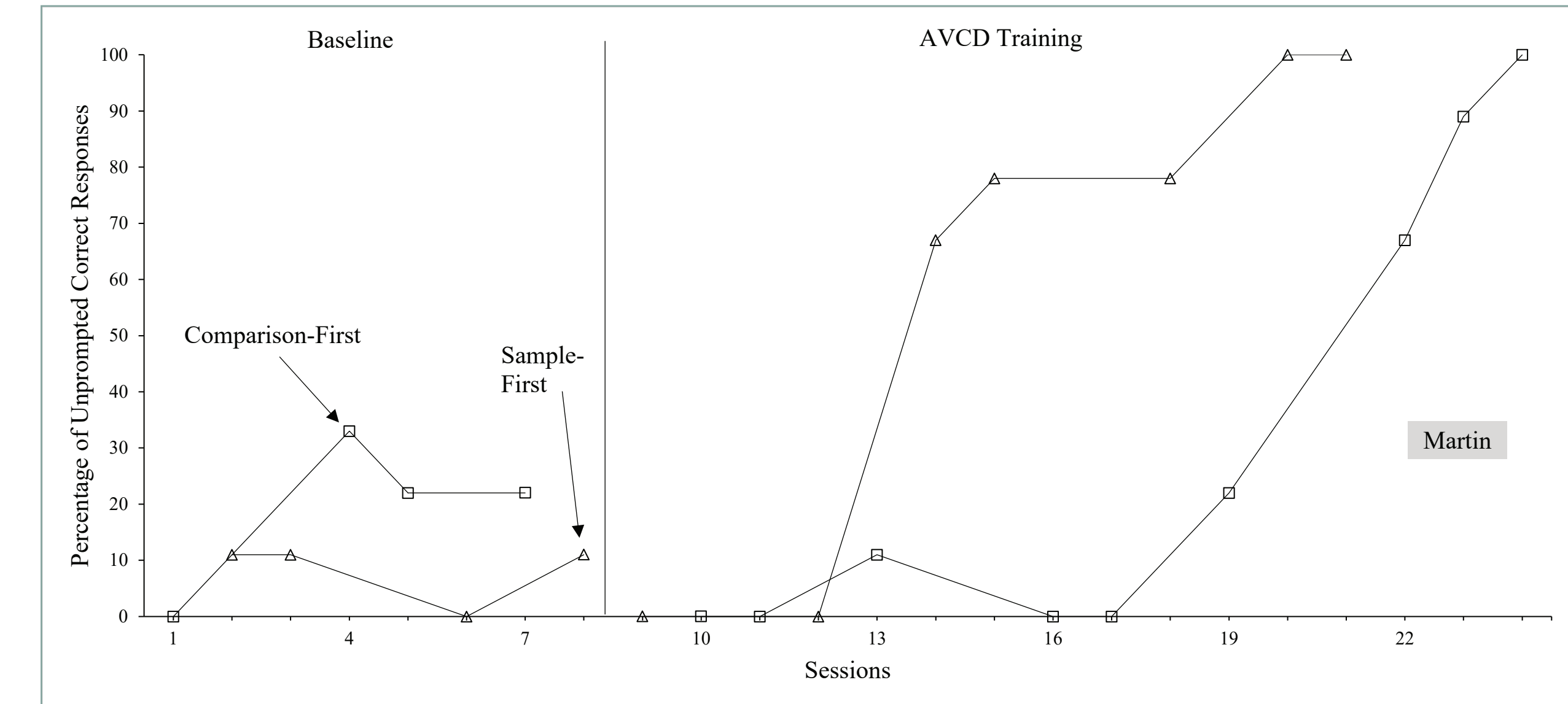
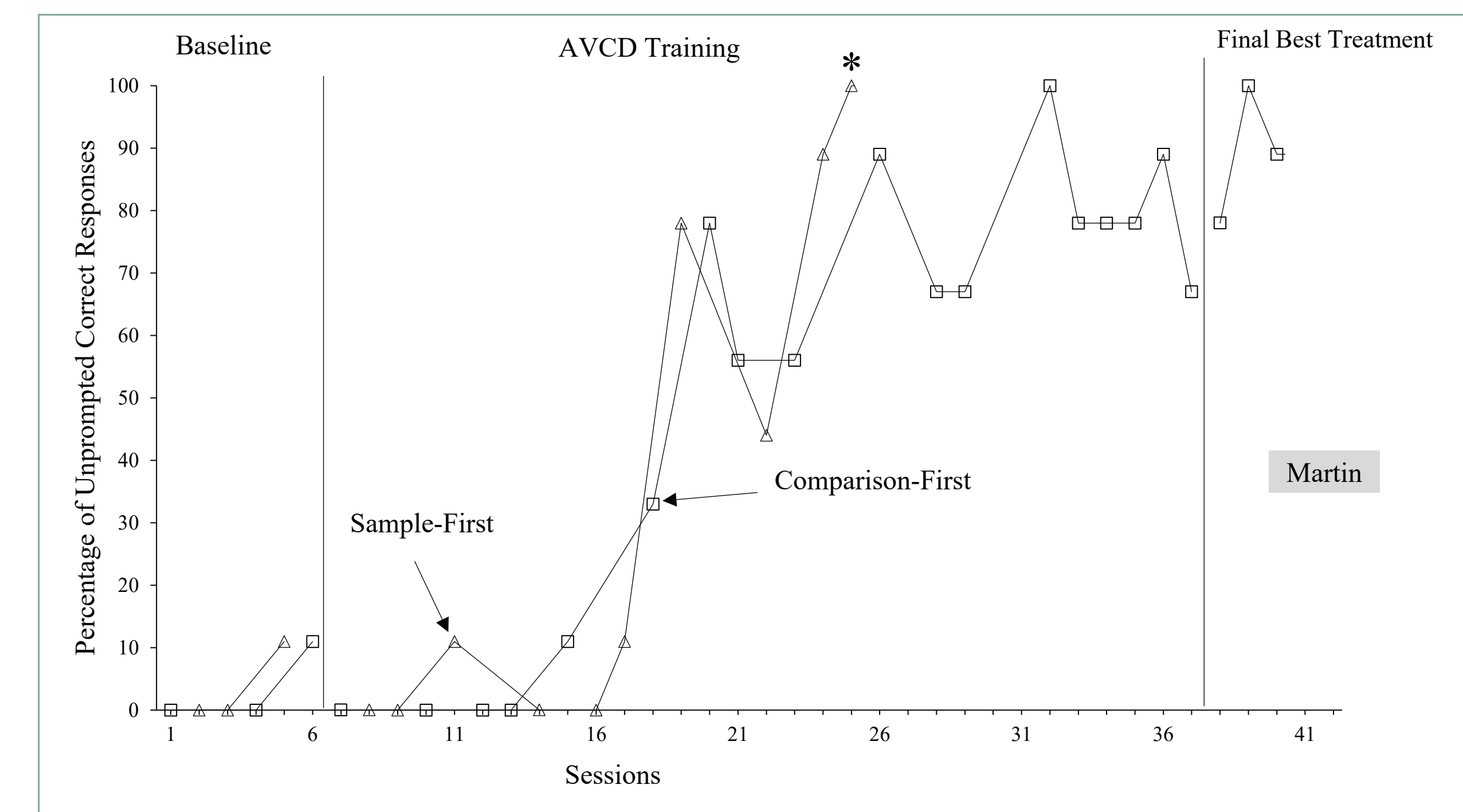
Note: Data denoted with * were assessed during the replication phase, and ^{DC} were discontinued due to lack of progress.

IOA/TREATMENT INTEGRITY

- A second observer watched video recorded sessions to collect IOA and procedural integrity for an average of 69% of sessions for three participants and 20% for the other participant (no video recording limited number of sessions).
- IOA was at 99.8% and procedural integrity was at 99% across sessions collected.

RESULTS

- Participants demonstrated mastery of 1-3 skills during assessment
- AVCD outcomes corresponded with outcomes on skills assessment
- Two participants did not acquire either set
 - Participants with fewest number of skills demonstrated
- Two participants acquired all sets
 - Participants with three skills mastered tasks
 - Sample-first more efficient for 1 participant
 - 1 participant both were equally efficient



DISCUSSION

- Skills mastered corresponded with AVCD outcomes.
- Outcomes replicated some previous research on most efficient antecedent arrangement for AVCD task.
- Results do not support that one antecedent approach is more efficient for all participants based upon skills assessment outcomes.
- Future research should continue to evaluate the most efficient method for teaching AVCD.
- Future research should also evaluate the accuracy and validity of skills assessment for assessing current repertoires and to predict outcomes for AVCD tasks.