

ABA Autism SIG Student Research Award Winners 2007

The Effects of Embedded Questions on Reading Comprehension in Second Grade Students with Autism Spectrum Disorders (ASD)

LINDSAY SESSOR, Ruth M. DeBar, & Sheila Alber-Morgan
The Ohio State University

Introduction

- Very few studies have reading instruction strategies for people with ASD (O'Connor & Klein, 2004; Nation & Norbury, 2005).
- In their analysis of comprehension strategy research, the NRP (NICHD, 2000) found support for two strategies that involve questions: question answering and question generation (McCardle & Chhabra, 2004 p.224).
- Question answering shown to be an effective strategy for improving comprehension for typically developing students (Wong, 1979), and LD students (Schmidt, 1989; Wong, 1979; Wong, 1980).
- Very few studies have targeted reading comprehension for learners with (ASD).

Purpose

To extend previous research:

- On question answering strategies to improve reading comprehension to students with ASD.
- To examine the comparative effects of question modality (i.e. written v. oral) on reading comprehension.

Method

Participants:

- **Lauren:** a 9-year old female, diagnosed with an ASD.
- **Holden:** an 8-year old male, diagnosed with an ASD.
- **Logan:** an 8-year old male, diagnosed with an ASD.

Inclusion criteria:

- Read fluently and accurately at or above grade level.
- Exhibited deficits in reading comprehension at least one grade level below their decoding abilities.

Sessions:

- Conducted 3-4 times weekly, 5-10 minutes in duration.

Materials:

- Reading passage at Independence level approximately 150 words in length
- Reading passage with 7 embedded written questions
- Reading passages with 7 blue dots where oral comprehension questions were embedded
- 7 W-H comprehension questions (6 literal & 1 inferential)
- A pencil

Design:

- An alternating treatments design was employed.

Dependent measure:

- Frequency of correct responses across conditions.
- Correct written comprehension responses defined as written responses identical or similar to (i.e., omission of an article) the responses predetermined by the experimenter.

Procedure

- **Baseline (BSL):** Participants were presented with independent reading passage followed by 7 comprehension questions. Participants were instructed to read the passage out loud and provide written responses to comprehension questions.
- **Embedded Oral Questions:** Similar to BSL except that 7 W-H oral questions, signaled by blue dots embedded within the passage, were asked by the experimenter approximately every 1-2 sentences. Participants were required to respond orally to these questions. A least-to-most error correction was employed for incorrect oral responses.
- **Embedded Written Questions:** Similar to BSL except that 7 W-H questions were embedded within the passage approximately every 1-2 sentences. Participants were required to provide written responses to these questions. A least-to-most error correction was employed for incorrect written responses.
- **Additional procedures:** Holden was provided with an additional opportunity to read the passage in the absence of oral or written questions prior to responding to comprehension questions.

IOA (Total Agreements/ Agreements + Disagreements x 100).

34% of Baseline, 36% of Oral, & 35% of Written sessions across all participants:

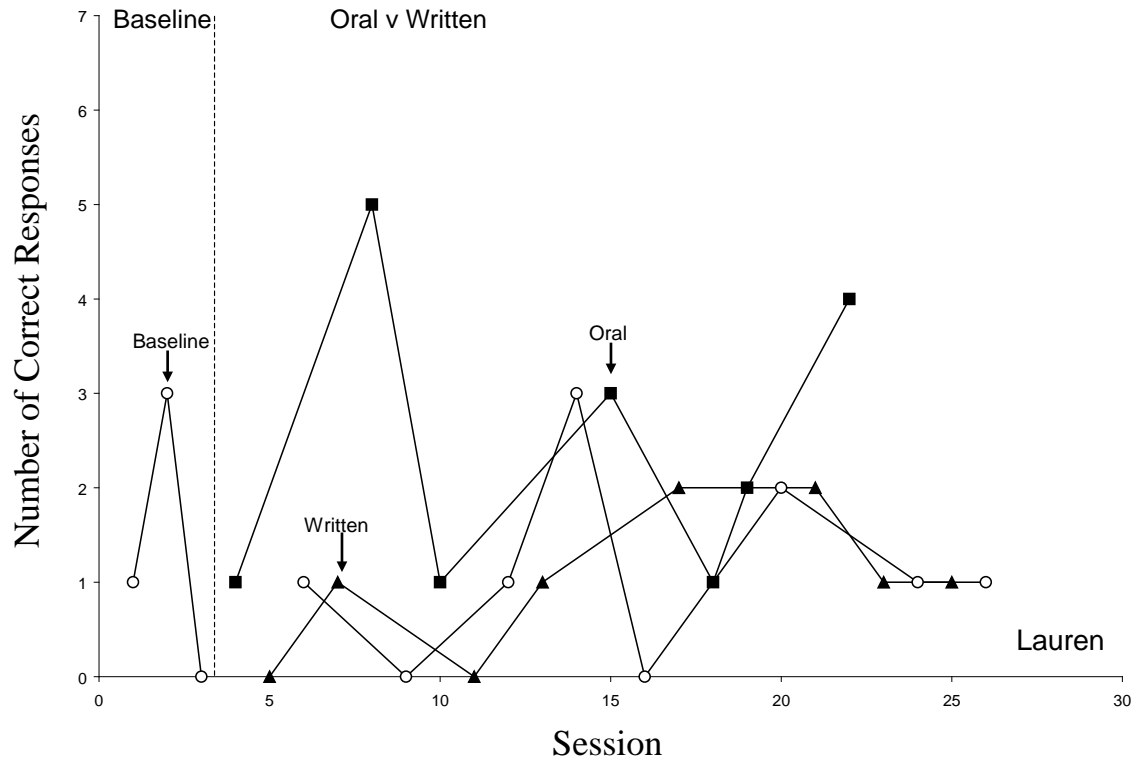
- BSL: $M = 99\%$, range = 86 to 100%
- Oral: $M = 97\%$, range = 86 to 100%
- Written: $M = 98\%$, range 86 to 100%

Results

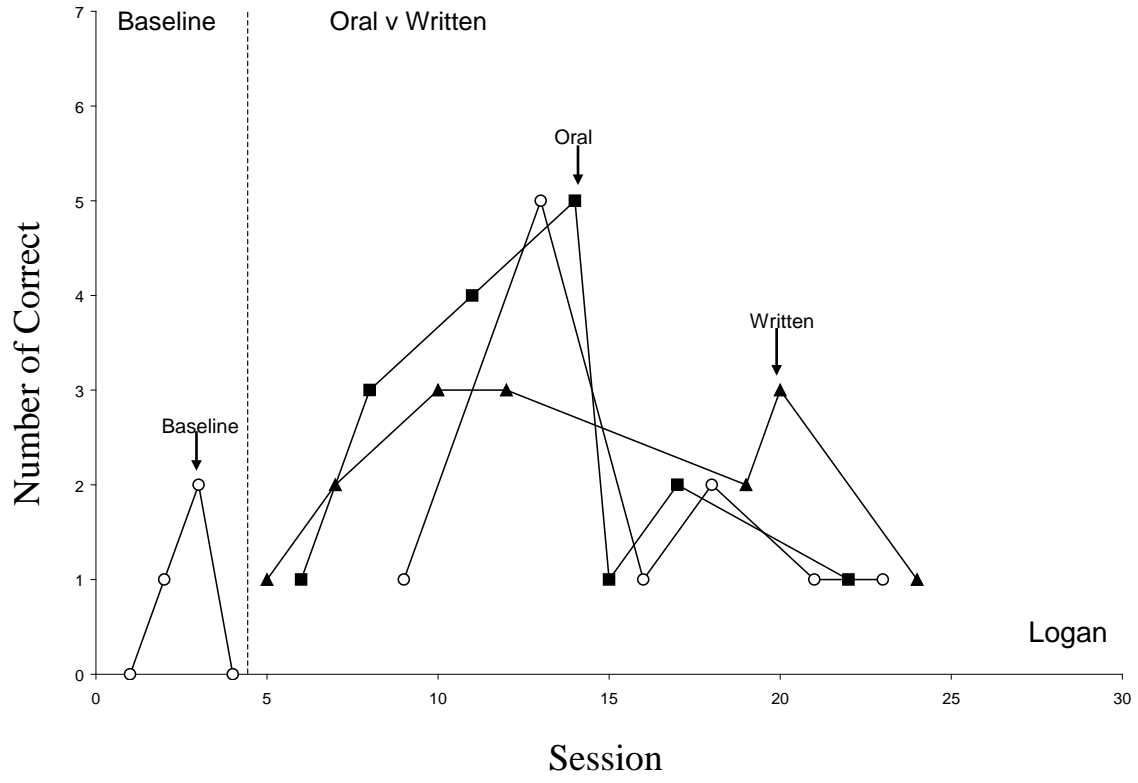
Frequency of correct responses

- **Lauren**
Baseline: $M = 1.2$, range = 0 to 3
Oral Embedded: $M = 2.4$, range = 1 to 5
Written Embedded: $M = 1.0$, range = 0 to 2
- **Logan**
Baseline: $M = 1.4$, range = 0 to 5
Oral Embedded: $M = 2.5$, range = 1 to 5
Written Embedded: $M = 2.4$, range = 1 to 4
- **Holden**
Baseline: $M = 4.0$, range = 2 to 7
Oral Embedded: $M = 5.2$, range = 4 to 7
Written Embedded: $M = 5.5$, range = 4 to 7

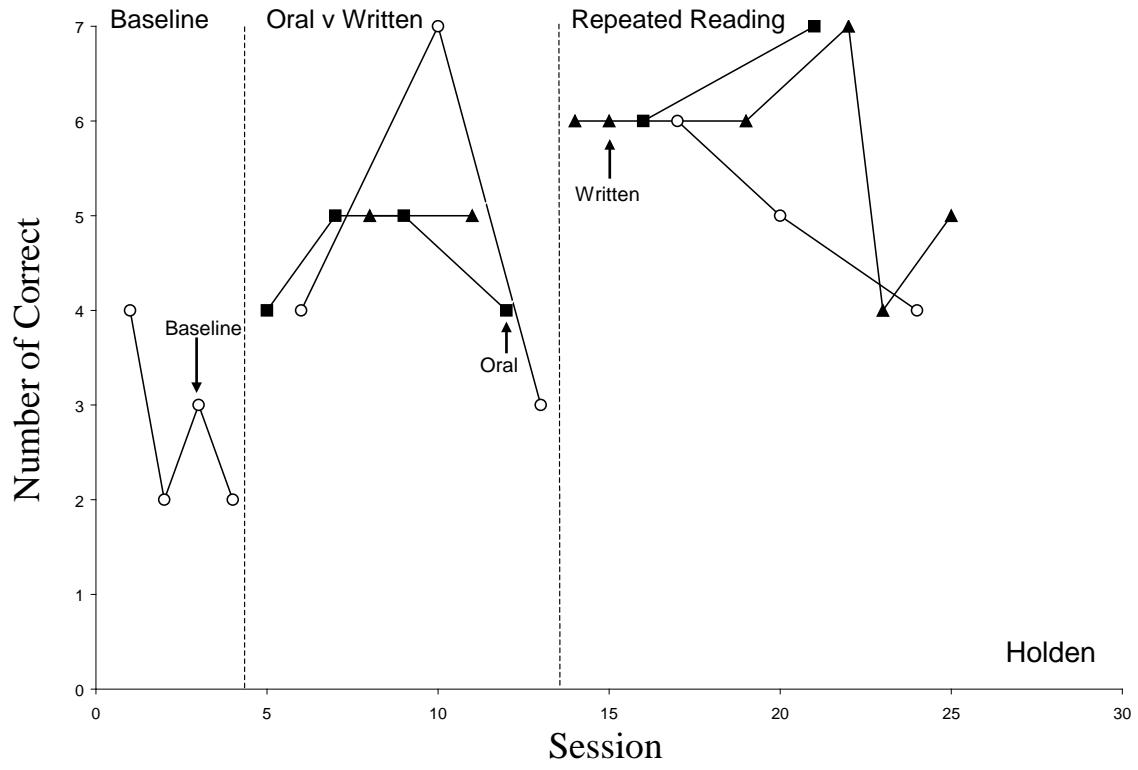
Frequency Correct Responding

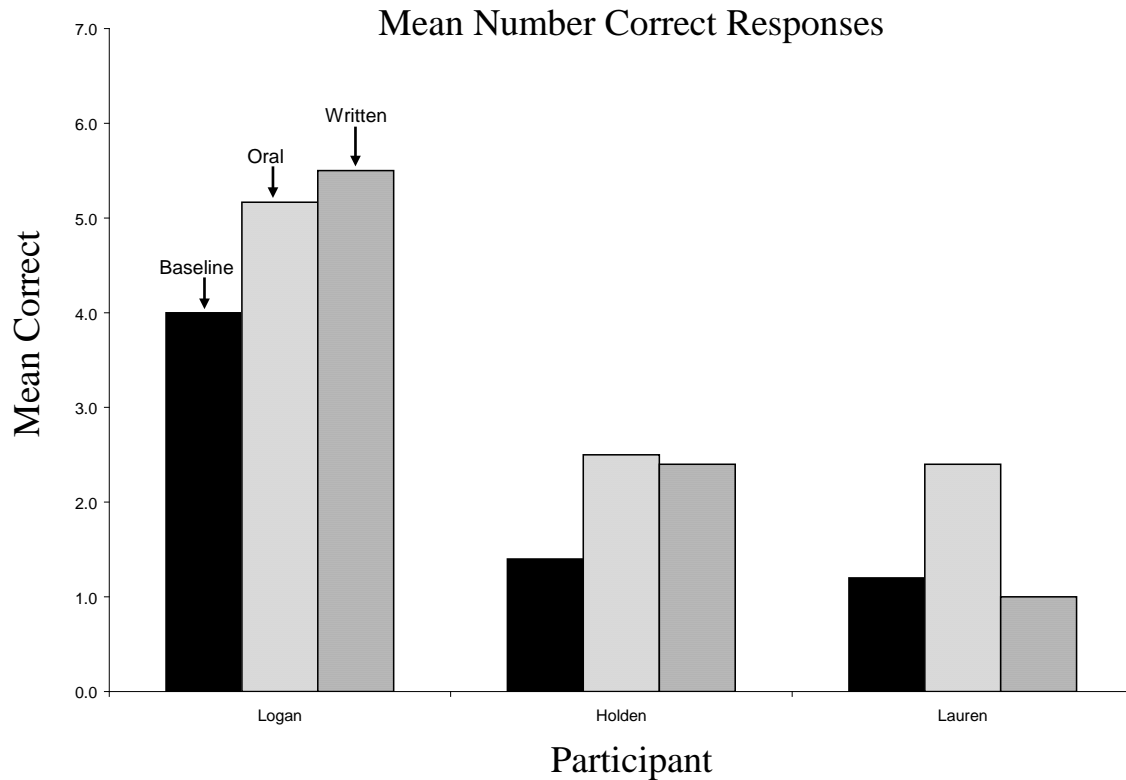


Frequency Correct Responding



Frequency Correct Responding





Discussion

- For 2 participants, mean results indicate that embedded oral questions modestly increased the frequency of responding to W-H reading comprehension questions.
- For 1 participant mean results indicated that written embedded question increased the frequency of correct written comprehension questions.
- As demonstrated per participant performance, responding across conditions was highly variable.
- Variability in responding may be due to lack of stimulus control occasioning a correct response.
- Future research should continue to investigate strategies to improve reading comprehension in students with ASD.
- Future research should evaluate methods for assessing reading comprehension in children with ASD (i.e. written v. oral responses).
- Future research should evaluate the availability of the reading passage on increasing the frequency of correct responses as a measure of comprehension.

References

- McCardle, P. & Chhabra, V. (2004). *The voice of evidence in reading research*. Baltimore, MD: Paul H. Brooks Publishing Co.
- Nation, K. & Norbury, C. F. (2005). Why reading comprehension fails: Insights from developmental disorders. *Topics in Language Disorders, 25*, 21-32.
- Schmidt, M. W. (1989). Method of questioning and placement of questions: Effects on LD students' comprehension. *Learning Disability Quarterly, 12*, 192-198.
- Wong, B. Y. L. (1979). Increasing of main ideas through questioning strategies. *Learning Disability Quarterly, 2*, 42-47.
- Wong, B. Y. L. (1980). Activating the inactive learner: use of questions/prompts to enhance comprehension and retention of implied retention information in learning disabled children. *Learning Disability Quarterly, 3*, 29-37.

Lindsay Sessor received her master's degree from the program of special education and applied behavior analysis at The Ohio State University. She currently works as a behavioral consultant in the Center for Autism Spectrum Disorders at Nationwide Children's Hospital in Columbus, Ohio. Her research interests include strategies for behavior change and skill acquisition of learners with autism spectrum disorders.

Ruth M. DeBar, M.S, BCBA is a doctoral candidate in the program of special education and applied behavior analysis at The Ohio State University. Her research interests focus on addressing behavior changes of learners with autism and related disorders. Her previous research has examined skill acquisition, behavior assessment and behavior reduction.

Sheila R. Alber-Morgan is an associate professor of special education and applied behavior analysis at The Ohio State University. Her research interests include investigating strategies for teaching reading and writing to children with mild to moderate disabilities, and programming for maintenance and generalization of academic skills.

Developing a Self-Initiation Training for Preverbal Children with Autism

MARIE L. ROCHA and Laura Schreibman

Introduction

- Spontaneous social initiations, known as *self-initiations* are critical to initiating and maintaining reciprocal social interactions (e.g., Oke & Schreibman, 1990).
- Evidence suggests that long-term outcome may be affected by a child's ability to self-initiate (e.g., Koegel, Koegel, Shoshan & McNeerney, 1999).
- Targeting early social communication behaviors may minimize obstacles to learning language and social interaction skills (e.g., Hwang & Hughes, 2000).
- Thus far, interventions targeting self-initiations have focused on teaching children with well-established verbal abilities to self-initiate using speech.
- The present study was designed to develop and evaluate a self-initiation training (SIT) for preverbal children with autism.

Design

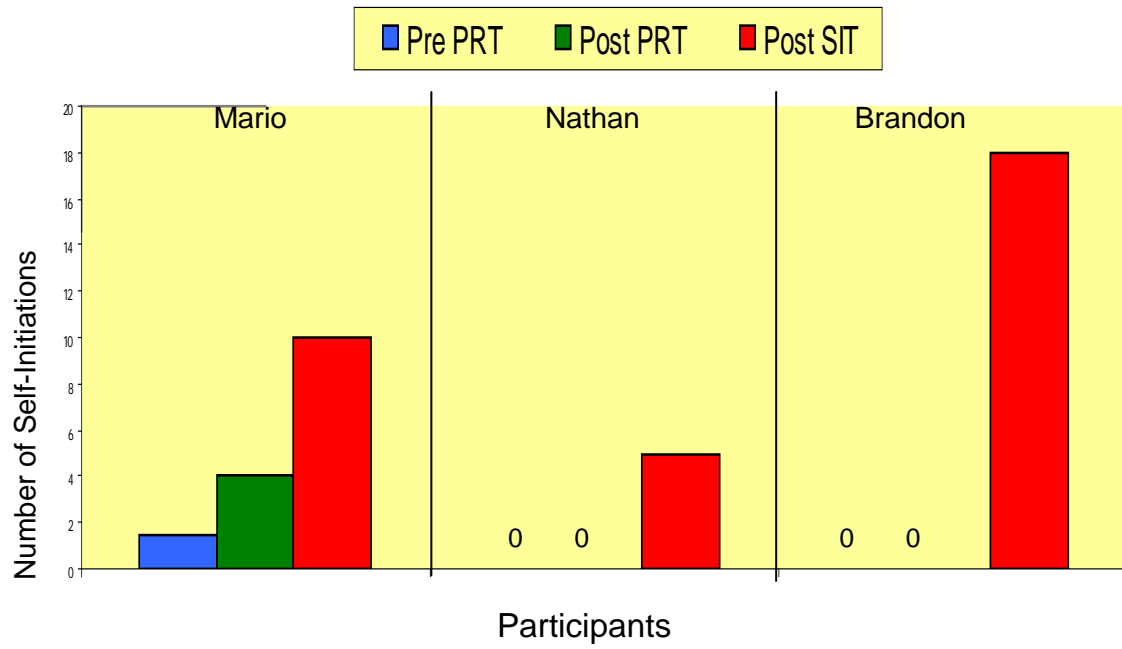
- Single subject multiple baseline design across subjects.
- Baseline: PRT (4 hrs/wk).
- Treatment: PRT (2 hrs/wk) & SIT (2 hrs/wk).
- Self-Initiation Observation (SIO): 15 minute observation to assess generalization of self-initiation skills. Unfamiliar adult and parent were engaged in other activities (e.g., reading) and child was provided opportunities to self-initiate for attention and access to items. Adults were instructed to respond appropriately.
- SIO videotaped in the laboratory Pre PRT, Post PRT, Post SIT and once a week during PRT and SIT.

Phases of Self Initiation Training

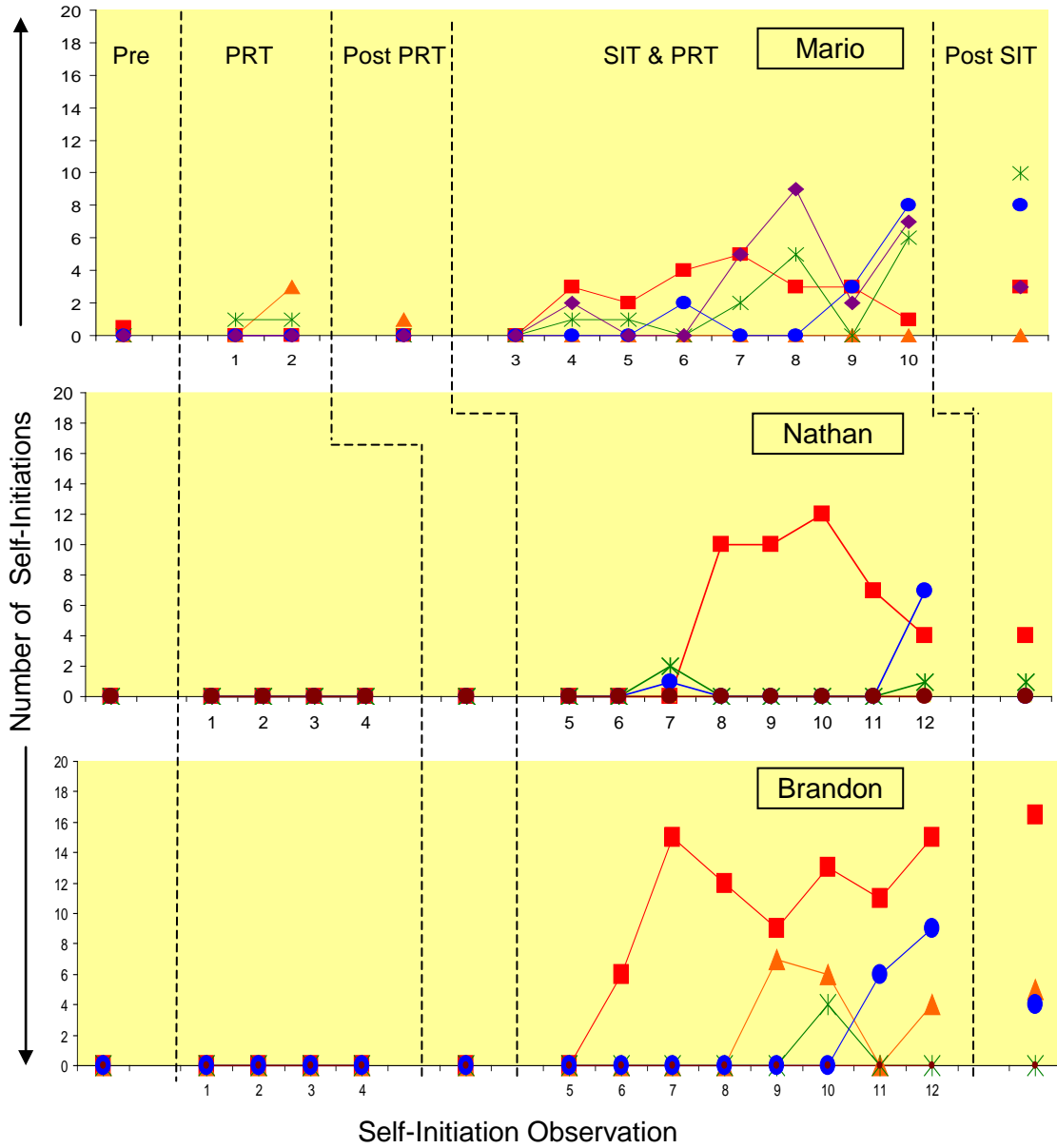
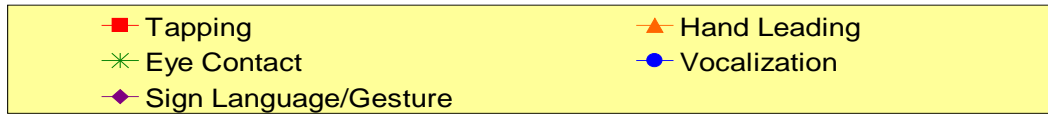
Phase I: Approach & Tap. Child spontaneously approaches a Communicative Partner (CP) with or without an object and taps CP with his hand.
Phase II: Distance and Persistence. Child approaches from a distance greater than 3 feet and persists when tapping for at least 5 seconds.
Phase III: Hand Leading. Child takes CP by the hand and pulls the CP in the direction of the object.
Phase IV: Coordinated Communication <ul style="list-style-type: none">• Eye Contact. Child makes eye contact with CP in addition to tapping and/or hand leading.• Vocalization. Child directs vocalization and eye contact toward CP in addition to tapping and/or hand leading.

Results

Self Initiations During SIO



Types of Self-Initiations During SIO



Participants

	Mario	Nathan	Brandon
Chronological Age	3 yrs, 6 mos	2 yrs, 4 mos	2 years, 5 mos
Nonverbal Mental Age	12 months	15 months	16 months
Expressive Language	6 months	7 months	2 months
Receptive Language	13 months	5 months	3 months
Baseline	2 weeks	4 weeks	4 weeks
Self-Initiations at Intake	Yes	No	No

Discussion

- Preliminary data suggest that SIT is an effective intervention to teach appropriate self-initiations to preverbal children with autism.
- It appears that for a child with some self-initiations, PRT is sufficient to learn some forms of self-initiations (e.g., Mario).
- In addition, a training program specifically targeting self-initiations may be necessary for a child with no self-initiations pre-treatment (e.g., Brandon and Nathan).
- Other social communication behaviors such as sign language, although not specifically targeted during self-initiation training, may increase when other self-initiation behaviors are learned.
- These data suggest the importance of identifying predictive behavior characteristics in children prior to intervention programming.
- In addition, preliminary evidence suggests that some types of self-initiation behaviors may need to be specifically targeted.

Marie L. Rocha, M.A., is a doctoral candidate in Experimental Psychology, with an emphasis in Applied Behavior Analysis at the University of California, San Diego. Her research focuses on the development of early nonverbal social skills in children with autism. She is especially interested in the acquisition of language, joint attention and social initiations. Her research studies focus on developing and examining naturalistic behavioral techniques and using parent education treatment models. For the past 11 years, she has been working under Dr. Laura Schreibman at the UCSD Autism Research Laboratory. After graduate school, she plans to pursue a career in psychological research.



Research supported by: NIMH and ASA San Diego Chapter