

Using the Restricted Interests of Young Children with Autism to Increase their Social Behaviors with Peers

Brian A. Boyd
Maureen A. Conroy
Peter J. Alter
University of Florida

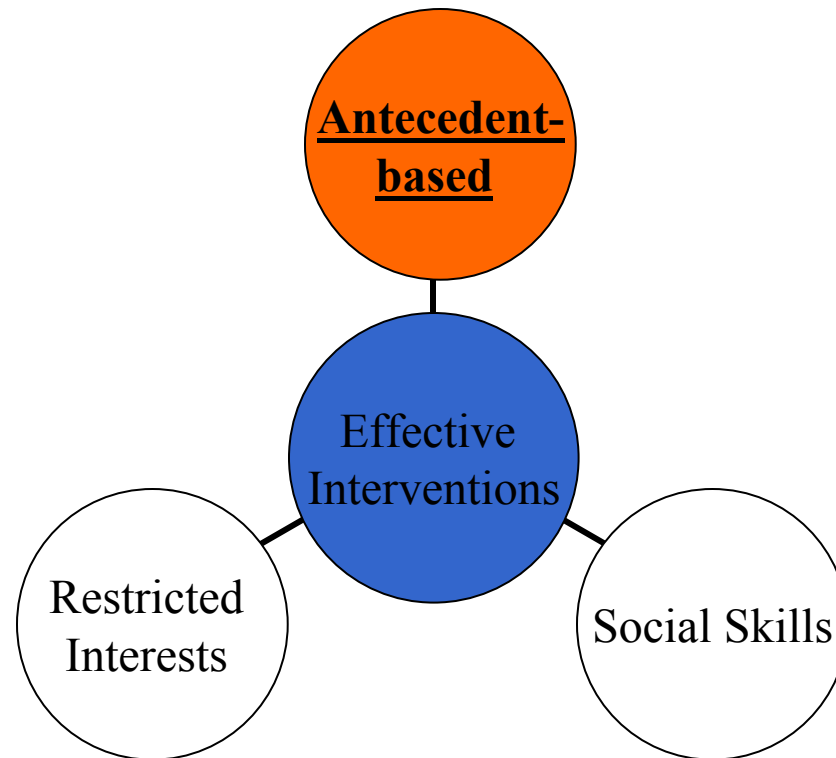




Why Target Young Children with ASD?

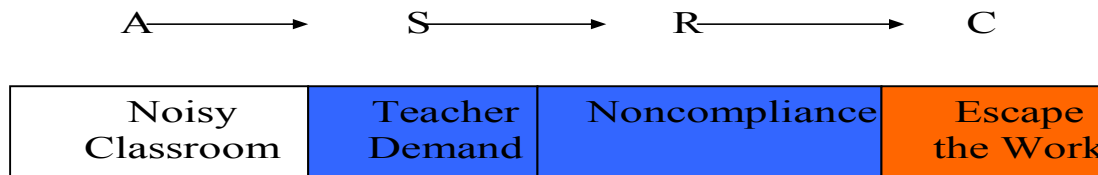
- Lack of intrinsic motivation to socially relate to others is the central and defining feature of autism spectrum disorders (ASD) (National Research Council, 2000)
- Deficits in social relatedness are likely to manifest themselves during interactions with typical peers leading to the social isolation and stigmatization of the child with ASD (Ochs et al., 2001; Odom et al., in prep)
- The earlier effective interventions target this lack of social motivation for children with ASD the better their social, academic and communicative outcomes (Koegel et al., 1999)
- We are lacking in the number of evidence-based interventions we have for this population of children (Odom et al., 2003)

Overview of the Research Literature



Literature on Antecedent-based Interventions

- **Setting Events**—describe the effects of a 4th antecedent variable on the *S-R* components of the operant model (Wahler & Fox, 1981)
- **Establishing Operations**—describe the effects of a 4th variable on the *C* component of the operant model (Michael, 1993)





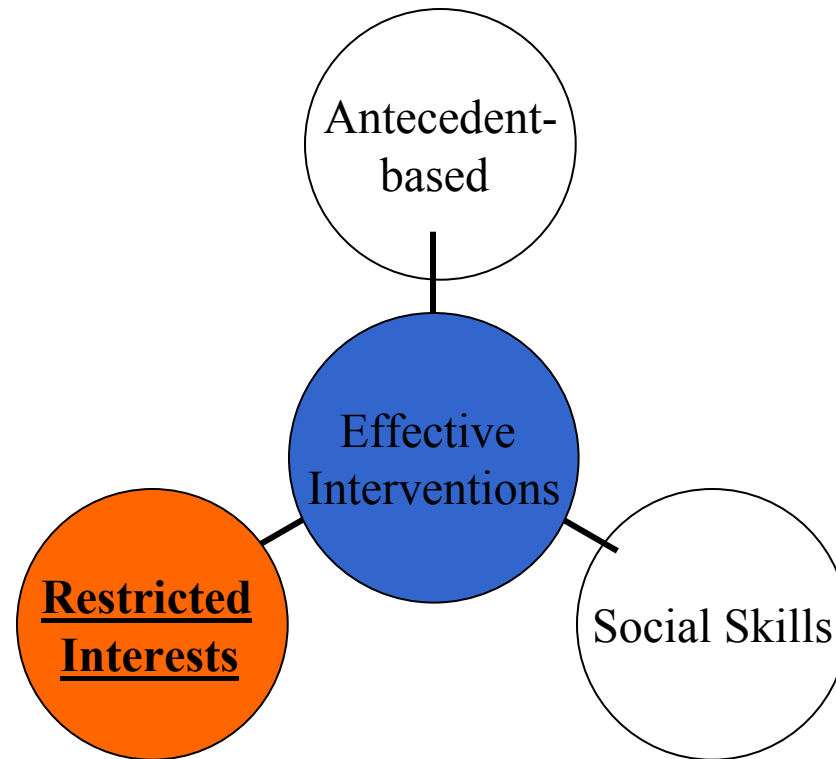
Overview of Research Findings

- Antecedent-based interventions can be used to increase the social behavior of children with ASD

- Only a few antecedent-based studies have targeted individuals with ASD (Sasso et al., 1998)
 - Even fewer studies have targeted their social behavior
 - Majority of the studies have targeted their problem behavior

- Majority of studies have not accounted or controlled for the effects of consequences on the antecedent variables under investigation

Reviewed Bodies of Literature



Literature on Restricted Interests

- **Definition**—Restricted Interests (RI) are topics or tangible items individuals with autism pursue with great intensity and focus for long durations of time (DSM-IV, 1994).
- **Arousal Theory**—suggests that children with autism engage in RI because their sensory input system is over- (Lovaas et al., 1987; Turner, 1999) or under-aroused (Kern et al., 1982). Engagement in RI allows them to maintain homeostasis.
- **Perceptual Reinforcement Hypothesis**—suggests that children with autism engage in RI because they have learned through interaction with their environment that it provides a source of intrinsic reinforcement (Lovaas et al., 1987). There is an operant function to this behavior.

Repetitive or Self-Stimulatory Behaviors

Lower
form

Higher
form



Hand-flapping

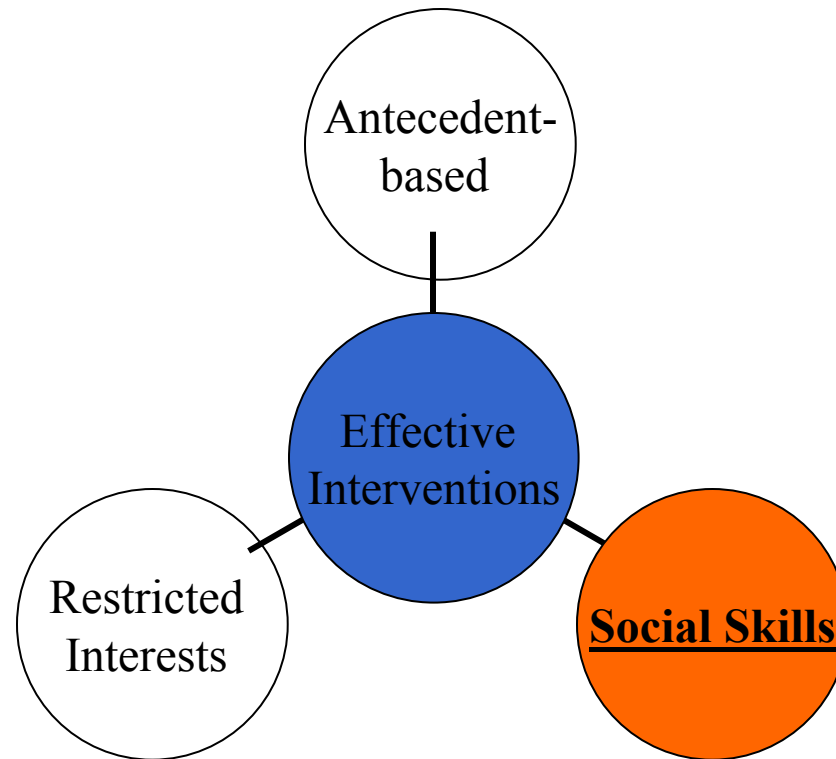
Echolalia, RI



Overview of Research Findings

- Interventions that utilized the RI of children with autism have increased their prosocial behaviors (e.g., on-task)
 - Only 2 studies have addressed the social behavior of children with autism
- Majority of studies used the RI as a consequence-based intervention (Charlop-Christy & Haymes, 1996, 1998)
 - The child is given access to the RI after the occurrence of a targeted behavior
- Studies also have used the RI as an antecedent-based intervention (Baker, 2000; Baker et al., 1998)
 - The RI is used as an antecedent to increase the child's motivation to engage in the activity or complete the task
- Primary problem associated with the RI literature
 - Lack of systematic identification of the RI

Reviewed Bodies of Literature





Overview of Research Findings

- Participant- and peer-targeted interventions have been successfully used to increase the social behavior of young children with autism
- Participant-targeted interventions have demonstrated a greater impact on increasing the social initiations of children with autism (Zanolli & Dagget, 1998; Belchic & Harris, 1994)
 - This specific behavior has been linked to improved communicative and social abilities of children with ASD (Koegel et al., 1999)
- Peer-targeted interventions have demonstrated a greater impact on increasing the social responses of children with autism (Goldstein et al., 1992; Sainato et al., 1992)
- The intervention or generalization data for a number of studies across both groups achieved variable and/or modest effects

Summary of Reviewed Bodies of Literature

□ Antecedent-based Interventions

- They are effective, BUT
- Few studies have addressed the social behavior of young children with autism
- Majority of studies have not accounted or controlled for the effects of consequences on the antecedent variables under investigation

□ Restricted Interests' Studies

- They are effective, BUT
- Few studies have used the RI as an antecedent-based intervention to increase the child's motivation to engage in social behavior
- Primary problem associated with the RI literature
 - Lack of systematic identification of the RI

□ Social Skill Interventions

- They are effective, BUT
- Many social skill studies have failed to examine the effect of the intervention on the social initiations of the children with ASD



Current Study

- Aimed at extending the work of Baker and colleagues (1998, 2000)
 - Embedded the RI of children with autism into cooperative play activities
- Attempts to address methodological weaknesses of past studies by:
 - Controlling for the effects of consequences on participants' social behavior (i.e., peer responses)
 - Controlling for the effects of competing antecedent stimuli other than the RI (i.e., peer initiations)
 - Adding an experimental assessment procedure to verify the RI (i.e., free operant preference assessment)
 - Measuring the effects of the RI on the social initiations of the targeted children




Research Questions

- What is the effect of the presence of a restricted interest item, used during a free play activity, in comparison to a less preferred item on the rate and duration of *positive* target child and peer social behavior?
- What is the effect of the presence of a restricted interest item, used during a free play activity, in comparison to a less preferred item on the rate and duration of *negative* target child social behavior?



Pilot Study Participant: Greg

- Greg is a 7-year-old fully included in a 2nd grade classroom (*Data collected at 6 yrs. of age when participant was in 1st grade*)
 - Has a diagnosis of autism
 - Reading abilities are on par with his peers
 - Speaks in full sentences
 - ❖ Is typically responsive to peer social behavior, but seldom initiates



Phases of Study

1. Assessment Phase
 - a. Descriptive assessment
 - b. Preference assessment
2. SA Phase
 - a. Concurrent operant condition
 - b. Free operant condition
3. Generalization Phase



Assessment Phase

1. Purpose is to identify the participants' current display of social behavior with classroom peers, and to identify and subsequently verify their RI tangible item
 - Two parts (a) descriptive assessment and (b) free operant preference assessment

Descriptive Assessment

- Descriptive Assessment
 - Interview parents and teachers using *Social Skills Interview* to identify their current levels of social behavior and RI (adapted from Adams, 1998)
 - For an item to be initially identified as the RI, two informants must independently identify that item
 - Direct observation of participant using *Social Skills Screening*
 - Data is taken on the % of 10-s intervals the TC and classroom peers engage in social behavior across 3-5 classroom activities

1. Often times, children with autism have particular objects, items, or topics that they are preoccupied with. We are trying to gather information to see if the child has any interests like this. Does the child frequently and repeatedly engage with a specific object or item (e.g., Disney characters, a certain color), and/or want to discuss a particular topic for long periods of time? If so, please list the object or items and describe the child's behavior with that object, item, or topic.
2. Does the child's interest seem more intense than the interests of other children of the same age? In what way?
3. How often during the day does the child ask about the interest?
4. Does the child limit the amount of time he/she plays with the object or item on his/her own, or do you have to set these limits?
5. How long has the child had this interest?
6. Has the interest been constant over time, or has it waxed and waned?
7. Will s/he allow peers to play with that object or item, or talk with peers about the topic of interest?



Preference Assessment

- Free Operant Preference Assessment (adapted from Roane et al., 1998)
 - Repeated presentation of 7-10 identified tangible items found during descriptive assessment that the child engages or plays with, including the hypothesized RI tangible item
 - Data is taken on the number of seconds the TC physically touches each item
 - For an item to be verified as the RI, the TC must touch it for the longest duration of time during 3 out of 4 (75%) of the experimental sessions



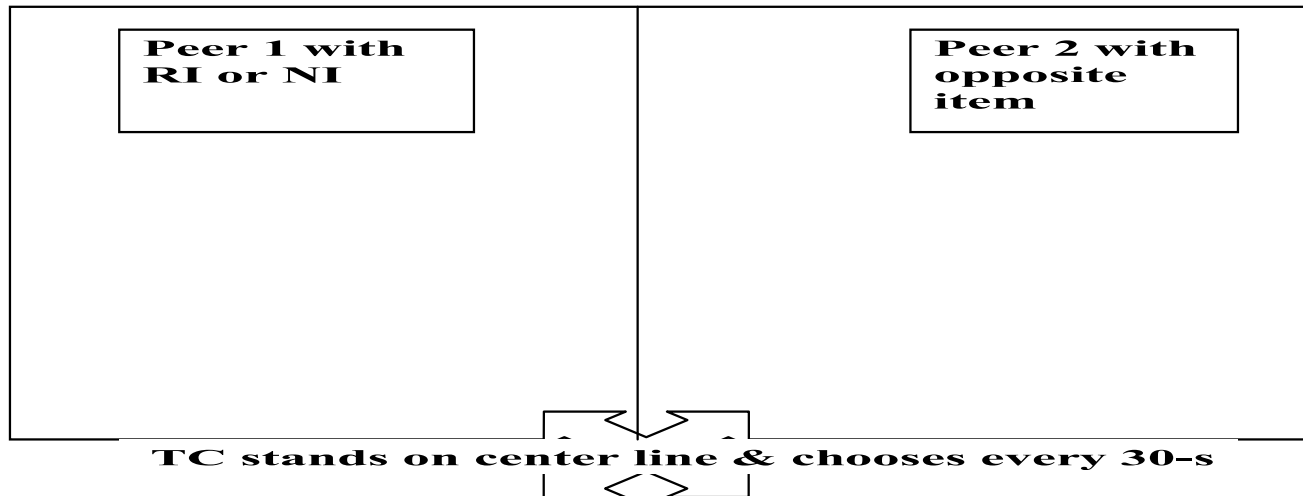
Greg's Results

- Descriptive Assessment
 - Classroom aide and parents independently identified balloons as his RI
- Free Operant Preference Assessment
 - Verified balloons as RI
 - Coloring was identified as the NI

SA Phase:

Experimental Procedures

2. SA phase (Concurrent & Free Operant Conditions). All sessions are 5-min in length
 - Concurrent—purpose is to provide further validation of the identified RI and to provide preliminary evidence of its effects on the display of participant social behavior
 - Procedural control—counterbalance the peer holding the item & the order the choices are given to the TC by the therapist



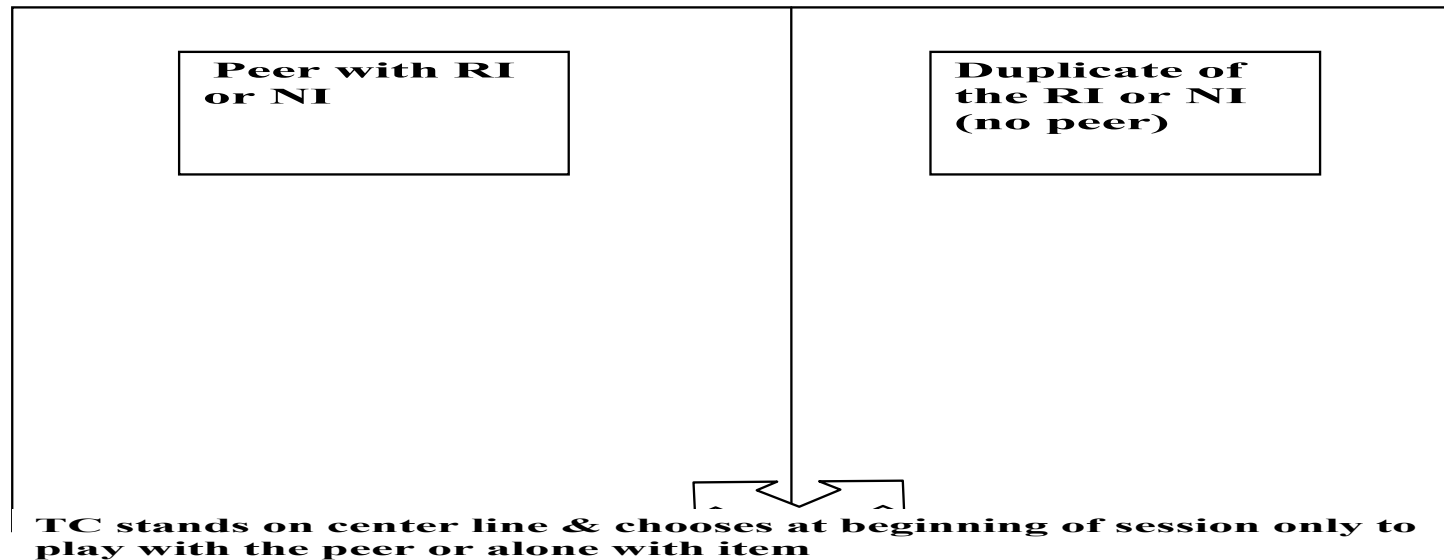


Video Clip of SA Conditions: Concurrent Operant Condition

SA Phase:

Experimental Procedures (cont'd)

- Free operant condition—purpose is to provide a more naturalistic play situation to evaluate the effect of the RI in comparison to the NI
 - Procedural control—randomly alternate the RI vs NI sessions & the order the choices are given to the TC by the therapist





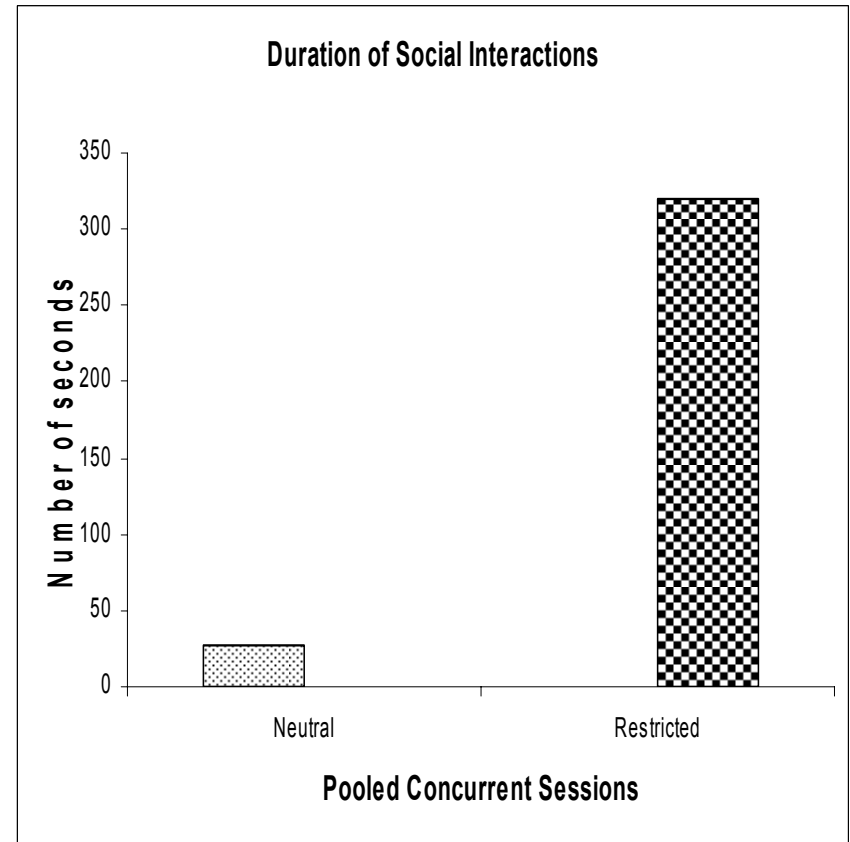
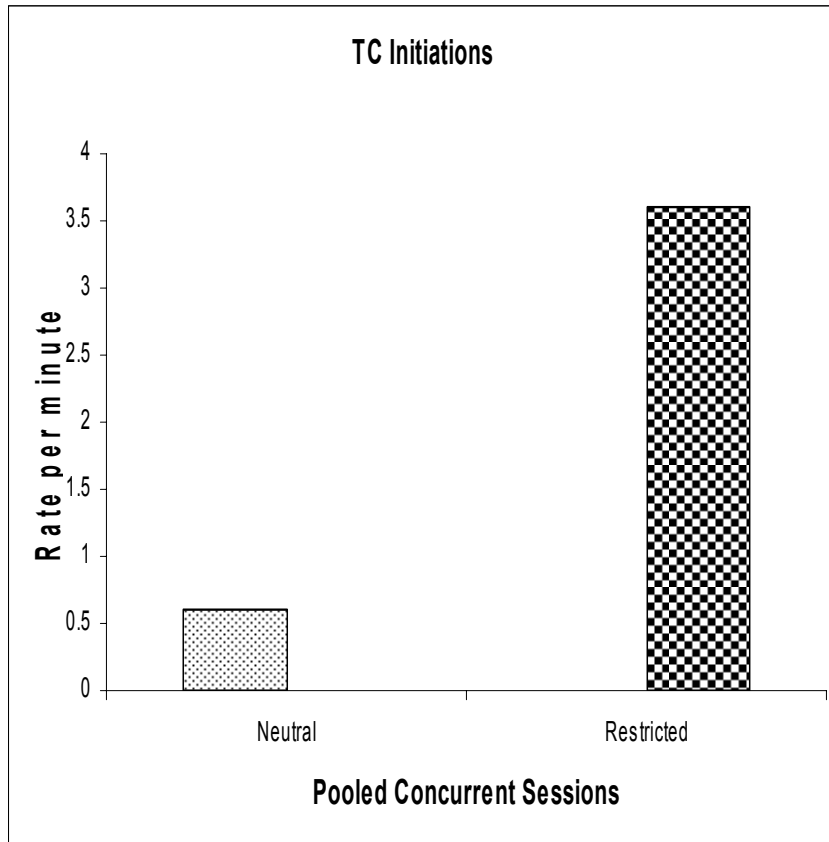
Video Clip of SA Conditions: Free Operant Conditions



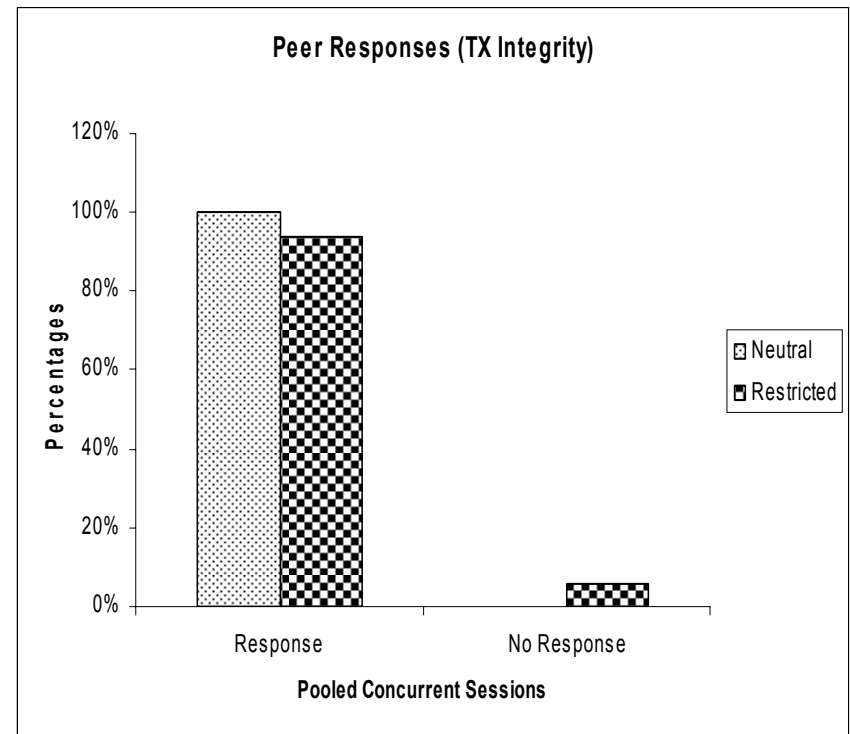
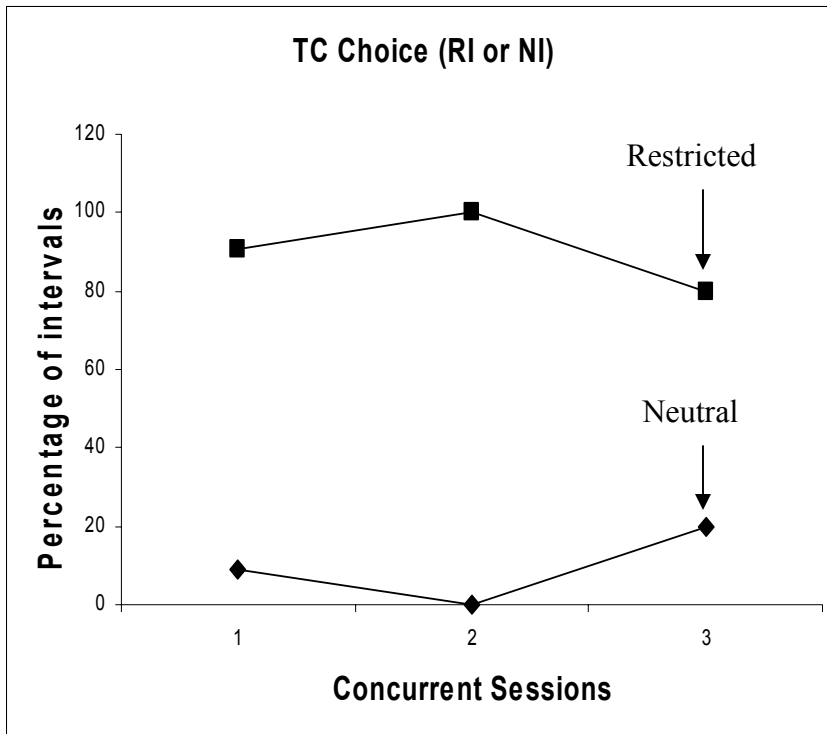
SA: Interobserver Agreement

- IOA
 - Concurrent operant conditions (IOA collected during 67% of experimental sessions)
 - TC initiations—Mean: 91%; Range: 83-100%
 - Duration of social interactions—Mean: 90%; Range 86-95%
 - Free operant conditions (IOA collected during 38% of experimental sessions)
 - TC Initiations—Mean: 100%; Range: 100%
 - Duration of social interactions—96%; Range—86-100%

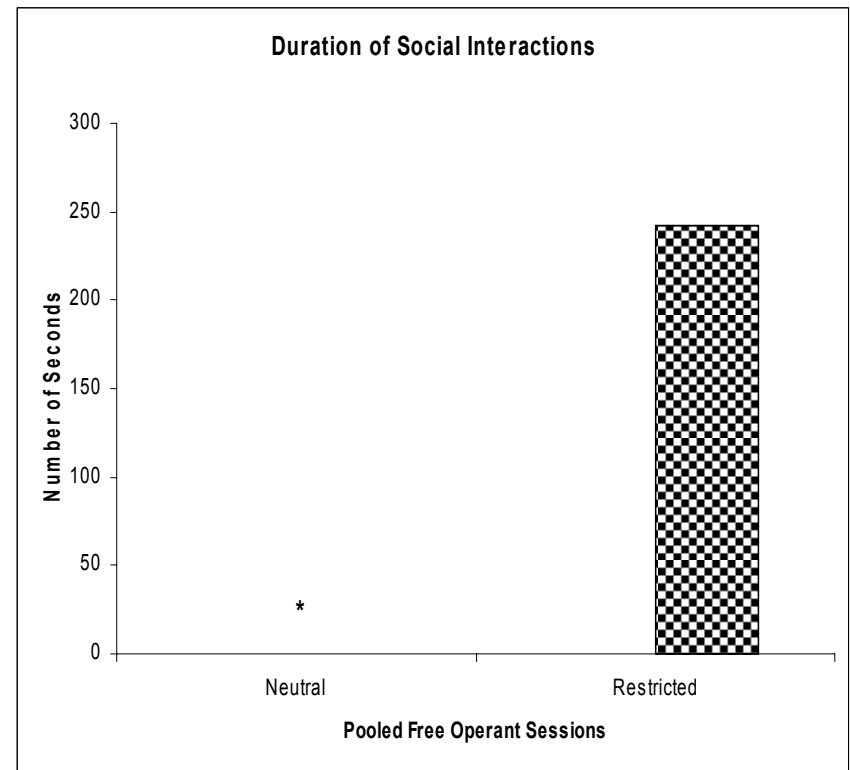
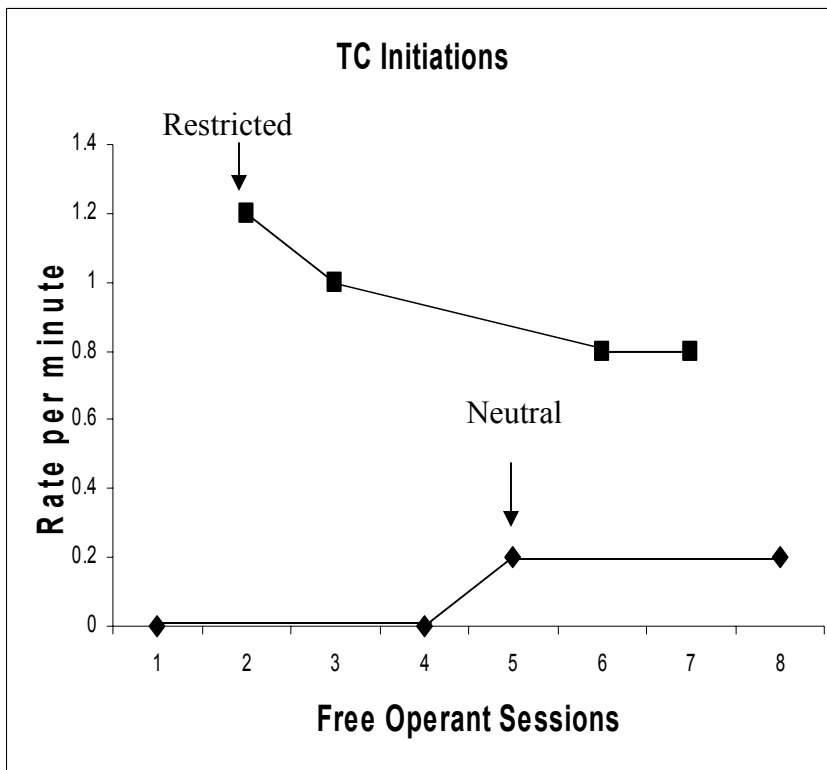
Greg's Concurrent Operant Data



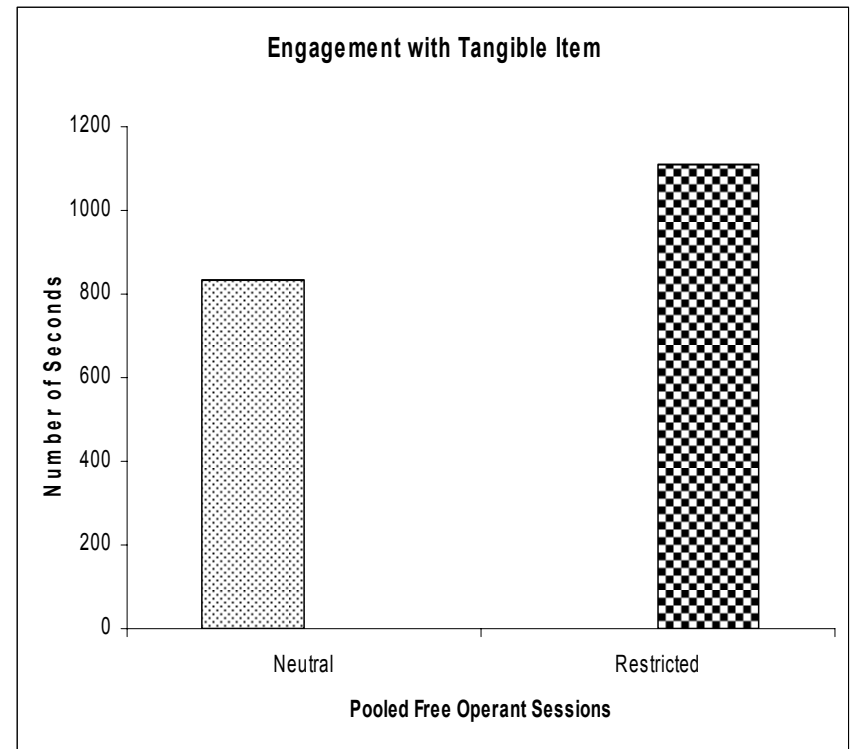
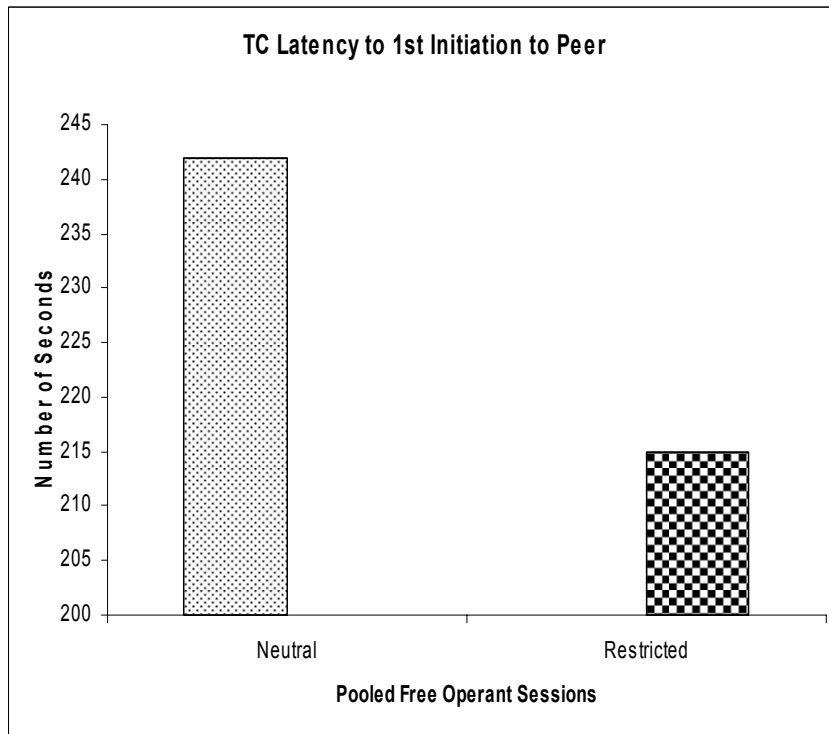
Greg's Concurrent Operant Data (cont'd)



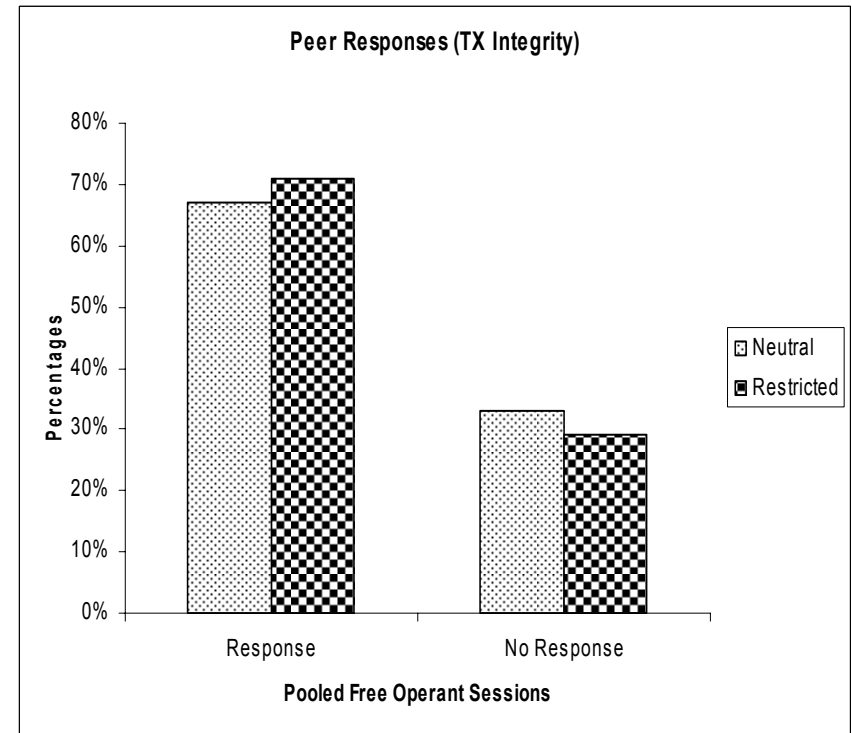
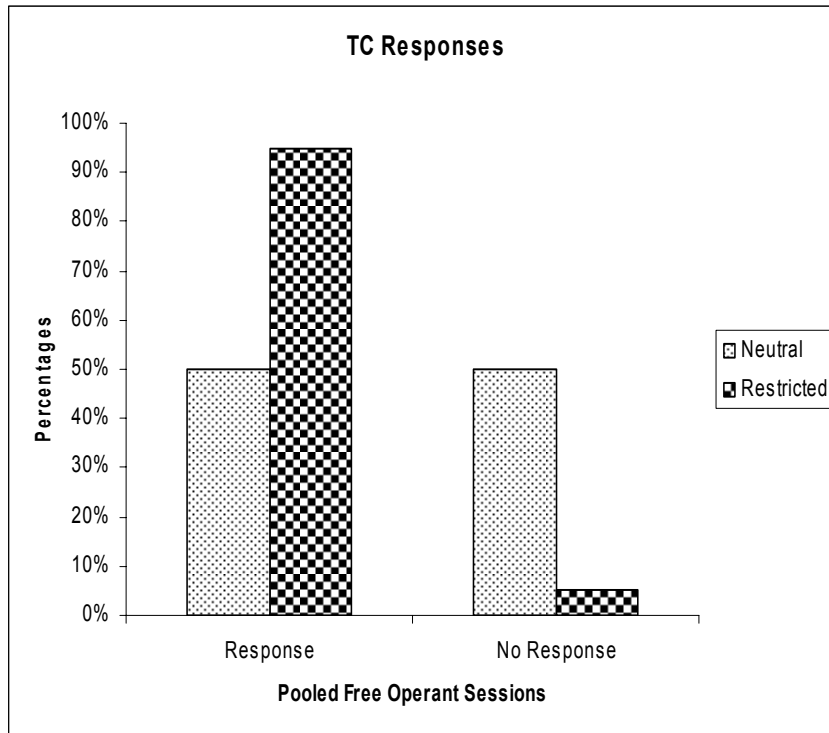
Greg's Free Operant Data



Greg's Free Operant Data (cont'd)



Greg's Free Operant Data (cont'd)





Greg's Social Validity Data

- Teacher reported that the SA phase was mildly disruptive to the classroom routine, but that she would allow another student to participate



Conclusions

- These conclusions are presented with caution since the data is based on 1 participant
 - Greg's restricted interest produced evocative effects on his positive social behaviors with peers
 - No negative social behaviors occurred although Greg demonstrated few negative behaviors prior to the study
 - Greg's restricted interest was able to be verified using a preference assessment
 - Embedding Greg's restricted interest into a play activity did increase his social initiations compared to the use of a neutrally-preferred item



Implications for Teachers

- Restricted interests can be identified and used to increase the social behavior of children with autism
- Previous studies also have demonstrated their effects on the on-task behavior of children with autism (Charlop-Christy & Haymes, 1996; 1998)
- If the restricted interest is developmentally- and age-appropriate, it can be modified and embedded into cooperative play or academic activities
 - Example: Having Greg cut out pictures of balloons to complete an art project with a peer, or using pictures of balloons as manipulatives to add or subtract in a math activity



Implications for Researchers

- A dearth of research on the use of restricted interests to increase the social or academic behaviors of children with ASD
- Even less research on the use of those interests to evoke or reinforce communicative behavior