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Increasing Shared Attention in Children with Developmental Delays

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Increasing Shared Attention in Children with Developmental Delays

Shelby Esman
Western Michigan University
Abstract

Joint attention behaviors may be essential to the development of language and social interaction skills (Whalen and Schreibman, 2003). Children with autism spectrum disorder (ASD) often lack these behaviors which may explain the difficulty many of them have communicating appropriately with others (American Psychiatric Association, 2013). Previous research has shown that prompting procedures and social reinforcement have been successful in teaching children with ASD to shift their eye gaze between an adult and the object of interest when prompted to do so (Taylor and Hoch, 2008). This present study set out to create and test a procedure designed to teach responding to bids for joint attention in a discrete trial classroom designed for children with ASD. Interactive attention and social praise were used to reinforce looking at the target object when the adult pointed to it. Distractor stimuli were gradually increased in the controlled training environment. In the final phases, the trials took place in less controlled areas, in order generalize those skills to other similar environments, much like those in the home. The results of this study will also help improve the classroom curriculum by offering a method of increasing joint attention behaviors in children with ASD which, in turn, will facilitate development in other critical areas such as language and appropriate play with other children.
Increasing Shared Attention in Children with Developmental Delays

Joint attention (JA), also known as manding for attention, is the ability of a person to use "gestures and eye contact to coordinate attention with another person in order to share the experience of an interesting object or event," (Dube, MacDonald, Mansfield, Holcomb, & Ahearn, 2004, p. 197). Deficits in JA behavior are a significant precursor to childhood autism and are pivotal to developmental problems in language, play, and other social repertoires (Whalen and Schreibman, 2003). There are two response classes that make up JA: responding to and independently initiating bids for JA. Children with autism spectrum disorder (ASD) struggle with both of these aspects which hinders their ability to effectively communicate and participate in socially acceptable, age appropriate interactions with others. They sometimes lack the fine motor skills needed to engage in these behaviors (e.g. pointing to initiate a bid for joint attention) or social interaction doesn’t function as a reinforcer for them.

Dube et al. (2004) conducted a contingency analysis of gaze shift in joint attention initiation. This analysis explains how antecedent objects or events become establishing operations, the importance of discriminative functions of stimuli generated by adult behavior, and socially mediated reinforcers that may maintain JA behavior. The interpretation involved the presence of a familiar adult as a motivating operation (MO) for adult-attending stimuli, and emphasized that MO’s effects on the acquisition of JA behaviors in children with ASD. The authors also emphasize that gaze shifting between a toy and an adult in order to achieve JA and to share the experience is a different response class than gaze shifting in order to mand for the object itself, which serves a different function.

Various interventions have sought to increase the rates of JA behaviors being exhibited by children with autism in order to facilitate further social development. Whalen and Schreibman
(2003) used discrete trial training and pivotal response training to target joint attention responding. This study was child oriented, used clear, least-to-most prompting, and involved contingent reinforcement upon correct JA behaviors. The response-reinforcer relationship provided a naturalistic scenario that was more likely to generalize to the children’s natural environment. The intervention resulted in an increase in both responses to and initiations in joint attention.

Jones and Carr (2004) compared the relative effects of adult-centered and child-centered play on rates of JA behaviors in children with ASD. During adult-centered play, the adult performed novel actions on toys the child had previously been playing with and attempted to direct the child’s attention to those objects, rather than the ones they were currently playing with. During child-centered play, the adult imitated the child’s verbalizations, hand/body movements, and toy play. They concluded that manipulating social and play contexts only modestly improves JA, although there were more instances of JA during child-centered play than during adult centered play.

Taylor and Hoch (2008) used prompting procedures and social reinforcement contingencies to teach children with autism to engage in three components of joint attention: gaze shifting between the object and the adult’s eyes, vocally responding to bids for joint attention, and initiating bids for joint attention. The participants were taught to respond to bids for joint attention by looking at the item at which the adult pointed, by making a comment about the item, and by looking back at the adult. After training, all participants looked at the indicated object on 100% of opportunities, and their rate of vocal responding also increased. The results on whether the participant then looked back at the adult were variable.

This study proposed to increase JA behaviors when an adult initiated shared attention (i.e.
making eye contact with objects that the adult references). Interactive attention and praise were used to reinforce that eye contact and other behavioral topographies related to JA. The purpose was to get young children with autism to respond to gestural discriminative stimuli \((S^D)\) by shifting eye gaze to the indicated locations specified by the adult. This appears to be a prerequisite skill before joint attention initiation is a possibility. Increases in joint attention behaviors may lead to collateral gains in social and play development, which impacts everyday life. The ultimate goal is for these children to generalize the skills they acquire in the controlled training setting to the home environment.

**Method**

*Participants*

Participants were initially selected from those students who had mastered the classroom shaping eye contact procedure within the past 2 months. This procedure required the students to engage in regular eye contact with their tutors. Moderate to frequent eye contact was hypothesized to be a prerequisite skill. An exception was made for the second participant chosen because he was new to the classroom and showed potential for success in this study. The participants needed attention to function as a reinforcer for this study to be effective as the goal was to end with socials as the primary reinforcer. A baseline probe session was conducted to test for deficits in JA. Criteria for exclusion from participation in this study were 5 instances of problem behavior within a 10-minute observation and previous exposure to classroom JA procedures. Problem behavior included but was not limited to aggression, flopping to the floor, throwing and/or damaging property, and self-injurious behavior.

The participants selected for this study were two male preschool-aged children diagnosed
with ASD who did not display joint attention skills. Paul was used as the pilot and Quinn was selected for the remainder of the study. The participants were selected from a classroom that implemented discrete trial training (DTT) in a school for children with ASD based on the inclusion criteria stated above. For baseline, the children were probed on RJA to assess their skill level.

Setting/Materials

The study was conducted at Kalamazoo RESA’s West Campus. The sessions took place in three main areas within the participants’ DTT classroom: the booth (i.e., work area), the hallway (i.e., free space that contained larger toys, such as wagons or small bicycles), and the playroom. The booth contained a table and chairs, and all three areas contained toys (or other distractor stimuli), and target items (such as a ball, a stuffed animal, a balloon, etc.).

At least one adult was present during all sessions, although the procedure was typically conducted with two. One adult conducted the trials and one was present to take interobserver agreement (IOA) and treatment integrity data. Materials utilized during the sessions included: procedure data sheets (Appendix A), treatment integrity data sheets (Appendix B), IOA data sheets, a video camera, preferred tangible and social reinforcers, and target items.

Design

A modified A-B design was used to measure the effects of the following procedure on responding to bids for joint attention. Baseline was run during part A and the multiple phases of the procedure were run during part B.

Procedure

Interactive praise and social reinforcement were used to increase the frequency of JA behaviors in children with ASD. Each session lasted approximately five minutes. A reinforcer
was delivered for appropriate responding following the discriminative stimulus. Sessions were run three to five times per week. Data were recorded by the experimenter during each session and by one additional observer during occasional sessions. Interobserver agreement was calculated in 0% of sessions with Paul and in 35% of sessions with Quinn by dividing the number of agreements by the total number of trials. All sessions in which this was calculated obtained 100% in IOA. The criterion for moving to the next phase was two consecutive sessions with eighty percent accuracy or better. Baseline was conducted in the playroom for both participants. Five neutral items were placed around the room and the participants were given an opportunity to respond to bids for JA on each item. This environment contained maximum distractor stimuli, making it as similar as possible to an environment RJA may occur in with a typically developing child.

JA was requested by first establishing eye contact with each participant and then shifting eye gaze to the target object along with saying “look!” and pointing to the object. The following environments were provided according to phase: (1) the procedure was run in the booth, which contained only the procedure materials; (2) the procedure was run in the booth, which contained the procedure materials and several distractor stimuli; (3) the procedure was run in the booth, which contained the procedure materials and considerably more distractor stimuli than in phase 2; (4) the procedure was run in the hallway; and (5) the procedure was run in the playroom. The entire procedure can be seen in Appendix C. Edibles or tangibles were provided contingent on a correct response to increase responding in early phases but were gradually faded out across sessions, leaving only the praise as social reinforcement.

After a few sessions of poor performance with the second participant, Quinn, a set of preliminary phases A-D were created to address his deficits. He completed these phases before
returning to phases one through three. Due to time constraints he was unable to continue after mastering phase 3. Phases A through D were run in the booth and JA was requested in the same way as it was in phases one through five. In these phases, the participants table and chair were moved to the center of the booth wall, instead of remaining in the corner as they were in phases one through five. All distractor stimuli were removed from the booth, including the participants’ other procedure materials and toy bins. The following targets were arranged according to phase: (A) two magnets were placed on the booth wall in front of the participant approximately two feet apart, (B) two magnets were placed on the booth wall in front of the participant approximately three feet apart, (C) four magnets were placed on the booth wall in front of the participant approximately six feet apart in a rectangular formation, (D) four objects were placed against the booth wall in front of the participant approximately six feet apart. The entire procedure can be seen in Appendix D.

Responding to JA was operationally defined as the participant looking at the target object within five seconds of the discriminative stimulus. An incorrect response was coded when the participant made any action other than looking at the target object. Corrections made for incorrect responding involved repeating the S^D up to two additional times. The independent variables were the setting and distractor stimuli present for each phase. For the S^D, the experimenter turned their head, pointed, and then made the vocalization. The dependent variable was the percentage of correct responses to opportunities for RJA per session.

**Results**

The procedure with Paul yielded a significant increase in RJA as a result of using social reinforcement during his scheduled time at West Campus. During baseline, he correctly looked
to the target object 0 out of 5 times, indicating a deficit in this skill. His lack of RJA skills may have slowed his progress in other areas, such as language development and appropriate social interaction with others, which is why this intervention was so important. His progress in the RJA procedure was consistent as it took 4 sessions to master both phase 1 and 2. The two-week long holiday break during phase 2 did not hinder his progress. Phases 3 through 5 were mastered in 6 sessions or less as shown in the graph below. As seen in the graph, responding was moderate during the first session, low during the second session of each phase and quickly increased during the next couple of sessions. His performance remained high during maintenance of the procedure.

Paul met mastery criteria for the joint attention procedure in 19 sessions. Upon mastering the procedure, a generalization probe was conducted and Paul demonstrated RJA with novel tutors. This session was run in the hallway and the tutor pointed at target items that were already present in the environment. Additional observations drawn from the data suggest that distractions apart from those called for by the procedure, such as other children yelling or problem behavior by Paul himself, tended to negatively affect his progress during intervention. These effects appear to have reduced over time, and one notable exception was one session conducted in the playroom during maintenance. The TV was on and cartoons were playing while the procedure was being run but his performance remained high, despite the tremendous distraction. Gains from this intervention included more successful interactions between Paul and fellow students, as well as with his tutors. Frequency of problem behavior, such as crying and hitting, during these interactions has gone down.
The procedure with Quinn also yielded a significant increase in RJA as a result of using social reinforcement during his scheduled time at West Campus. During baseline, he correctly looked to the target object 0 out of 5 times, indicating a deficit in this skill. This lack of RJA skills may have also caused delays in his social interaction and language development. Quinn’s performance during phase one was low across 2 sessions and showed no signs of improving. Therefore, he was probed back to the introductory phases to better control his problem behavior of frequently getting out of his seat and flopping. Having all the target items in front of him allowed the researchers to shape the RJA behavior, removing the need for Quinn to look around the booth and become exposed to possible distractor stimuli. Once this intervention was implemented, Quinn’s performance improved significantly. He began phase A performing at 20% correct and successively improved his performance over the span of the 7 sessions it took.
for him to master the phase. He then performed at 100% correct across phases B through C, quickly mastering the remaining preliminary phases. Due to his high performance in previous phases, he was probed ahead, past phase D, to phase 1. The problem behavior he was initially exhibiting had greatly decreased, therefore, he continued this high performance through phases 1 and 2 when he began the main intervention, mastering them in just 2 sessions each. His performance dipped slightly in phase 3, most likely due to the increase in distractor stimuli, yet still mastered this phase in 2 sessions as shown in the graph below.

Due to time constraints, Quinn was not able to finish phases 4 and 5, yet if given the opportunity, the data suggest his performance would remain high. As he has not mastered the procedure yet, a generalization probe for Quinn has not been conducted with novel tutors but may be done in the future. Observations drawn from the data suggest that distractor stimuli may negatively affect his performance, but skilled implementation of the procedure and fast pacing tended to reduce problem behavior and he showed an increase in RJA. Gains from this intervention for Quinn also included more positive social interactions between him and his tutors. They included less problem behavior, such as flopping, and have had an increase in appropriate play.
Figure 2. Quinn’s frequency of responding to bids for joint attention.

Discussion

The goal of the RJA procedure was attained; Paul acquired the ability to respond to bids for joint attention from adults. He can demonstrate this skill in a variety of settings: the booth, the playroom, and the hallway. Since none of the classroom procedures specifically addressed shared attention skills, it was necessary to intervene with a newly constructed procedure. During the beginning of most phases in this procedure, his performance either dropped and then steadily went up until he mastered the phase or stayed high throughout (see Figure 1). This suggests that the tangibles and social praise were effective reinforcers and significant factor in why these results were obtained.

While Quinn has yet to master the RJA procedure, he has demonstrated the ability to respond to bids for JA from the tutors. He has only performed this skill within the booth, but data
suggests that he will also be able to demonstrate it in the environments that contain more
distractor stimuli, such as the hallway and playroom, and ideally, in the home as well. His
performance has maintained high throughout a majority of the phases, including the preliminary
phases A through D (see Figure 2). This suggests that tangibles and social praise were effective
reinforcers. It also shows that having mastered a previous shaping eye contact classroom
procedure is not necessary in order to have high performance in this intervention, as originally
hypothesized.

There were some limitations to this study, including access to a variety of environments in
which to run the procedure in. Running the procedure outside or in any other area besides what
was available in the classroom setting was not an option. Therefore, testing for generalization
across settings was not an option, given the constraints of the protocols at West Campus.
Another limitation included access to primarily neutral items. Only items that are typically found
inside were able to be used (i.e. objects to request shared attention with, such as cars or planes,
were not available). This also restricted the ability to test for generalization across objects
because a large group of objects were left out. A final limitation included a lack of testing for
generalization to different adults in which requested shared attention with Paul and Quinn. The
procedure was only run within the classroom, so other adults that they may be in contact with on
a daily basis, outside of school, were not included. If these limitations could have been
addressed, the procedure would have been run differently.

There were a couple of confounding variables within this research study, which included
distracting stimuli such as screaming children in the classroom and adults walking back and forth
outside the booth door. These distractors may have negatively affected the participant’s
performance during the procedure, as they would not have been paying attention to the SPD when
it was given. It is possible that this may account for some of the dips in performance shown in Figure 1. To account for this, the original procedure, shown in Appendix C, could have been run only when other children were not yelling nearby. There could have also been a notice given to the other adults in the room telling them not to walk by the participant’s booths when the procedure was being conducted. Despite these confounding variables, Paul still mastered this procedure and Quinn showed great improvement from baseline.

This would be a beneficial procedure to replicate and implement in the classroom curriculum for those students that demonstrate the necessary prerequisite skills. Paul and Quinn’s reassuring performance suggests that acquiring joint attention skills benefits other areas of development as well, such as language and social interaction skills. However, it may be beneficial to alter the procedure in the future to eliminate the confounding variables identified above. Future research should focus on replicating the revised procedure and attempting to generalize it to other settings. It would be a great idea to see if the parents of these children would be willing to run this procedure in their own home, outside of the school setting, to see if those skills will carry over. The ultimate goal is that the children will be able to use these shared attention skills in their everyday life once they are out of school, therefore being able to generalize it to as many settings as possible is very important.
References


### Appendix A

Data Sheet

<table>
<thead>
<tr>
<th>Phase:</th>
<th>Data:</th>
<th>Tutor:</th>
<th>Observer:</th>
<th>Left Wall</th>
<th>Back Wall</th>
<th>Right Wall</th>
<th>Entrance Wall</th>
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<tbody>
<tr>
<td>Trial</td>
<td>Data</td>
<td>EC</td>
<td>PB(+/--)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>R1</td>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>R1</td>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>R1</td>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>R1</td>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>R1</td>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Appendix B

**Treatment Integrity Form**

<table>
<thead>
<tr>
<th>Treatment Integrity</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase:</strong></td>
<td>Tutor:</td>
<td>Tutor:</td>
<td>Tutor:</td>
<td>Tutor:</td>
</tr>
<tr>
<td><strong>Probe?</strong></td>
<td>Observer:</td>
<td>Observer:</td>
<td>Observer:</td>
<td>Observer:</td>
</tr>
</tbody>
</table>

#### Protocol:

- Tutor removed all unnecessary objects from the booth
- Tutor did not start trial while student was exhibiting problem behavior
- Tutor simultaneously said "look" while pointing to the target object to begin each trial
- Tutor shifted eye gaze to the object when saying "look" during each trial
- Tutor waited the full 5 seconds to allow the student to make the correct response before repeating the $\text{Sd}$
- Tutor provided reinforcement for correct responses (social praise)
- Tutor provided a comment about the object after providing social praise for correct responses
- Tutor provided that reinforcement immediately after the student made the correct response
- Tutor repeated the $\text{Sd}$ up to 3 times for incorrect responses
- Tutor gave just a comment about the target object for incorrect responses (no praise)
- Tutor presented ELO’s between trials and before the presentation of a tangible/edible (if
- Tutor used proper protocol to handle any flopping during the session
- Tutor used proper procedure for the giving/taking away of any tangible reinforcers before the trial starts (completing removing during early phases vs. sliding it away from the student in later
- Tutor recorded data at least 3 trials
- Tutor used appropriate pacing throughout the session (fast enough to prevent problem behavior but not to the extent where errors are being made)

| Total: | 0 |
| Percentage: | 0% |
## Appendix C

### Procedure

#### Responding to Bids for Joint Attention

**PROCEDURE SHEET**

<table>
<thead>
<tr>
<th>Notes:</th>
<th>Date Updated: 2-3-17 SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not start a trial if student is exhibiting problem behavior. Tutor may do ELO's to reduce off-task behaviors. Examples of neutral items: ball, scarf, tissue, non-preferred toys, etc. Examples of comments: What a cool ball! What's that scarf doing up there? A red car, etc. Whistleblow criteria: 10 consecutive sessions with no phase change or 3 consecutive sessions below 40%.</td>
<td></td>
</tr>
<tr>
<td>Objective: Establish eye gaze to target object when tutor says &quot;Look!&quot; and points.</td>
<td></td>
</tr>
<tr>
<td>Materials: Reinforcers for which the student is displaying motivation, and neutral items (e.g., scarf)</td>
<td></td>
</tr>
<tr>
<td>Data collection: 5 trials, (+) for correct and (-) for incorrect.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase</th>
<th>Tutor Presentation/Preparation</th>
<th>Correct Response</th>
<th>Incorrect Response</th>
<th>Criteria for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tutor places 5 neutral objects around the booth (e.g. drape a scarf over the top of the booth, place a ball in the corner, clip a piece of paper to the side of the booth wall, etc.). Remove all other items from the booth except for the table and chair, target objects and a moderately preferred reinforcer. Tutor completely removes reinforcer from student. Tutor says, &quot;look&quot; while pointing and shifting eye gaze to target object.</td>
<td>Student shifts eye gaze to target object within 5 seconds and holds it for at least 1 second.</td>
<td>Provide a comment about the object and give social praise.</td>
<td>Student does not shift eye gaze to target object within 5 seconds and/or does not hold it for at least 1 second. Repeat 5th up to two additional times. Provide just a comment on the object if student shifts eye gaze during either of the corrections. 80% or &gt; for 2 consecutive sessions.</td>
</tr>
<tr>
<td>2</td>
<td>Tutor places 5 neutral objects around the booth (e.g. drape a scarf over the top of the booth, place a ball in the corner, clip a piece of paper to the side of the booth wall, etc.). Introduce distractor stimuli by keeping the student's material bin and binder in the booth as well as adding a couple toys on the ground. Remove all other items from the booth except for the table and chair, target objects, distractor stimuli, and a moderately preferred reinforcer. Tutor removes student's access to reinforcer. Tutor says, &quot;look&quot; while pointing and shifting eye gaze to target object.</td>
<td>Same as above.</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
<tr>
<td>3</td>
<td>Tutor places 5 neutral objects around the booth (e.g. drape a scarf over the top of the booth, place a ball in the corner, clip a piece of paper to the side of the booth wall, etc.). Introduce more distractor stimuli by adding even more toys or other items in the booth while still keeping the bin and binder in the booth. Remove all other items from the booth except for the table and chair, target objects, distractor stimuli, and a moderately preferred reinforcer. Tutor removes student's access to reinforcer. Tutor says, &quot;look&quot; while pointing and shifting eye gaze to target object.</td>
<td>Student shifts eye gaze to target object within 5 seconds and holds it for at least 1 second.</td>
<td>Provide a comment about the object and give social praise.</td>
<td>Student does not shift eye gaze to target object within 5 seconds and/or does not hold it for at least 1 second. Repeat 5th up to two additional times. Provide just a comment on the object if student shifts eye gaze during either of the corrections. 80% or &gt; for 2 consecutive sessions.</td>
</tr>
<tr>
<td>4</td>
<td>Tutor places 5 neutral objects around the playroom area (e.g. drape a scarf over a door handle, place a ball in the corner, put a toy in one of the window sills, etc.). Tutor removes student's access to reinforcer and takes the student on a walk around that play area. Tutor says, &quot;look&quot; while pointing and shifting eye gaze to target object. Do not remove any toys/objects from this area (they are the distractor stimuli).</td>
<td>Same as above.</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
<tr>
<td>5</td>
<td>Tutor places 5 neutral objects around the playroom area (e.g. drape a scarf over a door handle, place a ball in the corner, put a toy in one of the window sills, etc.). Tutor removes student's access to reinforcer and takes the student on a walk around that play area. Tutor says, &quot;look&quot; while pointing and shifting eye gaze to target object. Do not remove any toys/objects from the playroom (they are the distractor stimuli).</td>
<td>Same as above.</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>
**Appendix D**

**Preliminary Procedure**

**Responding to Bids for Joint Attention**

**PROCEDURE SHEET**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Tutor Presentation/Preparation</th>
<th>Correct Response</th>
<th>Incorrect Response</th>
<th>Criteria for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Tutor removes all objects from the booth except for the table, chairs, preferred reinforcer, and 2 magnets. Place these magnets on the wall in front of the table, approximately 2 feet apart. Place the table against the middle of the wall if necessary. To start a trial, tutor completely removes reinforcer from student. Tutor says, “look” while pointing and shifting eye gaze to the target object (one of the magnets). Rotate different magnets in place of those already used as a trial to get a total of 5 trials. Each trial should involve pointing at a different magnet. If eribbles are being used, only give eribbles for correct procedure responses now and not for ELO's done after an incorrect RJA trial.</td>
<td>Student shifts eye gaze to target object within 5 seconds and holds it for at least 1 second.</td>
<td>Provide a comment about the object and give social praise. (present tangible reinforcer only if necessary)</td>
<td>Repeat 5 times up to two additional times. Provide just a comment on the object if student shifts eye gaze during either of the corrections.</td>
</tr>
<tr>
<td>6</td>
<td>Tutor removes all objects from the booth except for the table, chairs, preferred reinforcer, and 2 magnets. Place these magnets on the wall in front of the table, approximately 3 feet apart. Place the</td>
<td>Same as above.</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>
### Appendix D (Cont.)

**Preliminary Procedure**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Tutor removes all objects from the booth except for the table, chairs, preferred reinforcer, and 4 magnets. Place these magnets on the wall in front of the table, approximately 6 feet apart from each other (rectangle formation). Place the table against the middle of the wall if necessary. To start a trial, tutor completely removes reinforcer from student. Tutor says, “look” while pointing and shifting eye gaze to the target object (one of the magnets). Rotate different magnets in place of those already used as a trial to get a total of 5 trials. Each trial should involve pointing at a different magnet. If edibles were being used, only give them for every other correct procedure trial. Give a preferred tangible for the other half of correct responses.</td>
<td>Student shifts eye gaze to target object within 5 seconds and holds it for at least 1 second.</td>
<td>Provide a comment about the object, give social praise, and then present the preferred tangible.</td>
</tr>
<tr>
<td>D</td>
<td>Tutor removes all objects from the booth except for the table, chairs, preferred reinforcer, and 4 objects. Place these along the wall in front of the table, approximately 6 feet apart from each other (rectangle formation). Place the table against the middle of the wall if necessary. To start a trial, tutor completely removes reinforcer from student. Tutor says, “look” while pointing and shifting eye gaze to the target object (one of the)</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>