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Teaching a Scanning Response to a Child with Autism

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Abstract

Children with autism have been known to exhibit abnormal scanning responses, or lack them entirely, as shown by the results of various studies (Sasson et al., 2008; Landry & Bryson, 2004). Studies have indicated that scanning may be a behavioral cusp and the lack of a normal scanning response in children with autism may be inhibiting the acquisition of many other subsequent skills (Bosch & Fuqua, 2001). By implementing an intervention to teach the scanning response, it was hypothesized that our participants would develop the prerequisite scanning skill, and therefore performance on a matching-to-sample procedure would improve. Through a basic AB design, the participant in this study was taught the scanning response. Initially, the participant was taught to track a preferred edible across three blank index cards, then a preferred tangible, and next a finger point. Performance of the scanning response was measured by percentage of complete scans prior to making a selection during the Matching-to-sample (MTS) procedure. For comparison, this performance measure was taken prior to the intervention, during, and after the completion of the intervention. Results of the study revealed that our participant developed a scanning response, given that they progressed through Phase 3 of the intervention. During the MTS posttest, the participant achieved a 90% correct response in terms of scanning all the sample cards, and a 10% correct response in terms of accurate MTS performance. It is hypothesized that MTS performance may improve with further teaching, as this was a novel response for the participant, even after the intervention. Future research should look at using a scanning procedure prior to receptive identification procedures. It may also be beneficial to utilize shaping to initially teach the scanning response when using this procedure in the future.

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Children with autism have been known to exhibit abnormal scanning responses, as shown by the results of various studies. Sasson, Turner-Brown, Holtzclaw, Lam, & Bodfish (2008) noted that visual attention of children with autism tends to be more circumscribed, more perseverative and more detail oriented than that of their neurotypical peers. Landry & Bryson (2004) further elaborated on this phenomenon. as the results of their study revealed that when faced with two competing stimuli, children with autism tend to focus heavily on only one of the stimuli, and have issues disengaging from that stimulus.

This abnormal response has been validated by other studies that implicate the instances in which abnormal scanning can occur. Koegel & Wilheim (1973) found that when presented with more than one stimulus, the visual responding of children with autism appears to be controlled by only one of the stimuli. This circumscribed responding is not limited to scanning an array of stimuli, but has also been noticed when a single complex stimulus is presented to children with autism. In such instances, it is common that only one component of the stimulus will control their visual behavior of attending (Lovaas & Schreibman, 1971).

The effects of this atypical scanning response can impact more than viewing a set of objects in its entirety. It may also inhibit the development of other skills. In a study by Vivanti, Tremath, & Dissanyak (2014), it was found that when watching a model, children with autism tend to look more at the model's actions than at the model's face when compared to their typically developing peers, and children with similar impairments. This atypical scanning of the model is believed to be a predictor of whether or not the child will properly imitate the model. The results of this study indicate that scanning may be a prerequisite skill to developing other important responses, such as imitation. (Vivanti et al., 2014). Given that the acquisition of a

scanning response may be a requirement to developing subsequent skills, it may be considered a behavioral cusp (Bosch & Fuqua, 2001).

Classification of a skill as a behavior cusp indicates that it provides one of the following; access to new reinforcers, contingencies and environments, social validity, generativeness, competition with inappropriate behaviors, or effects a number of individuals in an important way. Given that acquiring the scanning response may be a prerequisite to developing imitation, it meets the classification of a behavioral cusp, as it leads to generativeness (Bosch & Fuqua, 2001). Bosch & Fuqua (2001) explained that if a behavior meets qualification as a behavioral cusp, it should be prioritized as a target behavior. This may imply that that the acquisition of a scanning response should be a priority.

In our classroom, a special education classroom specifically for children with autism, many of our students are displaying atypical scanning responses similar to those mentioned in the previous studies. Specifically with the children in our classroom, we hypothesized that the lack of a well-developed scanning skill may inhibit the acquisition of matching-to-sample (MTS) skills.

The current study aimed to teach the scanning response. We hypothesize that our participants would develop the prerequisite scanning skill, and therefore performance on a matching-to-sample procedure may improve. We taught the scanning response by presenting the participant with three blank index cards. Initially, the participant will be taught to track a preferred edible across the cards, then a preferred tangible, next a finger point, and eventually independently scanning the cards when the discriminative stimulus “look” is delivered.. Performance will be measured by whether or not the participants make a scanning response prior to making a selection during the MTS procedure. For comparison, this performance measure will

be taken prior to the intervention, during, and after the completion of the intervention.

Methods

Participants/ Selection Criteria

The participant involved in this study was a child, age 4, who was diagnosed with autism spectrum disorder (ASD). For the sake of anonymity, throughout our writing he was referred to as Joseph.

The participant was selected given he met the criteria for inclusion, which included, lacking a scanning response during a matching-to-sample (MTS) procedure, lacking mastery of the MTS procedure, yet still exhibiting a scanning response during other procedures, such as match objects. These criteria for inclusion were chosen given that our intervention trained the scanning response of the participant, and measured the success of that training according to performance on the MTS procedure. Therefore, we did not want to recruit participants who had already mastered the MTS procedure, or were already exhibiting a proper scanning response on the MTS procedure, as that would affect our intervention.

Many attempts had been made to teach Joseph the matching-to-sample procedure prior to implementing this intervention. These attempts included using preferred pictures of characters in place of the traditional matching cards, which included character's from Joseph's favorite movies, as indicated by his mother, and also images of realistic animals, which had previously been shown to be preferred by Joseph. Additionally, most-to-least prompting was utilized to facilitate errorless learning. None of these attempts proved successful.

Design

A simple AB design was used to assess the effectiveness of our intervention. This design was used given the nature of the skill being taught. Once the skill was acquired, there was no

way to return to baseline. Therefore, the performance was only measured prior to baseline, and after training was completed.

Setting/ Materials

Intervention took place within a Early Childhood Special Education (ECSE) classroom of Kalamazoo Regional Educational Service Agency (KRESA). All sessions were run within a small cubicle within the classroom. The cubicle contained two chairs and a table, where the student sat across from the researcher. All other items, including reinforcers and materials for other procedures, were removed prior to starting sessions to keep distractions to a minimum. The materials used for the sessions included a set of matching-to-sample cards belonging to the classroom, 3 light blue index cards cut to the same size and shape as the matching-to-sample cards, along with various edibles, and tangibles. The edibles used included sour skittles, gummy sweet tarts, and jalapeño pringles, cookies, and muffins, but these depended on day to day preference. The tangibles used included plastic dinosaurs or sea creatures, and a book of realistic animals, but these also varied given preference. Additionally, data sheets (see Appendix A and B), treatment integrity sheets (see Appendices C-G), and a camera to record sessions, were used for data collection purposes.

Procedure

Trials for this study were run, on average, three times per week. Treatment integrity and Interobserver agreement (IOA) were assessed for 30% of these trials. A treatment integrity form was created for each phase of the intervention. Treatment integrity was assessed by an independent observer, according to how well the researcher adhered to the guidelines outlined on the treatment integrity form during intervention. The number of instances of correct treatment was divided by the total number of instances of correct and incorrect instances. For reference,

please see the treatment integrity forms located in Appendices C-G. For IOA, an independent observer collected data, while the researcher was running the session. IOA was then calculated by comparing the data using the formula below;

((total agreement/ (total agreement + total disagreement)) X 100

The dependent variable of this intervention was performance on a matching-to-sample procedure. Performance was measured prior to intervention with a pretest, during intervention with a probe, and after the intervention with a post test. The independent variable for the intervention was the implementation of the scanning procedure, which was broken down into 4 phases. All four phases shared similar structure, but each had a slight difference in the prompt level. In each phase, there were 3 light blue index cards, placed three inches apart, on a table in front of the participant. The discriminative stimulus (S^D) 'look,' along with a different prompt for each phase was used to draw the participant's attention to the cards, and teach the scanning behavior across the three cards. If the participant correctly scanned the cards, their behavior was reinforced with the receipt of the preferred reinforcer. If the participant did not scan correctly, the S^D, the prompt and ensuing error correction was delivered two additional times, and the tutor ended with the neutral verbal response 'good.' A previously acquired demand was then given, and if done correctly, the participant received social praise along with a preferred tangible. Ten trials were run in each session. In order to progress to the next phase, the participant had to perform 3 procedures at 80% accuracy or above. The distinguishing characteristics of each phase are outlined below.

Phase 1.

In phase 1, we ran an edible preference assessment to begin. Based on the participant's preference, we moved that stimulus across the cards after the S^D 'look'. If the child scanned

across all 3 cards, he received the edible as reinforcement, as well as a preferred tangible. In the event that the child performed incorrectly, wherein he displayed an incomplete scan, or no scan at all, we ran the following error correction protocol, where two additional attempts were given for him to perform the trial correctly. Regardless of whether the child performed a complete and correct scan on the additional trial, a neutral "good" was given, along with a demand that the child could easily perform correctly, such as "do this" (tapping on the table). Once he correctly completed an easy demand, he was given social reinforcement in the form of praise, along with tangibles, after which additional trials were run.

Phase 2.

In phase 2, a tangible preference assessment was run at the beginning of the procedure, and throughout, in case of motivational changes. The S^D 'look' was given, and the preferred tangible was then moved across the cards. If the child scanned across all 3 cards, he could play with the tangible for 10 seconds, and consume a preferred edible. If the child performed incorrectly, we followed the same error correction procedure outlined in phase 1.

Phase 3.

In phase 3, a preference assessment was run. This assessment included both tangibles and edibles. The S^D 'look' was delivered, and the tutor used their index finger to point across the cards. If the child scanned across all 3 cards, he could have access to his preferred reinforcer. The error correction procedure described above was used in the event that the child performed incorrectly.

Phase 4.

Phase 4 included three sub-phases. As in all previous phases, a preference assessment was run with both tangibles and edibles for each sub-phase, and error correction, as described

previously, was run in the event of an incorrect response. To begin, in phase 4, only the S^D 'look' was delivered. If the child scanned across all 3 cards, they were given access to their preferred reinforcer. In sub-phase 4A, the S^D 'look' was delivered while the tutor used their index finger to point at the first card. If the child scanned all 3 cards, he could have access to his preferred reinforcer. In sub-phase 4B, the S^D 'look' was delivered while the tutor moved their index finger across left and center card. As in sub-phase 4A, the trial was only considered correct if the child scanned across all three cards.

Once the participant progressed through all phases, the effect of the scanning procedure was measured. The effectiveness of the intervention was assessed according to its effect on the dependent variable, performance on the MTS procedure. As mentioned in the previous section, performance was assessed prior to the invention, during, and again after the completion of the invention.

Data Collection

Data was collect trial-by-trial. Intervention data was collected using a data sheet that indicated the date of the session, the criteria for a correct response, and the type of prompting utilized. There were spaces to include whether each trial was correct or incorrect, the direction of the scanning, and also what cards, if any, were scanned in the event that the trial was incorrect, along with a space to record the percentage of total correct performance for the session (Appendix A). A similar data sheet was utilized to record MTS performance. It was the same as the data sheet for the intervention data, except that it included a column to record correct MTS performance, in addition to scanning performance (Appendix B).

Results

By implementing an intervention to teach the scanning response, we hypothesized that our participant, Joseph, would develop the scanning skill, and therefore his performance on a

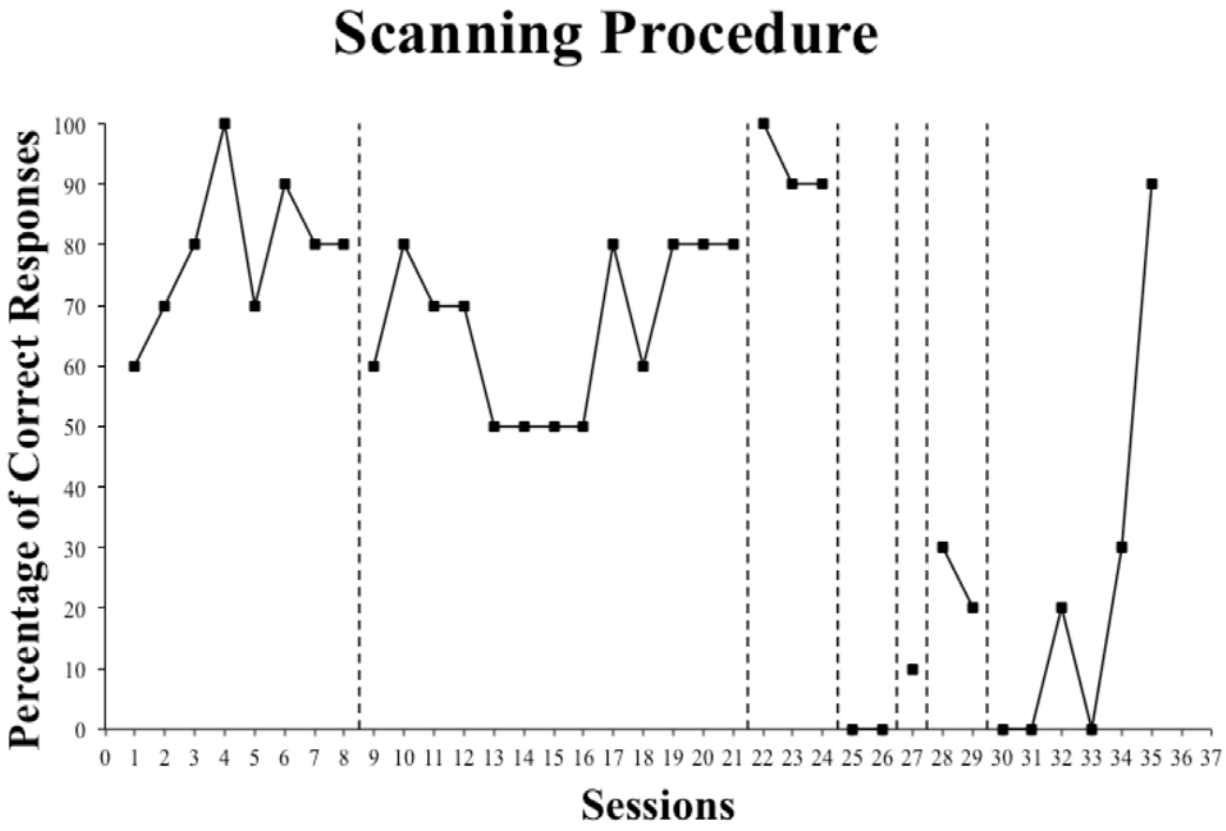
matching-to-sample procedure would improve. Our intervention was relevant and important, given that the scanning skill may be considered a behavioral cusp. Designation as such means that it is a prerequisite or a building block for more advanced skills. In this case, scanning is believed to be a behavioral cusp for the MTS procedure.

Prior to intervention, Joseph lacked the scanning response during an MTS procedure; however, he did display a scanning response during other procedures, including a match objects procedure. Mastery of the scanning response during the MTS procedure was important, given that if successful, it could allow the participant to acquire more advanced skills.

The graph below shows Joseph's performance on each trial of the intervention. Joseph progressed through phase one within eight sessions. As indicated in the graph, he progressed steadily within the first four sessions of phase one, but his performance tapered off slightly on the fifth session; however, during the sixth, seventh, and eighth sessions his performance improved and he met phase change criteria. During phase two, his performance started out at the same percentage as in phase one. Similarly to phase one, his performance increased steadily. For phase three, Joseph met criteria quickly, within just three sessions. Phase four, was attempted as it was originally intended, but performance was low, at 0% for the first two sessions. Adjustments were made, and a sub phase, 4A, was attempted, wherein he was still required to look at all three cards, but a finger point prompt at the first card was given, however; performance was also low, at only 10% accuracy during this sub phase. Further adjustments were made, and an additional sub phase, 4B, was run wherein the participant was still required to scan across all three cards, but a finger point across two cards was used. Performance remained low on sub phase 4B.

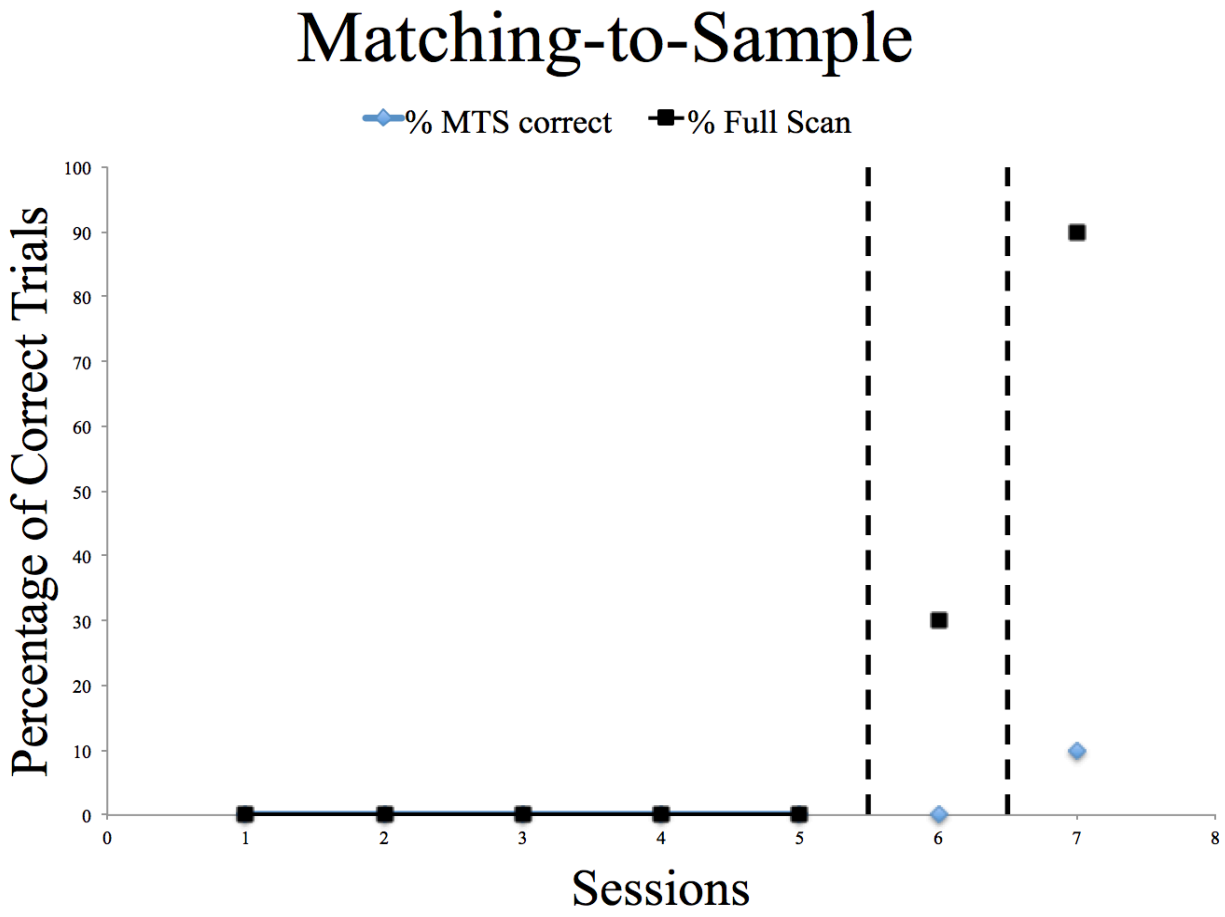
Due to his low performance on phase 4, and ensuing sub phases, Joseph's Support

Coordinator agreed that, given his steady performance on phase 3, the finger point prompt would still facilitate a functional response for Joseph. Given the Support Coordinator's approval, within session prompting was then implemented to reestablish Joseph's scanning response with the finger point prompt. Within session prompting entailed that Joseph would begin back with the edible prompt. If two trials in a row were performed accurately, then the prompt level would be a less intrusive tangible. If two trials in a row were performed accurately with a tangible, then the prompt would become even less intrusive, with just a finger point. If two trials were preformed incorrectly then the next most intrusive prompt would be used. Performance was low for the first four sessions, but increased steadily during the last two sessions. Due to time constraints, the phase was not mastered, but Joseph did end with a 90% accuracy during the last session run.



The dependent variable of the intervention was performance on the MTS procedure. The

graph below shows both Joseph's pretest, probe, and posttest performance on the MTS procedure. On the right, is his pretest performance. Five pretest sessions of ten trials each were completed, during which Joseph performed incorrectly on all trials. He exhibited a scanning response on only one baseline trial, of the fifty completed. Toward the middle of the graph is a probe that was run during phase 2 of the intervention, during which his matching-to-sample accuracy remained at 0%, but scanning had increased to 30% accuracy for the ten trials completed. On the left is his post intervention performance, which shows a slight increase in matching-to-sample accuracy, at 10%, along with an increase in scanning at 90% of the ten trials completed.



Discussion

The hypothesis was correct, given that the participant, Joseph, mastered phases 1, 2, and, 3, indicating that he had likely acquired the scanning response. As previously mentioned, performance on the MTS procedure did improve, but only slightly, as indicated by his posttest performance. This slight improvement, as opposed to a larger improvement, was likely obtained due to the fact that the behavior of correctly matching during the MTS procedure was a novel response for Joseph during the posttest. It is hypothesized that if given more time to learn the MTS response, performance may have improved further.

As previously mentioned, Joseph progressed steadily within the first four sessions of phase one, but his performance tapered off slightly on the fifth session. This decrease in performance may be attributed to illness, as Joseph's scores on other procedures were also low for that day. Additionally, during phase two, his performance started out at the same percentage as in phase one. Although this was the start of a new phase, this initial low performance rate may be attributed to a three week break from the intervention.

As indicated in the Results section, various alterations were made to the original intervention to maximize participant performance. These alterations included various sub phases, as well as changing the requirements of the final phase of the intervention to allow for a finger point prompt.

Determining what Joseph was motivated to learn for was often challenging. To address this, more frequent and different types of preference assessments could have been completed, especially during Phase 2, where his performance was quite variable. Toward mastery of Phase 2, an Ipad was used to reinforce correct scanning behaviors. It seemed that Joseph was particularly motivated to learn for opportunities to watch videos on the device. Using the Ipad as a reinforcer earlier on may have expedited Joseph's progress. Additionally, in order to minimize

distractions for Joseph, the table and chairs were moved to the center of the intervention area during Phase 2. This slight change in environment could have been implemented in Phase 1, which may have aided in more timely progress. Further, as was indicated earlier, only one probe session was run between the pre and posttests, it may have been valuable to have run a probe session during each phase of the intervention. It is possible that additional exposure to the MTS procedure may have led to higher posttest performance.

In addition to having made these procedural changes early on, some potential limitations have been identified. For instance, throughout the intervention, Joseph's language improved. This may have been due to a manding procedure that was also being implemented. He began exhibiting more echoics, especially those heard during the intervention. For instance, during each trial, the tutor would say "look," which by phase two, Joseph was echoing nearly every trial. This may be indicative of poor stimulus control, as the S^D "look" was not evoking the scanning response intended. An additional limitation can be attributed to time constraints. As mentioned earlier, only one posttest session was able to be run. It is possible that due to the novelty of the MTS response, additional training may have been required in order for Joseph to have mastered the response.

This research provides value to the field and to classroom curriculum. Given that this research provides evidence that a scanning response can be taught, more educators may implement this procedure in their teaching for those children that are struggling to acquire the scanning skill, or lack the skill entirely. Additionally, this research provides curriculum on how to produce correct scanning behavior (Appendix H). Finally, the research provides evidence that developing a scanning response in the manner prescribed, may lead to improvements on MTS procedures.

Additional research could be done to determine if these results are transferrable to more participants. It could also be valuable to complete similar research with other populations, including those with deficits beyond autism, such as those with other developmental disabilities, and also those with brain injuries. Additional research could also target those of older age groups. When implementing this intervention to other participants with autism, as well as with other populations, it may be wise to individualize the procedure for each participant. Further, researcher could seek to determine whether this intervention could be valuable prior to implementing other procedures that require scanning, such as receptive identification.

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Appendices

Appendix A: Scanning Data sheet

Date: ______________________________
Initials: ______________________________
Criteria: ______________________________
Prompt Used: ______________________________

Trial	(+/-)	Direction	Scanning if negative
1		L-R R-L	L C R
2		L-R R-L	L C R
3		L-R R-L	L C R
4		L-R R-L	L C R
5		L-R R-L	L C R
6		L-R R-L	L C R
7		L-R R-L	L C R
8		L-R R-L	L C R
9		L-R R-L	L C R
10		L-R R-L	L C R
Total % correct			
Notes:			

Date: ______________________________
Initials: ______________________________
Criteria: ______________________________
Prompt Used: ______________________________

Trial	(+/-)	Direction	Scanning if negative
1		L-R R-L	L C R
2		L-R R-L	L C R
3		L-R R-L	L C R
4		L-R R-L	L C R
5		L-R R-L	L C R
6		L-R R-L	L C R
7		L-R R-L	L C R
8		L-R R-L	L C R
9		L-R R-L	L C R
10		L-R R-L	L C R
Total % correct			
Notes:			

Date: ______________________________
Initials: ______________________________
Criteria: ______________________________
Prompt Used: ______________________________

Trial	(+/-)	Direction	Scanning if negative
1		L-R R-L	L C R
2		L-R R-L	L C R
3		L-R R-L	L C R
4		L-R R-L	L C R
5		L-R R-L	L C R
6		L-R R-L	L C R
7		L-R R-L	L C R
8		L-R R-L	L C R
9		L-R R-L	L C R
10		L-R R-L	L C R
Total % correct			
Notes:			

Date: ______________________________
Initials: ______________________________
Criteria: ______________________________
Prompt Used: ______________________________

Trial	(+/-)	Direction	Scanning if negative
1		L-R R-L	L C R
2		L-R R-L	L C R
3		L-R R-L	L C R
4		L-R R-L	L C R
5		L-R R-L	L C R
6		L-R R-L	L C R
7		L-R R-L	L C R
8		L-R R-L	L C R
9		L-R R-L	L C R
10		L-R R-L	L C R
Total % correct			
Notes:			

Appendix B: MTS Data Sheet

Date: ____________				
Initials: ____________				
Criteria: ____________				
Prompt Used: ____________				
Trial	MTS (+/-)	Scanning (+/-)	Direction	Scanning if negative
1			L-R R-L	L C R
2			L-R R-L	L C R
3			L-R R-L	L C R
4			L-R R-L	L C R
5			L-R R-L	L C R
6			L-R R-L	L C R
7			L-R R-L	L C R
8			L-R R-L	L C R
9			L-R R-L	L C R
10			L-R R-L	L C R
Total % correct				
Notes:				

Date: ____________				
Initials: ____________				
Criteria: ____________				
Prompt Used: ____________				
Trial	MTS (+/-)	Scanning (+/-)	Direction	Scanning if negative
1			L-R R-L	L C R
2			L-R R-L	L C R
3			L-R R-L	L C R
4			L-R R-L	L C R
5			L-R R-L	L C R
6			L-R R-L	L C R
7			L-R R-L	L C R
8			L-R R-L	L C R
9			L-R R-L	L C R
10			L-R R-L	L C R
Total % correct				
Notes:				

Date: ____________				
Initials: ____________				
Criteria: ____________				
Prompt Used: ____________				
Trial	MTS (+/-)	Scanning (+/-)	Direction	Scanning if negative
1			L-R R-L	L C R
2			L-R R-L	L C R
3			L-R R-L	L C R
4			L-R R-L	L C R
5			L-R R-L	L C R
6			L-R R-L	L C R
7			L-R R-L	L C R
8			L-R R-L	L C R
9			L-R R-L	L C R
10			L-R R-L	L C R
Total % correct				
Notes:				

Date: ____________				
Initials: ____________				
Criteria: ____________				
Prompt Used: ____________				
Trial	MTS (+/-)	Scanning (+/-)	Direction	Scanning if negative
1			L-R R-L	L C R
2			L-R R-L	L C R
3			L-R R-L	L C R
4			L-R R-L	L C R
5			L-R R-L	L C R
6			L-R R-L	L C R
7			L-R R-L	L C R
8			L-R R-L	L C R
9			L-R R-L	L C R
10			L-R R-L	L C R
Total % correct				
Notes:				

Appendix C: Treatment Integrity Form (Phase 1)

Task Analysis:
Scanning Procedure Phase 1 (Edible Phase)

Participant: _____ Date: _____

Researcher: _____Observer: _____

STEP	Correctly or Incorrectly implemented (+ or -)
1. Researcher lays out three blank index cards on the table in front of the participant. The cards should be placed so that there is an approximate distance of _____ between each card.	
2. Researcher performs an edible preference assessment with the participant.	
3. Researcher ensures that the participant is attending prior to delivering the S^D	
4. Researcher uses preferred edible to entice the participant to scan across the index cards.	
5. Researcher watches for participant scanning (eye movement across the index cards, tracking the edible).	
6. Researcher delivers immediate reinforcement for correct response of participant (edible), or a neutral good for an incorrect response.	
7. If an incorrect response is performed, the researcher goes through the prompt hierarchy, ends the trial with a neutral 'good,' and performs an ELO with the participant, and delivers social praise.	

Percentage Score _____

Appendix D: Treatment Integrity Form (Phase 2)

Treatment Integrity Task Analysis:
Scanning Procedure Phase 2 (Tangible Phase)

Participant: _____ Date: _____

Researcher: _____Observer: _____

STEP	Correctly or Incorrectly implemented (+ or -)
1. Researcher lays out three blank index cards on the table in front of the participant. The cards should be placed so that there is an approximate distance of 3 inches between each card.	
2. Researcher performs a tangible preference assessment with the participant.	
3. Researcher ensures that the participant is attending prior to delivering the S^D of trailing the tangible across the cards.	
4. Researcher moves preferred tangilbe from left to right, or right to left across the index cards (making sure to rotate between both directions during session).	
5. Researcher watches for participant scanning (eye movement across the index cards, tracking the edible).	
6. Researcher delivers immediate reinforcement for correct response of participant (edible), or a neutral good for an incorrect response.	
7. If an incorrect response is performed, the researcher goes through the prompt hierarchy, ends the trial with a neutral 'good,' and performs an ELO with the participant, and delivers social praise.	

Percentage Score _____

Appendix E: Treatment Integrity Form (Phase 3)

Treatment Integrity Task Analysis:
Scanning Procedure Phase 3 (Finger Point)

Participant: _____ Date: _____

Researcher: _____Observer: _____

STEP	Correctly or Incorrectly implemented (+ or -)
1. Researcher lays out three blank index cards on the table in front of the participant. The cards should be placed so that there is an approximate distance of 3 inches between each card.	
2. Researcher ensures that the participant is attending prior to delivering the S^D of pointing their finger across the cards.	
3. Researcher moves their pointed finger from left to right, or right to left across the index cards (making sure to rotate between both directions during session).	
4. Researcher watches for participant scanning (eye movement across the index cards, tracking the edible).	
5. Researcher delivers immediate reinforcement for correct response of participant (edible), or a neutral good for an incorrect response.	
6. If an incorrect response is performed, the researcher goes through the prompt hierarchy, ends the trial with a neutral 'good,' and performs an ELO with the participant, and delivers social praise.	

Percentage Score _____

Appendix F: Treatment Integrity Form (Phase 4)

Treatment Integrity Task Analysis:
Scanning Procedure Phase 4 (Look)

Participant: _____ Date: _____

Researcher: _____Observer: _____

STEP	Correctly or Incorrectly implemented (+ or -)
1. Researcher lays out three blank index cards on the table in front of the participant. The cards should be placed so that there is an approximate distance of 3 inches between each card.	
2. Researcher ensures that the participant is attending prior to delivering the S^D of 'look.'	
3. Researcher watches for participant scanning (eye movement across the index cards, tracking the edible).	
4. Researcher delivers immediate reinforcement for correct response of participant (edible), or a neutral good for an incorrect response.	
5. If an incorrect response is performed, the researcher goes through the prompt hierarchy, ends the trial with a neutral 'good,' and performs an ELO with the participant, and delivers social praise.	

Percentage Score _____

Appendix G: Treatment Integrity Form (Within Session Prompt Fading)

Treatment Integrity Task Analysis:
Scanning Procedure Within Session Prompt Fading

Participant: _____ Date: _____

Researcher: _____Observer: _____

STEP	Correctly or Incorrectly implemented (+ or -)
1. Researcher lays out three blank index cards on the table in front of the participant. The cards should be placed so that there is an approximate distance of 3 inches between each card.	
2. Researcher ensures that the participant is attending prior to delivering the prompt ** Prompt level begins with edible, and progress down to a tangible, and then only a finger point. The prompting used is dependent upon the participant's previous performance. For instance, if the participant performs incorrectly on two trials with a finger point, they will move back to a tangible prompt. Further if the participant performs correctly on two trials with an edible, then the will move down a prompt level to only a tangible, and so on and so forth. **	
3. Researcher moves the edible/ tangible/ their pointed finger from left to right, or right to left across the index cards (making sure to rotate between both directions during session).	
4. Researcher watches for participant scanning (eye movement across the index cards, tracking the edible).	
5. Researcher delivers immediate reinforcement for correct response of participant (edible), or a neutral good for an incorrect response.	
6. If an incorrect response is performed, the researcher goes through the prompt hierarchy, ends the trial with a neutral 'good,' and performs an ELO with the participant, and delivers social praise.	

Percentage Score _____

Appendix H: Scanning Procedure

Scanning Procedure– Attending

PROCEDURE SHEET

Pupil:		**Teacher:**	DM/MN
		Procedure Writer:	AL
		Date Written:	4/11/17
IEPC Goal:			
Objective:	**For the child to scan cards on desk.**		
Materials:	**3 Blank Blue Index cards the same size as the Matching Procedure Cards**		
Reinforcer:	**See reinforcer list**		
Data collection:	**10 trials (+) for correct and (-) for incorrect** **For incorrect trials: Circle the locations (Left, Center or Right) which the child scanned**		

Phase	Tutor Presentation/Preparation	Correct Response		Incorrect Response		Criteria for Change
		Pupil Behavior	Tutor Behavior	Pupil Behavior	Tutor Behavior	
1	The tutor places all 3 cards on desk in a straight line. Tutor conducts edible preference assessment. Tutor hold edible above left card, wait for child to look for 1 second. Provide SD "Look", and move edible across center then right card.	Student scans across all 3 cards.	Provide edible child scanned across cards, social praise and tangible.	Student does not scan all 3 cards or scans all 3 cards but looks up/away during scan.	Tutor moves edible across all 3 cards up to 2 times.	80% or > for 3 consecutive sessions.
2	The tutor places all 3 cards on desk in a straight line**. Tutor conducts tangible preference assessment**. Tutor **hold tangible above left card,** wait for child to look for 1 second. Provide SD "Look", and **move tangible** across center then right card.	Student scans across all 3 cards.	**Provide tangible child scanned across cards,** social praise and/or edible.	Student does not scan all 3 cards or scans all 3 cards but looks up/away during scan.	**Tutor moves tangible** across all 3 cards up to 2 times.	80% or > for 3 consecutive sessions.
3	The tutor places all 3 cards on desk in a straight line**.** Tutor **holds pointer finger above left card,** wait for child to look for 1 second. Provide SD "Look", and **move pointer finger** across center then right card.	Student scans across all 3 cards.	Provide tangible/edible and social praise.	Student does not scan all 3 cards or scans all 3 cards but looks up/away during scan.	**Tutor moves pointer finger** across all 3 cards up to 2 times.	80% or > for 3 consecutive sessions.
4	The tutor places all 3 cards on desk in a straight line**.** Tutor **holds pointer finger above left card,** wait for child to look for 1 second. Provide SD "Look", and **move pointer finger across center card.** ***Tutor should only be moving finger across left and center card.**	Student scans across all 3 cards.	Provide tangible/edible and social praise.	Student does not scan all 3 cards or scans all 3 cards but looks up/away during scan.	**Tutor moves pointer finger across 2 cards.** **If still Incorrect then tutor moves pointer finger across all 3 cards.**	80% or > for 3 consecutive sessions.
5	The tutor places all 3 cards on desk in a straight line**.** Tutor **holds pointer finger above left card,** wait for child to look for 1 second. Provide SD "Look". ***Tutor should only point finger to left card.**	Student scans across all 3 cards.	Provide tangible/edible and social praise.	Student does not scan all 3 cards or scans all 3 cards but looks up/away during scan.	**Tutor moves pointer finger across 2 cards.** **If still incorrect, tutor moves finger across 3 cards.**	80% or > for 3 consecutive sessions.
6	The tutor places all 3 cards on desk in a straight line**. Tutor provides SD "Look".**	Student scans across all 3 cards.	Provide tangible/edible and social praise.	Student does not scan all 3 cards or scans all 3 cards but looks up/away during scan.	**Tutor points to left card.** **If still incorrect, tutor moves finger across 2 cards.**	80% or > for 3 consecutive sessions.