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## Effects of pre session matched stimulation and response blocking on stereotypy and skill acquisition

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**Effects of Pre Session Matched Stimulation and Response Blocking on  
Stereotypy and Skill Acquisition**

**A Thesis Presented**

**by**

**Nicole Dion**

The Department of Counseling and Applied Educational Psychology

In partial fulfillment of the requirements

for the degree of

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**in the field of**

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## Table of Contents

### Effects of Pre Session Matched Stimulation and Response Blocking on Stereotypy and Skill Acquisition

<b>Abstract</b> .....	<b>2</b>
<b>Introduction</b> .....	
<i>Review of Stereotypy</i> .....	3
<i>Review of Relevant Literature</i> .....	4
<i>Purpose</i> .....	9
<b>Method</b> .....	
<i>Participant and Target Behavior</i> .....	10
<i>Setting and Materials</i> .....	11
<i>Response Measurement and Interobserver Agreement</i> .....	12
<i>Procedural Integrity</i> .....	12
<i>Procedures</i> .....	13
<b>Results</b> .....	<b>16</b>
<b>Discussion</b> .....	<b>18</b>
<b>Appendix</b> .....	<b>23</b>
<b>References</b> .....	<b>24</b>
<b>Figure Captions</b> .....	<b>28</b>
<b>Figures</b> .....	<b>29</b>

### **Abstract**

Stereotypy is a learned behavior found in many individuals with developmental disabilities. The behavioral literature has repeatedly demonstrated that stereotypy can interfere with performance on academic tasks and the acquisition of adaptive behaviors. This study attempted to explore an effective treatment for the reduction of one participant's stereotypic behavior through pre session stimulation and response blocking. The purpose of the current study was to identify a successful treatment for stereotypy resulting in an increase in skill acquisition. An 8 year-old girl diagnosed with Duplicate Chromosome and Seizure Disorder engaged in finger play stereotypy at a high rate throughout the school day. A functional analysis, preference assessment, and a function based treatment were implemented to attempt to decrease the stereotypy. The results of a reversal design, demonstrated that pre session matched stimulation was ineffective in reducing stereotypy for this participant. However, a subsequent treatment, response blocking resulted in a significant reduction in the occurrence of the target behavior, and an improvement in learning.

Stereotypy is a repetitive pattern of behavior, often found in children with developmental disabilities. According to Lovaas, Newsome, and Hickman (1987) stereotypy presents as a rigid movement or routine that tends to remain unchanging over time and is considered to be socially inappropriate. Stereotypy in one child can look completely different from stereotypy in another child. It is usually idiosyncratic depending upon the sensory and environmental variables maintaining an individual's stereotypy. Common forms of stereotypy involve hand flapping, body rocking, object spinning, or toe walking. Stereotypy also exists in more complex forms of routines, such as toy play, and rituals, such as vocal grunting or sniffing before speaking.

Stereotypy has been demonstrated to be maintained by positive (e.g., Kennedy, Meyer, Knowles, & Shukla, 2000) or negative reinforcement (e.g., Durand & Carr, 1987). However, it most often appears to be internally maintained by something outside of social influences. Stereotypy maintained by internal factors, or automatic reinforcement, persists in the absence of social reinforcers, and produces its own source of reinforcement (e.g., Lovaas, Newsome, & Hickman, 1987). These behaviors may produce visual, tactile, vestibular, or auditory stimulation for the individual. Additionally, behavior analysts have also found evidence of automatic negative reinforcement, where stereotypy functions as an escape from some internal aversive stimulus, such as sleep deprivation, ear aches, or allergy symptoms (e.g., O'Reilly, 1997)

Consequently, stereotypy can be insensitive to socially mediated reinforcers and difficult to treat (Rapp, 2007). Some treatments that have been demonstrated to

be successful include sensory extinction (e.g., Rincover, 1978), response blocking (e.g., Duker & Schaapveld, 1996), differential reinforcement (e.g., Cowdery, Iwata & Pace, 1990), noncontingent reinforcement (e.g., Roscoe, Iwata, & Goh, 1998), noncontingent matched stimulation (e.g., Piazza, Adelinis, Hanley, Goh, and Delia, 2000), and pre session stimulation (e.g., Rapp 2004, 2006).

Sensory extinction as studied by Rincover (1978) was designed to eliminate the sensory consequences produced by stereotypy, removing the source of stimulation and thus decreasing engagement in the behavior. Procedures used for sensory extinction include manipulation of the physical environment through various devices or protective equipment. Authors in the 1978 study implemented such procedures as removing carpeting that produced auditory stimulation and placing a blindfold over a child to eliminate visual stimulation.

Response blocking or response interruption is another consequence strategy that has been shown to decrease aberrant behavior such as stereotypy. A blocking response implemented by the behavior therapist is a stimulus that is incompatible with engagement in stereotypy. A response block interrupts or prevents a behavior chain and therefore provides more opportunities for the child to engage in another, more functional behavior such as completion of task trials. In Duker et al. (1996) the purpose of the study was to evaluate the effects of response contingent interruption prompting on stereotypic behavior and on-task behavior. The authors used a physical block paired with a verbal “stop,” which decreased stereotypy and increased on-task behavior.

However, success demonstrated with both sensory extinction and response blocking procedures are made less desirable because they are punishment procedures. Sensory extinction and response blocking also require immense therapist attention and supervision. Additionally, these procedures suppress behavior without teaching acceptable replacement behaviors, and may actually interfere with the acquisition of appropriate behavior by restricting movement.

Differential reinforcement is the least intrusive consequence intervention for aberrant behavior. Differential reinforcement reinforces the absence of the target behavior (DRO) or the presence of an alternative behavior (DRA) while placing the aberrant behavior on extinction. When implementing differential reinforcement in the treatment of stereotypy, analysts hypothesize that “stereotypy can be reduced if other behavior can be reinforced and increased to occupy the time previously consumed by stereotypy” (Rapp & Vollmer, 2005, p. 540). Cowdery et al. (1990) demonstrated success in reducing levels of self-injurious behavior by using a DRO with delivery of tokens throughout the day. However, differential reinforcement procedures alone have had limited success.

Using an antecedent procedure to treat a behavior problem can be effective because the procedure can alter the motivating operations of the behavior. Motivating operations warrant critical examination because they manipulate the probability of engagement in behavior. More specifically, if a child that engages in stereotypy is exposed to a substitute reinforcer or given free access to stereotypy, the exposure can alter or satiate the motivation for engaging in stereotypy.

According to Laraway, Snyckerski, Michaels, and Poling (2003) a motivating operation “changes the probability of behavior under control of reinforcement contingencies by altering the value of the reinforcing stimuli,” (pg. 407) and is used as an umbrella term for establishing and abolishing operations. An establishing operation changes the effectiveness of a certain stimulus as a reinforcer and thus changes the frequency of the behavior following its delivery or lack thereof. An establishing operation has an evocative effect when the reinforcing effects of a stimulus are increased, and likewise has an abative effect when the reinforcing effects of a stimulus are decreased (Cooper, Heron, & Heward, 2007).

The evocative effects of the establishing operations relative to stereotypy were illustrated by O’Reilly, Sigafos, Edrisinha, Lancioni, Cannella, Choi, and Barretto, (2006) as they attempted to isolate its effects on positively reinforced stereotypy. For both participants, higher levels of stereotypy were found when sessions were preceded by restricted access to reinforcement, suggesting an establishing operation was in effect. Conversely, prior access to the variables maintaining reinforcement reduced levels of stereotypy suggesting that an abolishing operation was in effect.

Noncontingent reinforcement (NCR) procedure is an antecedent intervention that provides a stimulus independent of the problem behavior. NCR decreases problem behaviors because reinforcers that typically maintain the problem behavior are provided continuously, regardless of problem behavior engagement, thereby reducing the motivation to engage in problem behavior (Cooper et al, 2007). Roscoe, Iwata, and Goh (1998) found results that supported this hypothesis when

comparing NCR with extinction procedures. The availability of NCR significantly reduced self-injurious behavior at a faster rate and without the extinction burst.

Several studies suggest that using noncontingent matched stimulation (NMS) as an antecedent strategy may reduce automatically reinforced behavior.

Noncontingent matched stimulation, a type of NCR provides continuous access to stimuli that are functionally matched to the hypothesized sensory consequences of an individual's stereotypy. Piazza, Adelinis, Hanley, Goh, and Delia (2000), Rapp (2007), and Higbee, Chang, and Endicott (2005) explored the use of NMS as a treatment for stereotypy. Piazza et al. (2000) examined the reduction of stereotypic behaviors in three participants using a preference assessment and a functional analysis. Piazza then used these two assessment tools to identify relative preference for stimuli that was hypothesized to match the sensory consequences delivered by the participant's automatically maintained stereotypy. Items were made available noncontingently and were separated into unmatched and matched stimuli to determine which would have a greater effect on reducing stereotypy. The results showed that across all participants, lower levels of stereotypy were seen with matched stimuli than with unmatched stimuli. The authors suggested that matched stimuli may have functioned as an abolishing operation for engagement in stereotypy.

Rapp (2007) found similar results with his participants. Sessions following access to noncontingent matched toys produced a lower rate of vocal stereotypy by providing a functionally substitutable source of reinforcement. Higbee et al. (2005) replicated the Piazza et al (2000) study by demonstrating that continuous access to

stimuli with the hypothesized matched sensory consequences of the stereotypical behavior reduced the levels of stereotypy in comparison to baseline.

Pre session access to stereotypy is another treatment area that has been explored in the applied setting (e.g., Rapp, 2004, 2006; McComas, Thompson, & Johnson, 2003). Rapp (2004) investigated the effect of prior access to stereotypy on engagement in later stereotypy in his study on noncontingent environmental enrichment. He provided noncontingent access to stereotypy in one earlier and one later session. Rapp found that prior access to stereotypy decreased later responding for stereotypy and he concluded that prior access served as an abolishing operation.

Rapp (2006) attempted to determine whether noncontingent matched stimulation (NMS) competed with or substituted for automatically reinforced stereotypy. He cited the changes in motivating operations as affecting levels of stereotypy depending on whether NMS was available during pre intervention, or pre session. His results showed that stereotypy increased when it was preceded by a component with no stimulation, and decreased when it was followed by a component of pre session matched stimulation.

McComas et al. (2003) examined the influence of pre session attention on the occurrence of attention and escape maintained problem behavior. Results of this study showed that pre session attention reduced later problem behavior over sessions that had no prior pre session attention, thus suggesting that attention served as an abolishing operation for problem behavior.

The overall focus of the current study lies in the relationship between stereotypic behavior and learning. The identification of a successful treatment for stereotypy is vital for a child's learning both within and outside of the classroom, and is a significant concern for teachers, parents, and behavior analysts. Lovaas, Newson, and Hickman (1987) discussed high levels of stereotypy and lack of alternative behaviors that inhibits socialization with others and acquisition of new behaviors. In an earlier study, Koegel and Covert (1972) discussed autistic children and their relationship to the environment. In this study, the purpose was to determine whether children who display stereotypic behaviors fail to acquire discriminations, and if suppressing these behaviors would facilitate discrimination. The authors found that discrimination was not acquired for both participants while engaged in stereotypy, and both participants acquired the discrimination when stereotypy was suppressed. This study shows a clear relationship between stereotypy and learning.

Given the limitations that stereotypy places on an individual's engagement and the challenges presented in treating the behavior, the current investigation attempted to treat stereotypic behavior in an 8-year-old girl with Duplicate Chromosome and Seizure Disorder. It was hypothesized that by applying a five minute pre session noncontingent access to matched stimulation prior to a test session, the occurrence of stereotypy would decrease and the individual's skill acquisition would increase.

Pre session stimulation and noncontingent matched stimuli are two antecedent interventions that may have a suppressive effect on later responding of stereotypic

behavior. The goal of this study was to decrease stereotypy and measure the effects of response blocking and pre session stimulation on skill acquisition. By using a preference assessment and functional analysis, the current study will attempt to extend the Piazza et al. (2000) study by using preferred matched stimuli presented noncontingently in a prior session in an attempt to satiate the participant's motivation to engage in stereotypy. Additionally, by combining Rapp's (2004) study on environmental enrichment with prior access to preferred matched stimuli used in the Piazza et al. (2000) study, the current study will attempt to determine whether noncontingent access would serve as an abolishing operation for engagement in later stereotypy. Finally, a treatment of pre session stimulation and response blocking will be implemented noting the effects on stereotypy and skill acquisition. By expanding upon Koegel and Covert's (1972) study on the suppression of stereotypic behaviors, this investigation will attempt to contribute to the literature on the relationship between a successful treatment for stereotypy and a corresponding intervention to increase skill acquisition.

## **Method**

### *Participant and Target Behavior*

The participant was an 8-year-old girl who was diagnosed with a duplicate chromosome disorder and a seizure disorder. She engaged in finger play stereotypy defined as any instance of rubbing or touching fingers of one or both hands to self, clothing, or objects in a repetitive manner. Stereotypy did not include pinching or scratching of staff. It could be paired with a head tilt, ear blocking, rocking, staring,

vocal stereotypy, and/or clothing flapping. The participant engaged in stereotypy across classroom activities throughout the day.

Data was also collected on the participant's skill acquisition. This measure was determined by the number of items mastered in a receptive object labeling task and measured as a percentage of independent trials per session. If an item was labeled correctly independently in five consecutive trials in a session, the item was considered to be mastered and a new item was chosen for the next session.

### *Setting and Materials*

This study was conducted in a school and residential treatment center serving individuals with brain injury. Functional analysis sessions took place in an 8m by 5m room with a one-way mirror located in a school for children with brain injuries. The room contained a table and two chairs. The preference assessment and treatment sessions took place at a table in the corner of the student's normal classroom during typical classroom activities. Five peers and three teachers were present in the classroom. Two sessions were conducted per day, three to four days per week.

The materials used in the object labeling task during baseline and treatment were taken from the Assessment of Basic Language and Learning Skills (ABLLS). Highly and moderately preferred toys as identified by a free operant preference assessment (Roane, Vollmer, Ringdahl, & Marcus, 1998) were used in the functional analysis. Finally, various hypothesized, matched stimuli identified by the researcher to match the sensory consequences of the participant's stereotypy were used during the pre session stimulation sessions.

*Response Measurement and Interobserver Agreement*

Occurrence of stereotypy was measured in 10s partial intervals, and converted to a percentage of intervals of occurrence. Skill acquisition was measured by a prompt hierarchy (independent, gesture, and physical), and then the number of independent trials completed per session was calculated into a percentage. Skill acquisition and occurrence of stereotypy data were both collected through direct observation of the session using paper and pen. Interobserver scores were obtained by having a second observer collect data with the primary observer. Percent agreement of the occurrence of stereotypy was calculated by dividing the intervals of agreements by the total agreements plus disagreements and converted to a percentage by multiplying by 100%. Skill acquisition data was compared by permanent product after each session by both the primary and secondary observers. Interobserver agreement for both occurrence of stereotypy and skill acquisition was assessed at least once during each phase of the current study representing 32% of sessions. Agreement averaged 87% and had a range of (80% to 96%).

*Procedural Integrity*

A procedural integrity checklist recorded whether or not the steps of the independent variable were carried out in a consistent manner. It measured whether or not task materials were present, whether prompts were used appropriately, whether the stereotypy was ignored, and whether praise was given at appropriate times. Integrity was assessed during 35% of sessions across all phases. Treatment integrity was 100% across all phases.

*Procedure*

*Functional analysis.* The participant was exposed to four assessment conditions in a multielement design based on the procedures described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994). The functional analysis conditions included attention, demand, control and alone. Each condition was randomly assigned and was five minutes in length. A brief free operant preference assessment was conducted previously to determine highly and moderately preferred classroom items for the functional analysis.

During the attention condition, the participant, experimenter, and 2 moderately preferred items (drum, frog) were present. Prior to the start of the session, 30 seconds of attention was provided, followed by the direction, "Sit and play, I have work to do." The participant was then given the toys. The experimenter ignored the participant only delivering attention contingent upon the target behavior. Attention was provided for 3-5 seconds in the form of a verbal reprimand such as, "Stop doing that, hands down, play with your toys."

The demand condition involved the participant seated at the table with the experimenter present. A matching task was presented using a three step prompting procedure (verbal, model, physical). Praise was delivered upon completion of the task at any level. Contingent upon the target behavior, the task was removed for 30 seconds.

The alone condition of the functional analysis had the participant seated alone in the room with the table and chair. The experimenter said, “You play, I’ll be right back,” and left the room. There were no programmed consequences for stereotypy.

The control condition included the participant seated at the table with the experimenter and two highly preferred items (pegs, pound-a-ball) present. Every 30 seconds verbal attention was given in the form of praise, unless the target behavior was occurring and the experimenter waited until it was over to deliver praise. No consequences for stereotypy were in effect.

*Preference assessment.* The next phase in this study included a multiple stimulus preference assessment without replacement (MSWO) as conducted by DeLeon and Iwata (1996). The experimenter chose items that were hypothesized to match the sensory consequences of stereotypy. The participant’s stereotypy was hypothesized to serve a visual and tactile stimulation function.

Seven items were presented in an array to the participant. Selection of an item provided the participant with 30 seconds of access as well as removal of the item from the array. Items were then shifted to the right and a selection was again made. This continued until a hierarchy could be established.

*Treatment analysis.* The treatment effects of pre session matched stimuli on stereotypy were evaluated in a reversal design (ABABACD) for the participant. Baseline sessions consisted of a 5 minute work session in the classroom with continuous trials of a receptive object labeling (ROL) task. Items were presented in a

two item array with five seconds in between trials. The demand, “give me\_\_\_\_\_” was delivered followed by a least to most prompting hierarchy in accordance with the participant’s behavior support plan. The ROL was a current individualized education plan (IEP) goal for the participant. All instances of stereotypy and other behaviors were ignored.

Baseline was followed by a pre session stimulation condition which consisted of a five minute noncontingent exposure to two matched, preferred stimuli. Immediately following this pre session was the five minute work session identical to baseline. Again no consequences were in place for stereotypy or other behaviors during this five minute work session.

The first blocking condition consisted of a typical test session including the same ROL task presented continuously. There was no pre session stimulation prior to the session and a momentary blocking response as a consequence for stereotypy paired with a “hands down” verbal prompt was used contingent on stereotypy. All other behaviors were ignored.

The second blocking condition consisted of the experimenter placing her arm on the edge of the testing surface to prevent engagement in stereotypy. The block was lifted once the demand was delivered and replaced after the trial was completed. The same ROL task was presented continuously. Again, no consequences were in place for stereotypy or other behaviors.

## Results

Results of the functional analysis are depicted in Figure 1. The participant engaged in the highest rate of stereotypy in the alone condition averaging 50% of intervals. Rates of stereotypy were lower in all other conditions (Attention-40%, Demand-33%, and Control-21%). The results of the functional analysis showed undifferentiated, variable data paths demonstrating that the behavior occurred at a high frequency throughout all sessions, regardless of the programmed consequences. These results suggest that the participant's stereotypy was maintained by automatic reinforcement and not by socially mediated factors. The behavior also persisted in the alone condition with the absence of any social consequences lending support to the automatic reinforcement function. This result validated the use of a treatment option of pre session matched stimulation for automatically maintained stereotypy.

The results of the preference assessment indicated that beads and water were the highest preferred stimuli that were hypothesized to match the sensory consequences of finger play stereotypy. These items were used in the next phase of the study as the pre session stimulation intervention, to determine if a five minute pre session noncontingent access to these items would effectively reduce levels of stereotypy and increase skill acquisition in a test session immediately following.

The results of pre session stimulation intervention are shown in Figure 2. Pre session stimulation had no obvious therapeutic effect on the participant's rate of stereotypy. Levels of stereotypy remained stable across all conditions, showing that the independent variable had no control over the participant's stereotypy. Baseline

levels of stereotypy showed an upward trend while the initial sessions of the pre session condition showed an immediate decreasing trend. However, as pre session treatment sessions continued, stereotypy increased to baseline levels. A reversal to baseline showed a slight decrease, but levels remained in the 30% range. A reversal to pre session showed a variable rate of stereotypy, yet still without a substantial decrease in the target behavior. A final return to baseline showed similar levels of stereotypy in the 30% range. Stereotypy averaged 35% across sessions and ranged from a high of 70% to a low of 13% occurrence of stereotypy. Based on these results, the experimenter chose to implement a blocking procedure.

The results of the Blocking 1 and Blocking 2 conditions are shown in Figure 3. The momentary block of stereotypy showed an immediate decrease in the behavior, but an overlap of baseline points did occur in later sessions. It was hypothesized that the participant was sensitive to a novel intervention, the physical block. Stereotypy averaged 32% in this condition. The second blocking phase was implemented with more success. Rates of stereotypy started higher and then showed a gradual decrease in the occurrence of stereotypy to 11% of intervals.

The results of the impact that both pre session stimulation and blocking had on skill acquisition are shown in Figure 4. The percentage of independent trials per session was calculated to determine if there was any correlation between the intervention for stereotypy and skill acquisition. The results suggest that a successful treatment of blocking for the reduction of stereotypy also resulted in an increase in skill acquisition. The most notable increase in independence was shown in the first

phase of the pre session stimulation condition with the percentage of independent trials per session averaging 50%. However, this effect was not replicated in the subsequent pre session condition where independence averaged only 21%. In general, independence levels remained in the 30% range across all conditions until the implementation of Blocking 2. Blocking 1 averaged 20% independence per session, while Blocking 2 averaged 40% independence. The lowest rates of the occurrence of stereotypy were captured in the final phase of blocking, while the highest rates of independence were shown during the first pre session phase as well as the final blocking phase.

### **Discussion**

Treatment for stereotypy in the form of pre session matched stimulation did not result in a reduction of stereotypy for this participant. Although there was an initial decrease in stereotypy in the first pre session stimulation phase, this result did not replicate in later pre session conditions. It may have been due to the novelty of the treatment. Additionally, the materials provided for pre session stimulation may not have functionally matched the sensory consequences of the participant's stereotypy. However, the topography of the stereotypy both within and outside of treatment appeared to be the same, suggesting correctly matched stimulation.

The pre session stimulation length was also considered a factor contributing to the negative results. Marks (2008, May), assessed using varying durations of pre session stimulation prior to academic sessions to determine an optimum treatment length. The results indicated that a five minute pre session stimulation session was

most effective in reducing levels of stereotypy during a subsequent work session.

The goal of the five minute pre session stimulation in the current study was to create a state of satiation in the participant and act as an abolishing operation for engagement in stereotypy. However, the automatic reinforcement provided by the participant's stereotypy may not have been satiated during the five minute session and thus the behavior persisted during the following test session. The therapeutic interval may have needed to be increased or decreased to effectively decrease stereotypy.

Conversely, it appears that response blocking was an effective treatment for this individual based on the decrease in the occurrence of stereotypy in the last phase of treatment. This result was consistent with the Duker and Schaapveld (1996) study in which stereotypy decreased upon implementation of a response block. The immediate decrease shown in Blocking 1 was hypothesized to have occurred based again on the novelty of the treatment, the physical block. Interestingly, there was a significant decrease between the first and second blocking phases. The response blocking in the first condition merely interrupted a behavior chain already in progress, thus decreasing the occurrence of the behavior yet still allowing the chain to begin before it was interrupted. This momentary engagement in the target behavior allowed the participant to experience the automatic reinforcement which may be why the behavior did not decrease overall.

For clinical reasons, it was decided to continue on to a more restrictive blocking procedure to determine if it would have a greater effect on decreasing stereotypy. In the second blocking condition, a physical block was implemented that

did not allow for the behavior chain to start, preventing the participant from engaging in any automatically reinforced stereotypy at all. This blocking condition may have acted as an antecedent procedure, providing a discriminative stimulus for not engaging in stereotypy. This may have been the reason for the overall decrease in the occurrence of stereotypy in the final phase of treatment. At this point researchers decided not to return to baseline to avoid reinforcing the frequent occurrence of stereotypic behavior.

Finally, it appears that the level of stereotypy that an individual displays is correlated with the level of skill that the individual acquires. When the first session of pre session stimulation was implemented, an increase in skill acquisition was shown. This effect suggested a correlation between the introduction of novel stimuli and skill acquisition, because this effect was not replicated in later pre session sessions. Once the participant was blocked from engaging in stereotypy in the final phase of treatment, an increase in skill acquisition was also shown. It follows that while the participant was not engaging in stereotypy, there was more time and opportunities to engage in learning. According to Koegel and Covert (1972), opportunities for learning are greatly decreased by engagement in stereotypy, while learning time is increased when time spent engaging in stereotypy is decreased. The graph suggests a correlation between skill acquisition and blocking. However, because this effect was not replicated, this is merely a suggestion.

Some limitations of the current study include the failure of the experimenter to return to baseline between the first and second blocking phases, as well as the failure

to return to baseline after a successful blocking treatment was implemented in the final phase. Although this was done to prevent the reinforcement of stereotypy that was already at a significant level throughout the day, it limits the validity of the study. It is hard to say with certainty that the treatment would replicate the same effect in later blocking sessions even though significant decreases in the occurrence of stereotypy as well as increases in skill acquisition were demonstrated. Also, this study is limited by the inclusion of only one participant. Had the treatment been applied to another participant, a stronger functional relationship between pre session exposure and occurrence of stereotypy could have been shown.

Another limitation of this study is the use of blocking as a treatment. Blocking can be time intensive and not as applicable in the classroom or home setting because it requires constant monitoring and close proximity. Furthermore, no data were taken on the aggressive side effect of blocking as documented in the literature. Anecdotally, the experimenter noticed an increase in the aggression with the implementation of both blocking procedures. However, no data were taken to support this argument.

Finally, the method in which skill acquisition was measured was limited to one dimension of the task presented, the independence level. Although every attempt was made by the current experimenter to display the data in the most meaningful way possible, it is noted that the number of trials per session, the number of trials to criterion, as well as another task altogether could also have been a significant measure of skill acquisition.

Future research that could contribute to the literature in the area of stereotypy may involve implementing a treatment package involving the use of response blocking and pre session exposure, or response blocking and differential reinforcement. Additionally, the length of the pre session exposure may be manipulated to determine if there is an optimal time frame to achieve the most effective level of satiation of sensory consequences. A further research topic may include applying pre session stimulation prior to other activities where stereotypy is frequent, such as independent play, or group learning. In addition, a completely unmatched pre session activity such as exercise could be applied in a pre session format to automatically reinforced behaviors that interfere with learning time and may be effective in reducing stereotypy.

## Appendix A

### Treatment Integrity

Initials\_\_\_\_\_

Date\_\_\_\_\_

Session #\_\_\_\_\_

#### *No Pre Session*

- Experimenter has task materials present
- Experimenter uses prompts appropriately
- Experimenter ignores stereotypy
- Experimenter praises correct responses
- Experimenter waits 5 seconds between trials

#### *Pre Session*

- Experimenter provides 5 minutes of noncontingent access to matched stimuli prior to test session
- Experimenter has task materials present
- Experimenter uses prompts appropriately
- Experimenter ignores stereotypy
- Experimenter praises correct responses
- Experimenter waits 5 seconds between trials

#### *Blocking 1*

- Experimenter has task materials present
- Experimenter uses prompts appropriately
- Experimenter praises correct responses
- Experimenter waits 5 seconds between trials
- Experimenter says “hands down” while interrupting stereotypy when it occurs

#### *Blocking 2*

- Experimenter has task materials present
- Experimenter uses prompts appropriately
- Experimenter praises correct responses
- Experimenter waits 5 seconds between trials
- Experimenter places arm on edge of table to prevent stereotypy between trials

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### **Figure Captions**

Figure 1. Percent occurrence of stereotypy during analogue functional analysis for Gina.

Figure 2. Percent intervals of occurrence of stereotypy during baseline and pre session stimulation sessions.

Figure 3. Percent intervals of occurrence of stereotypy during baseline, pre session, and blocking treatment sessions.

Figure 4. Percent independent trials per session for all baseline and treatment sessions.

# Figures

## Functional Analysis

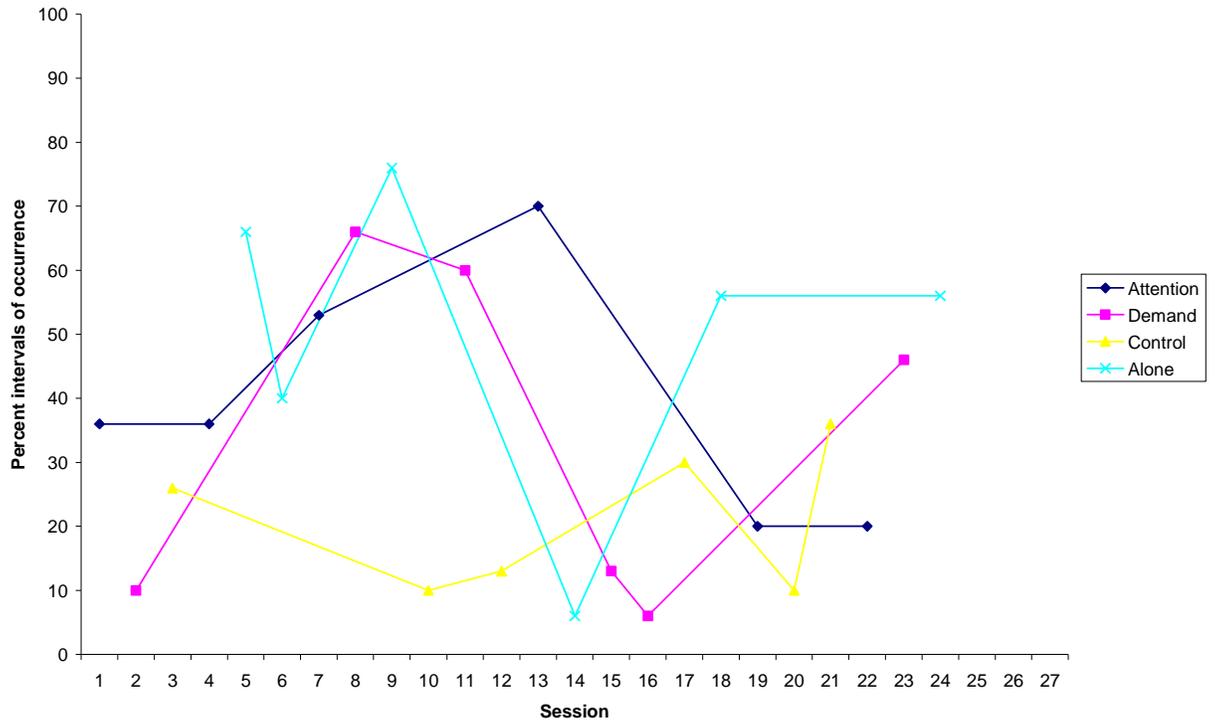


Figure 1

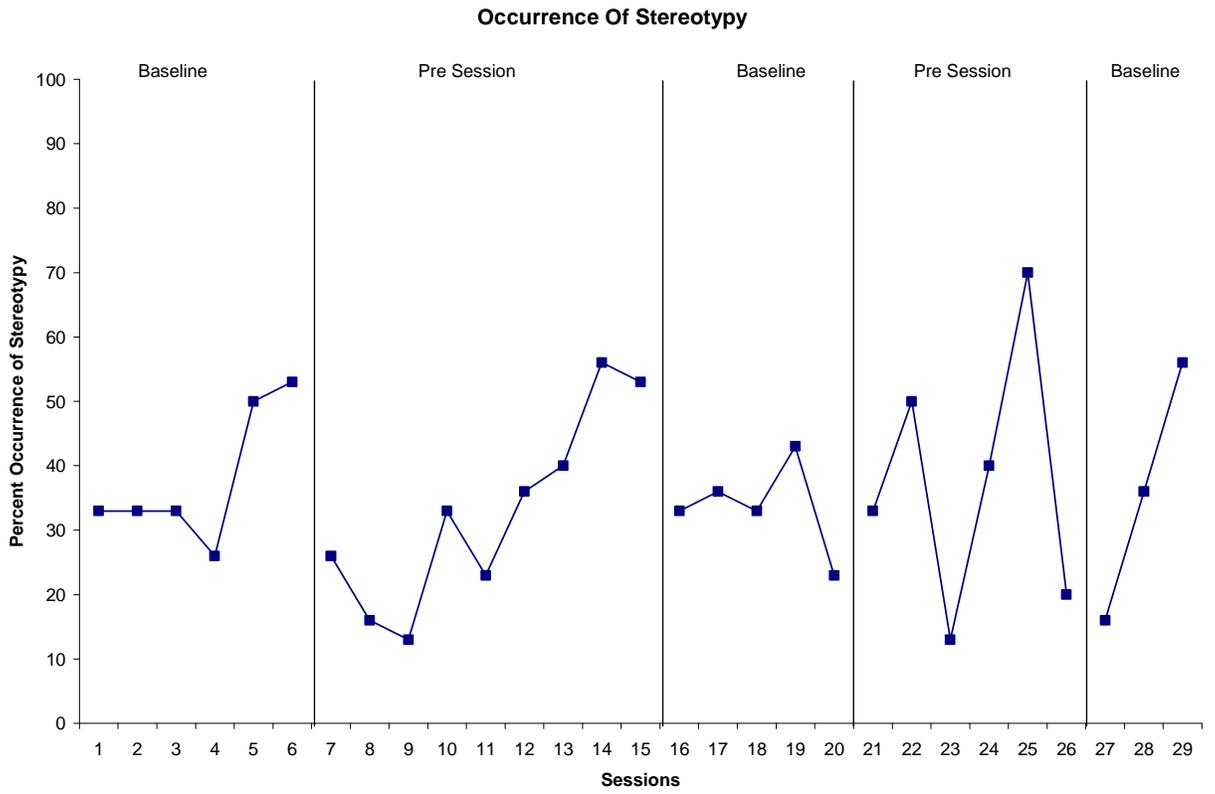


Figure 2

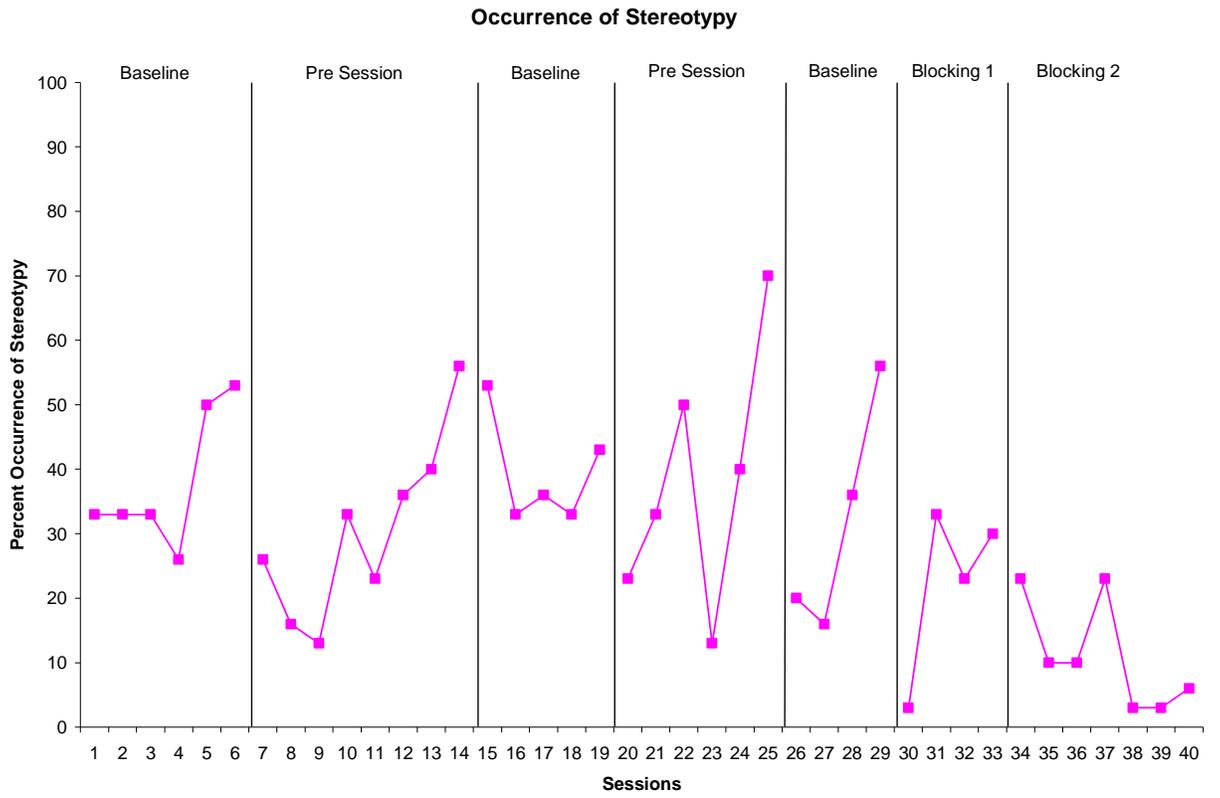


Figure 3

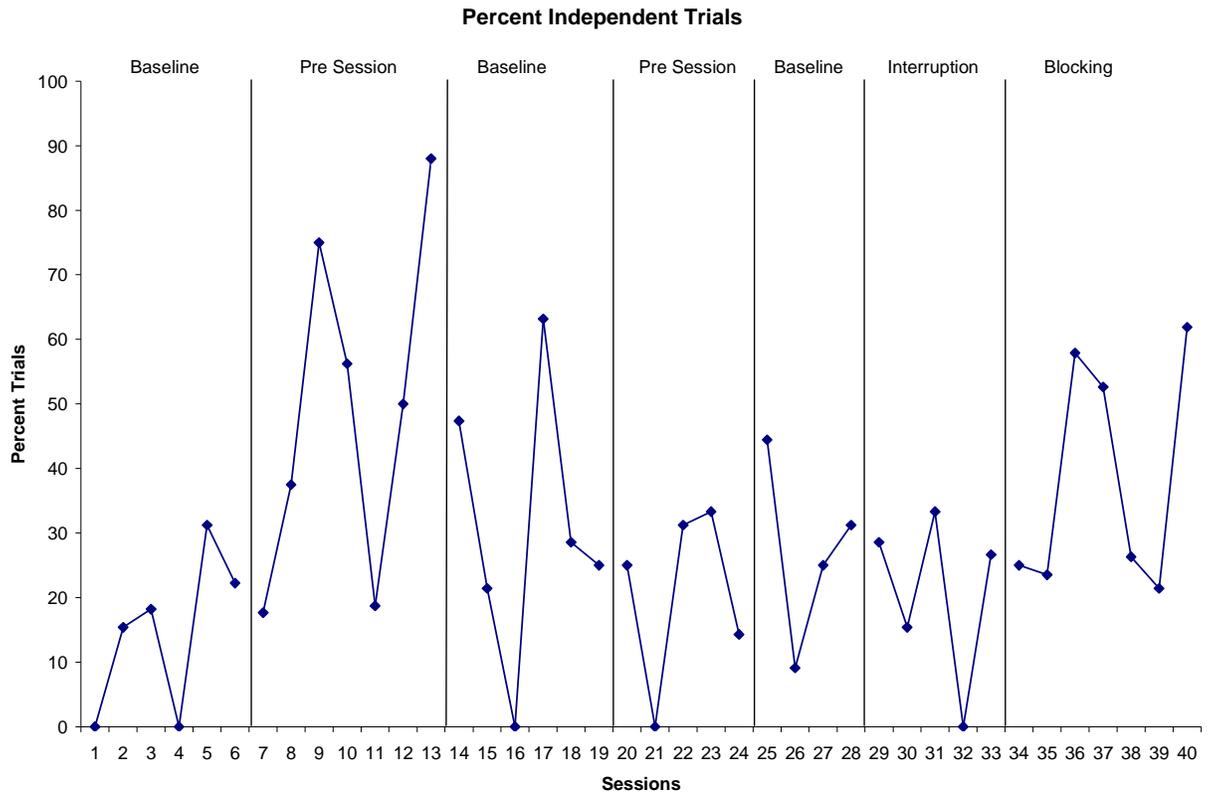


Figure 4