

3-24-2016

Effects of Video Modeling on Preference and Reinforcer Value for Toys

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Effects of Video Modeling on Preference and Reinforcer Value for Toys

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Applied Behavior Analysis
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Date of Approval:
March 23, 2016

Keywords: Autism, video, progressive-ratio break point, multiple stimulus without replacement

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Abstract

Children diagnosed with autism often exhibit a limited range of preferred stimuli. This can lead to problem behavior or a decline in quality of life. Recent work has shown that watching peers approach and interact with stimuli can affect an observer's preferences with respect to those stimuli. Video modeling is an effective intervention component for many individuals with ASD, and may be extended toward increasing the breadth of preferences in such individuals. The purpose of this study is to examine the degree to which video modeling can be used to increase the preference and reinforcing value of initially low-preferred toys in individuals with autism. Progressive ratio (PR) break point assessments and multiple stimulus without replacement preference assessments were used to evaluate intervention effectiveness. Overall, video modeling was effective at increasing preference of least preferred toys but increases in preference were not accompanied by increases in reinforcer value as reflected by frequency of responses.

Introduction

Autism Spectrum Disorder (ASD) is a developmental disorder prevalent among 1 in 50 children ages 6-17 (Centers for Disease Control and Prevention, 2013). Parents of children with ASD report more problem behavior than parents with typically developing children (Malijaars, Boonen, Lanbrechts, Leeuwen, & Noens, 2013). Some characteristics of ASD include social or communication deficits, difficulties understanding feelings, and a limited range of preferences (Center of Disease Control and Prevention, 2015). Children with ASD who exhibit restricted interests may encounter social, educational, and communicative barriers (Stocco, Thompson, & Rodriguez, 2011).

Research has been conducted on how children's behavior can affect parent, teacher and child interactions (e.g., Bates, 1976; Carr, Taylor, & Robison, 1991; Stocco, Thompson, & Rodriguez, 2011). Child behavior has been found to inadvertently affect parent behavior (Bates, 1976). Children with a limited number of preferred items or activities may emit inappropriate behavior (i.e. tantrums, aggression, or crying) when access to preferred items are unavailable (Bates, 1976). Children with minimal preferred stimuli also often exhibit problem behavior when presented with new or unpreferred stimuli (Bates, 1976). As a result, the parent may be less likely to offer a novel or low preferred item in the future. Educational barriers may also occur between teachers and students. Carr, Taylor, and Robinson (1991) evaluated teacher instruction associated with problem behavior. Teacher instruction was given less often to students who exhibited the most problem behavior. The participants who exhibited the most problem behavior were often observed not engaging in the educational tasks needed to succeed academically due to

the lack of teacher instruction given (Carr et al. 1991). Stocco, Thompson, and Rodriguez (2011) discovered similar results when teachers presented items to students. The teachers were not prompted to present the items (e.g. book, palm top, slinky, etc.) in any specified order or frequency. The toys were provided to the instructor and they were instructed only to present the items one at a time. Observers recorded the number of times the item was presented and the behavior following the presentation. Stocco et al. (2011) found that teachers presented the item that followed the least problem behavior.

Preference assessments are conducted to determine preferred stimuli that may serve as reinforcers for individuals with autism (e.g. Green et al., 1988, 1991). Indirect measures (i.e. questionnaires) and direct measures (i.e., stimulus presentation) have been used to help identify preference ranking of stimuli presented (Kearney & McKnight, 1997). Studies have looked at training procedures to train individuals to conduct single-stimulus, paired-stimulus, and multiple-stimulus preferences assessments (Bishop & Kenzer, 2012). Highly preferred stimuli are often incorporated into interventions designed to improve behavior (e.g. Mason, McGee, Farmer Dougan, & Risley, 1989; Steege et al., 1989).

Preference is a crucial facet of program development and a substantial quality of life (Kearney & McKnight, 1997). Restricted interests, or a lack of preferred stimuli, can lead to limiting and repetitive maladaptive behavior (Stocco et al., 2011). When preference assessments yield few preferred items, problem behavior may arise when those items are denied or unavailable. Although preference assessments determine high-preferred items, those items do not always function as reinforcers (Pace et al. 1985).

Reinforcer assessments have been an essential tool in determining the desirability of preferred stimuli under specific motivational conditions (DeLeon et al. 2011). A progressive

ratio (PR) reinforcement assessment evaluates the “break point” and is measured by increasing response conditions following presentation of reinforcement (Hodos, 1961). The break point at which the participant ceases to engage in the response indicates the value of the reinforcer being measured (Hodos, 1961). Although substantial literature exists on identifying preferred stimuli and increasing reinforcer value in individuals with intellectual and developmental disabilities, there may be occasions when those methods fail. In those cases, another approach to increasing the variety and number of preferred items may be to increase preference and reinforcement value for items that are available but low preferred. The issues individuals with restricted interests may face has motivated subsequent research to attempt to increase preference in initially low preferred items and activities among the autism population.

Two general approaches have been described in the literature to change preference and reinforcer value: consequence and antecedent-based approaches. In consequence-based approaches, therapists attempt to modify an individual’s preferences by providing additional reinforcers simultaneously with naturally occurring consequences. For example, Hanley, Iwata, and Lindberg (1999) determined if engagements with less preferred but more socially desirable activities (i.e., dishes, cleaning, or laundry) could be increased by providing reinforcement contingent on completing chores. Slight increases in preference for less-preferred items were observed during intervention. However, preference of the initially low-preferred items did not reach that of the highest preferred items. Some researchers have also examined whether the reinforcing value of praise can be increased by pairing its delivery with additional reinforcers (Dozier, Iwata, Thomason-Sassi, Worsdell, & Wilson, 2012). Stimulus pairing alone was found to be ineffective in establishing praise as a reinforcer. However, food and praise presented

simultaneously following instances of the target response, resulted in praise alone serving as a reinforcer for the target response.

Several studies have also examined antecedent-based approaches for changing preference using modeling. Greer, Singer-Dudek, Longano, and Zrinzo (2008) attempted to establish praise as a reinforcer using peers. Participants observed peers receive vocal praise contingent on completion of a matching task. Results yielded an increase in matching task response acquisition and suggested the intervention was successful. In attempt to change a previously neutral stimulus into a conditioned reinforcer, Singer-Dudek, Oblak, and Greer (2011), determined if books would be chosen more frequently after observing peers receive them for reinforcement. An opaque board was placed between the participant and the peer while the examiner requested the peer to match shapes. Contingent on completing the request, the peer was provided with a book while the participant observed. The board was then removed so the participant could see the peer reading the book. Results indicated an increase in the number of correct matching responses made after receiving books contingent on task completion, following the peer observation intervention.

Another antecedent-based approach to affect preference that used modeling was conducted by Leaf et al. (2012) who investigated effects of adult models on typically developing children's preferences for toys. Participants were reported to lack social skills and were between the ages of five and six. During the intervention, a predetermined, highest preferred adult was observed interacting with the participants' lowest preferred item. The adults interacted with the items using novel interactions and interactions similar to how the participant interacted with their highest preferred item. Immediately following adult modeling, the children completed ten trials of preference and reinforcer assessments. Results indicated an increase in the number of

interactions with the lowest preferred toy. However, maintenance varied across participants. A similar approach by Duncker (1939) evaluated food preference changes through modeling made via peer choices. A peer chose their favorite food item while the participant observed and it was found that the participant was more likely to choose that item when asked shortly after. Bruzek and Thompson (2007) explored the antecedent effects of observing peer play. High, medium, and low preferred items were identified prior to intervention implementation. Participants engaged in observations of a peer interacting with a toy used in the preference assessment that was followed with a reinforcer assessment. Peer observation appeared to serve as a motivation operation for participants. This was seen as participants chose to work for low preferred items following observation of a peer interacting with that item.

One novel way of affecting preferences in individuals with autism might be to use video modeling. Video modeling is a strategy using video to provide visual support of individuals modeling target skills (Bellini & Akullian, 2007). Video modeling has been used to teach new skills to children diagnosed with ASD (e.g., Charlop, Dennis, Carpenter, & Greenberg, 2010). A commonly observed example of video modeling can be seen in many current commercial advertisements. Advertising is a common method used by companies to expose their products to the general public in hopes to increase the likelihood the item will be preferred, and potentially purchased (What Does Advertising Do for the Consumer, 1973). However, much of the research conducted when considering advertisement involves statistical analysis and questionnaires which yield biases. Although there is limited research in advertisement for children with autism, peer play has been shown to be effective. Children have been found to favor the entertaining features in most commercial advertisements (i.e. singing, dancing, and music) (Gbadamosi, Hinson, Tukamusha & Ingunijiri, 2012). The purpose of this study is to examine the degree to which

video modeling can be used to increase the preference and reinforcing value of initially low preferred stimuli in individuals with autism.

Chapter One: Method

Participants and Setting

Participants were recruited via email sent out to a company that offers in home behavior analysis services and behavior analysts in the area were asked if they had participant whom met the criteria. Three children between the ages of 6-9 and diagnosed with autism spectrum disorder (ASD), participated in this study. Steve was a 9-year-old male diagnosed with ASD and a rare neurological degenerative disorder. He was considered high functioning, lives at home with his mother, father, aunts, uncles, and siblings, and uses full sentences to communicate. George was an 8-year-old male considered to be moderate functioning, engages in 4-5 word sentences to communicate, and lives primarily with his mother although he stays with his father every other weekend. Sally was a 6-year-old who was considered moderate to low functioning, was able to engage in prompted self-help skills, and used 1-3 word mands to communicate. She lived at home with her mother, father, aunts, uncles, and siblings. All participants attended local elementary schools and were placed in classes with other individuals diagnosed with developmental and intellectual disabilities.

Inclusion criteria for the study involved parent's reported concerns for restricted toy interests observed with their child, which all participants met. Participants also needed to have the ability to attend to videos for longer than 30 s. All parents reported their child would readily attend to videos on television or other electronic devices. Participants who engaged in severe problem behavior that could interfere with the procedures were not included in the study.

Informed consent forms and the researcher's contact information were provided directly to caregivers. A meeting or phone call was used to ensure caregiver understanding and to obtain informed consent. Recruitment continued until consent for participants who met the inclusion criteria described above was obtained.

Sessions took place in the participants' home and occurred at an empty table in the participants' living room for two participants (Sally and Steve) and at a desk in the bedroom of the third participant (George). The only individuals present during the execution of sessions were the researchers, participants, and the parents. When parents were present they typically observed within 15 ft. of the participant and did not interact with them during sessions.

Materials

A parent-generated list of items was used to select ten toys that each subject had high, medium, and low preferences and to which the subjects had prior exposure. The toys did not require another person to operate (e.g., plush dolls, action figures). The toys identified for Steve were, a rocket ship, plush broom, tank, plush Miles doll™, plush Paw Patrol Rider doll™, plush Riley doll™, Captain America figurine™, monster truck, Peppa Pig house™, and Megabloks®. For Sally, Megabloks®, Peppa Pig house™, Doc McStuffins figurine, Dora figurine™, Buzz Lightyear figurine®, monster truck, red car, small purple ball, Iron Man figurine™, and plush zebra, were used in the preference assessment. For George, sand, Legos®, bus, Lightning McQueen car, Snoopy figurine™, ABC puzzle, green dinosaur figurine, small red ball, Woody figurine®, and Thomas the train™ were selected for use in the preference assessment.

A smartphone was used to display a roughly 30 s video of a peer modeling interactions with their lowest preferred item. The video was made using the program, iMovie and included upbeat background music without vocals. The individuals featured in the video were within 3

years of the participant, the same gender, and were observed interacting with the object and appearing to be happy (e.g., smiling, laughing). The video was filmed in a peer's home and featured the peer interacting with the toy on a couch or table. Interaction was defined as making direct contact with the hand or body and/or operating the toy in any way (Figure 1 & 4). Refer to Appendix A for a script of the video.

Procedures

General data collection. Trained graduate students and research assistants served as data collectors for all assessments. Choices during preference assessments were recorded on print outs and resembled methods used by DeLeon and Iwata (1996). Responses that were recorded for each item included: selection, avoidance, and no response. Selection was defined as touching, requesting, or reaching for the item present. Avoidance responses occurred if the participant pushed or threw the item, emitted negative vocalizations (i.e. "no" or screaming), or moved away from the toy within 3 s of presentation. The dependent variables in the study are preference ranking according to a multiple-stimulus without replacement assessment (DeLeon, & Iwata, 1996), frequency of responses (Hodos, 1961) and duration of interaction.

Interobserver agreement. Data were collected on the number of seconds of interaction of the lowest preferred toy item in the room during data collection by a second observer, who could not see the researcher's recorded values. Interobserver agreement (IOA) was calculated across all conditions for 33.3% of sessions for Steve, 53.8% for Sally and 52.4% for George. IOA was calculated by taking the smallest rounded number of seconds of interaction and dividing it by the larger value. This dividend was multiplied by 100 to obtain a percentage value. Across initial preference assessment conditions, a range of 88.2-100% of agreement was obtained. A range of 66.7-100% of agreement was calculated across baseline conditions and 75-

100% agreed was calculated for intervention conditions. The overall average for all of the IOA data calculated to a 97.5%.

Treatment integrity. Treatment integrity was collected for baseline and intervention for preference and reinforcer assessments to assess the extent to which researchers followed the correct procedures. A checklist with each task for both assessments was used by the researcher that was not conducting the assessments. If a 90% or lower was scored, the individual was retrained and discontinued running sessions until 100% treatment integrity was obtained in role play scenario assessments. Researchers implemented the procedures with 100% integrity across a total of 19 sessions, or 35.8% of sessions.

Target item identification. The purpose of this phase was to identify an initially low-preferred item to be used in subsequent baseline, intervention, and follow-up conditions. A multiple-stimulus without replacement preference assessment, which consisted of 5 repetitions of the procedures, was completed for each participant for the ten items identified via parent report (DeLeon & Iwata, 1996). To ensure the participants had prior exposure to the items, researchers ensured the toys were in a visible and accessible location where the participant often spent their time at home. Parents were asked to keep the toys easily accessible. Researchers conducted daily visual inspections to ensure toys were in the correct locations throughout the study. Prior to the initial preference assessment, the participant was placed at the table and given 30 s to interact with each toy on the list.

For the assessments, the participant sat or stood next to the table with all ten items placed in a straight line, approximately 12 in from the participant. The items had approximately 2 in between them. The researcher prompted the participant to select an item by saying, “pick one.” Once the selection had been made, any attempts to select other items were blocked. The

participant then had 30 s to interact with the item. Both the selection and the number of seconds the participant interacted with the selected item were collected for each trial (Figure 1). If the participant made contact with more than one item, the participant was provided the item they touched prior to the next trial, the toy previously chosen were removed from selection. The remaining toys were reordered by rotating the stimulus at the left end and moving it to the opposite end. Next the other toys were shifted to keep a uniform distance between each object. This assessment continued until all toys were chosen. If the participant failed to make a selection, the participant was be prompted (least to most intrusive) to choose an item and that trial was restarted. If a verbal prompt did not occasion a response, the researcher then moved to a gestural prompt. This method was continued until physical prompting was attempted and evoked a response. If the lowest preferred item occasioned an avoidance response, the next lowest preferred item was chosen for intervention. However, no avoidance responses occurred during any pre-study preference assessment for all participants. All ten items' duration of interaction and preference are depicted in Figure 1.

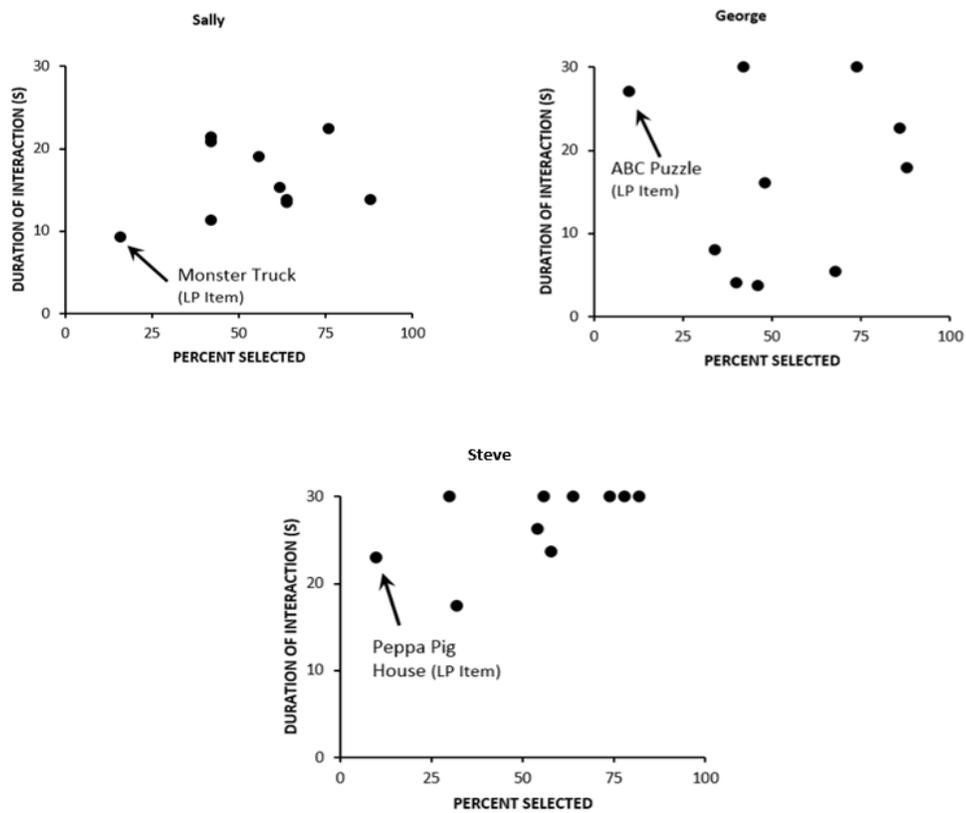


Figure 1. The average number of seconds of interaction with all ten toys was collected across conditions. Figure 1 depicts those results from the initial preference assessment.

Session Protocol

Video presentation. Participants were shown one of two videos at the beginning of each session depending on whether they were in the control or intervention condition. Videos were between 30 and 31 s long and featured a peer interacting with either an arbitrary toy (in the control video) or the target toy (in the intervention video) using the same script as the intervention video (Refer to Appendix A). The therapist presented a smartphone in landscape mode showing the first frame of the video paused, prompted the participant to look, and started the video contingent on attending. The video was restarted if participants stopped attending to the video for more than 5 s or left the table. Data were not collecting on how often this procedure

needed to be carried out, but anecdotally it ranged from 3-5 times for each participant across the study. Attending was defined as the participants' eyes pointing at the screen of the smartphone.

Preference assessment. A MSWO preference assessment was conducted immediately following each video presentation. This assessment included the same items and was identical to that describe above for target item identification with the exception that only one sequence of trials was conducted (rather than five as in the initial MSWO).

Reinforcer assessment. A PR reinforcer assessment (Hodos, 1961; Roane, Lerman, & Vorndran, 2001) was conducted following every preference assessment. Participants were seated at the work area prior to the start of each session. At the beginning of the session, the researcher vocally stated the contingency (e.g., "Draw a circle to get monster truck"). Sally often engaged in vocal stereotypy so the contingency was stated a second time if she did not engage in the target response within 10 s. Sessions continued until the participant did not respond for at least 30 s; said, "done" or another similar statement; or attempted to leave the table. Meeting the response requirement resulted in 30 s access to the target item (identified during the pre-study preference assessment). Response requirements increased within session after every 2nd delivery of the target item according to the following sequence: 1, 1, 2, 2, 3, 3, 4, 4, 6, 6, 10, 10, 15, 15, etc. Sally's sessions terminated most often after meeting the 30-s criterion, except on a few occasions when she left the table. All of George and Steve's sessions terminated following a vocal statement like, "I am all done," or "I don't want to work for that toy anymore."

Steve's target response was defined as raising his arm above waist level. Steve's disability reduced his fine motor control, so researchers selected this response because upon probing he was able to perform it readily following instructions. George's target response was writing letters of the alphabet. Sally's target response was drawing a circle and was selected

following a conversation with her mother. Both George and Sally's tasks were academic targets being taught at school.

Design. A nonconcurrent multiple baseline across participants design was used to assess effects of the intervention video on preference for and the reinforcing value of the target item.

Conditions.

Baseline. All baseline sessions consisted of a screening of the video, a preference assessment, and a reinforcement assessment in that order. Sessions continued in each condition until stable levels of responding were observed in both the preference and reinforcer assessments for at least three successive sessions, as judged by visual inspection.

Intervention. Intervention sessions were identical to those during the baseline condition except the intervention video was shown at the beginning of each session instead of the control video. Intervention continued until an effect was observed following a minimum of five consecutive session.

Follow-up. Two follow-up session probes were completed one week following completion of the intervention following similar procedures to that described above. The first probe session was conducted on a separate day and consisted of the preference and reinforcer assessments only, without exposure to any video prior to the start of the session. Performance during this probe speaks to the maintenance of the effect of a prior viewing across calendar days. The second probe session consisted of a brief reversal to the control condition in order to assess whether effects observed during the intervention condition would persist in the absence of recent exposure to the intervention video, but while still controlling for the presence of some video (hence researcher's decision to present the control video).

Social Validity. Following the end of the study, parents were asked to answer a questionnaire pertaining to whether they had observed their child interact with the target item more. The parents were asked, “Have you observed your child interacting with the low preferred toy item in the study more frequently,” “Do you observe your child interacting with novel toy items following the completion of the study,” and “Do you observe your child interacting with novel stimuli outside the home following the completion of the study?” Sally’s mom reported she had seen her interact with the monster truck (LP item) more often since the start of the study. She also reported observing an increase in interactions with both the action figure featured in the preference assessment and Sally’s brother’s action figures. Steve’s mom reported she had seen an increase in the frequency of requests for toys featured in commercials on TV while completing the questionnaire although that question was not asked by researchers.

Chapter Two: Results

Results from the pre-study preference assessment are shown in Figure 1. Interestingly, duration of interaction did not appear to have a clear relation with the order of selections made during the preference assessment. For both George and Sally, the highest preferred item was not one that they spent the most time touching. Also, for Steve and George, their lowest preferred item was not one that they spent the least time touching.

Results of each participant's baseline preference assessments are shown in Figure 2. The percentage of times the target item was selected is depicted across sessions. For Steve and George, the target item was chosen last, or 10% of the time, during all sessions during baseline. Sally's baseline selections of the target item varied between 10 and 60%, the upper range of which occurred early during the phase and seemed to decrease slightly across sessions.

Following baseline, exposure to the intervention video appeared to increase preference for the target items for all three participants. Steve showed an immediate shift in preference for the Peppa pig house and selected it 60% of the time. His data varied slightly and quickly stabilized to a level of 60% selection. Immediate effects were also observed for George and Sally. During the first session of intervention, George selected his lowest preferred item at 100%, while Sally chose her lowest preferred item 70% of the time and the percentage of low preferred toy chosen slightly increased in subsequent sessions. Results for preference maintained as Steve chose the Peppa pig house 60% of the time following the no video, and control video follow-up probes. During the no video follow up probe, Sally chose the monster truck 90% and in the

subsequent follow-up, it was chosen 100% establishing maintenance of preference assessment effects.

Results of each participant's reinforcer assessments are shown in Figure 3. During baseline, participants emitted few if any target responses. Clear and immediate increases were only observed for George. A delayed and modest increase was observed for Steve, and no clear increase was observed for Sally.

Although we did not observe consistent increases in behavior maintained by access to the target items during the reinforcer assessment (Figure 3), we did observe increases in interaction with the target items during the preference assessment that maintained during the no-video follow up probe (Figure 4). George interacted with his low-preferred item for an average of 16 s, the most out of the participants. Steve and Sally interacted with their low-preferred items for an average of 12.7 and 8.9 s, respectively (Figure 4).

Multiple Stimulus Without Replacement

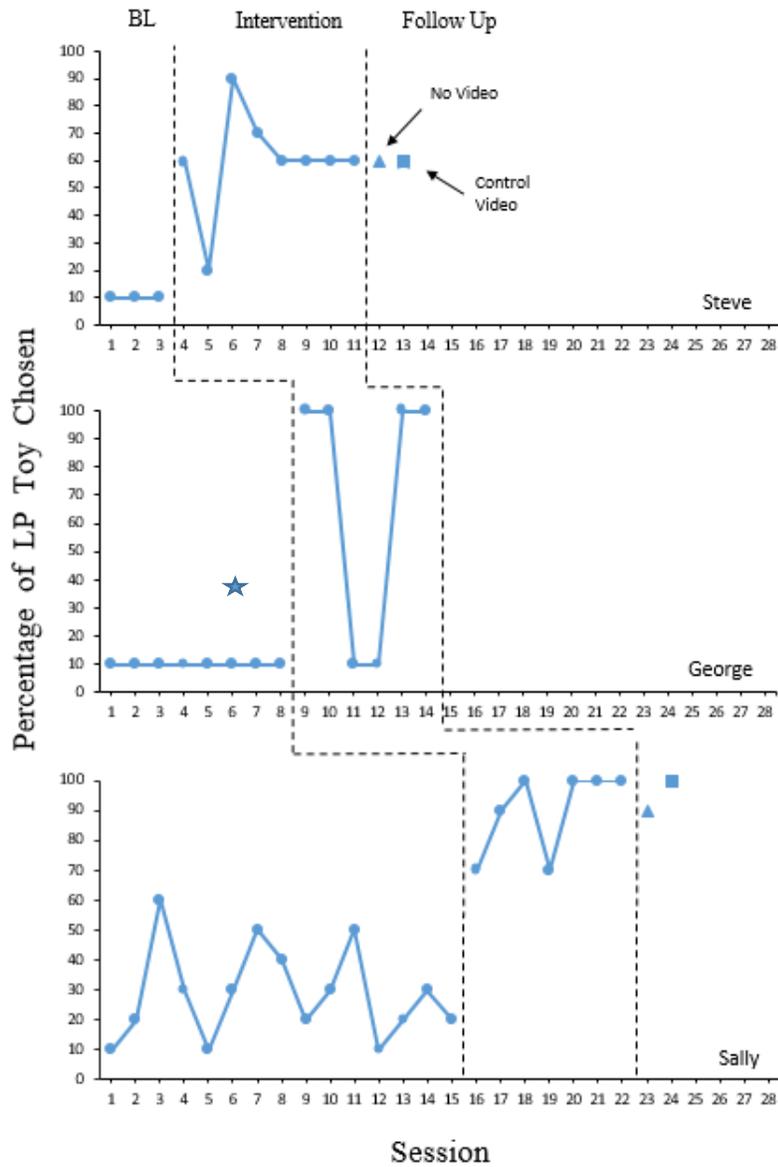


Figure 2. The percentage of a previously determined low preferred item chosen across participants using a multiple stimulus without replacement preference assessment. The star on Steve's graph indicates a session where the tv was left on.

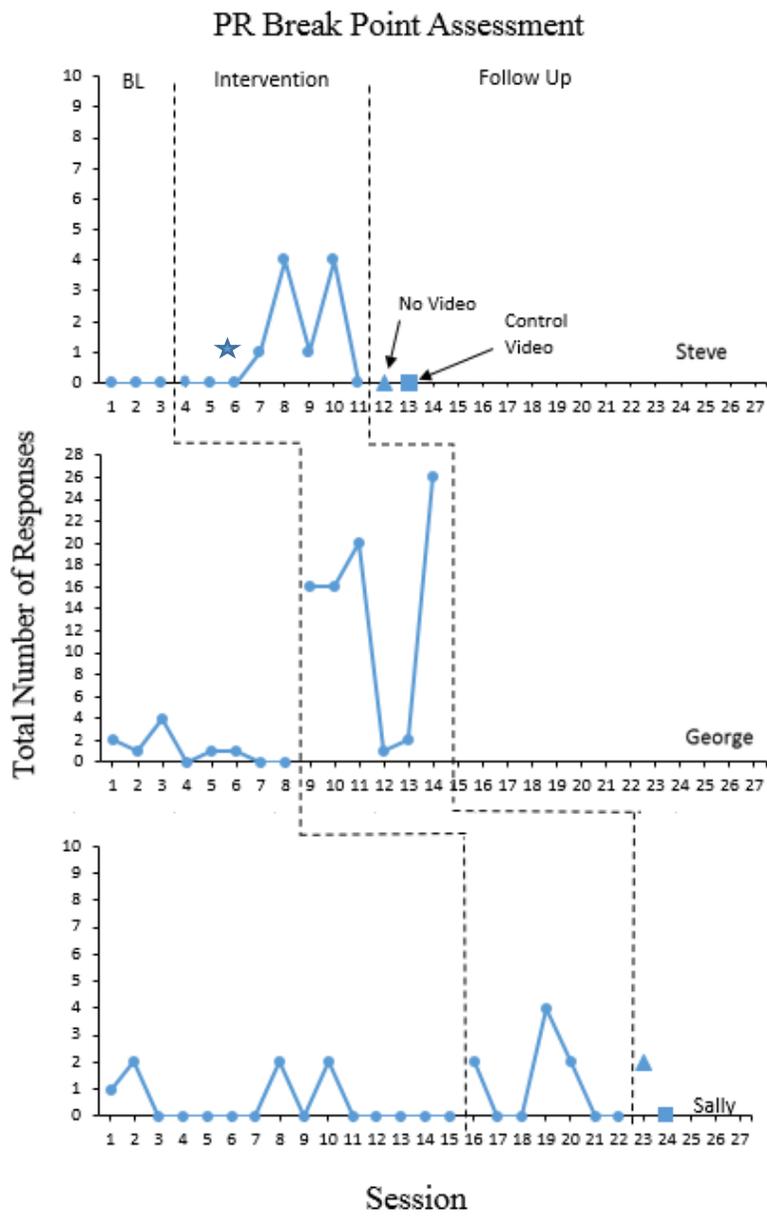


Figure 3. The number of responses completed during the reinforcer assessment of progressive-ratio break points. The star depicts a session where the tv was left on during the session.

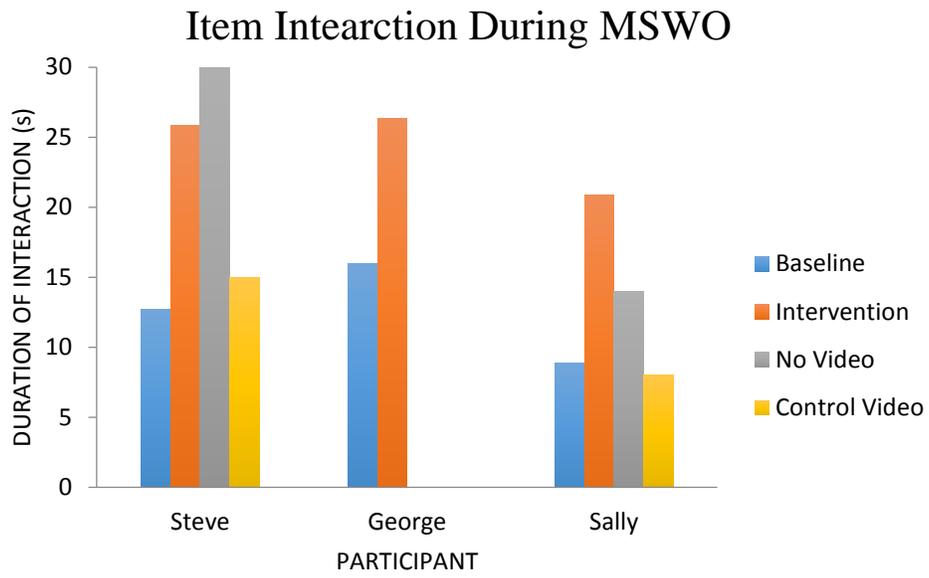


Figure 4. The average number of seconds of interaction for the low preferred toy was collected for each participant during baseline, intervention, and two follow up probe (no video and control video) preference assessments

Chapter Three: Discussion

The purpose of this study was to examine the degree to which video modeling could be used to increase the preference and reinforcing value of initially low-preferred toys in individuals with autism. The results during all conditions and the social validity questionnaire appear to address the restricted interests of the participants. Overall, video modeling was successful at increasing selections of low preferred items for children with ASD whose parents reported they had limited toy and activity preferences. These results replicate and extend those of Bruzek and Thompson (2007) who showed that 2-min observation of peer play could affect preferences in typically developing preschoolers to adolescents with autism using 30-s videos. However, changes in preference in this study were not accompanied by clear or consistent evidence of changes in reinforcer value. Only George's data showed an immediate increase in responding during the reinforcer assessments following exposure to the video, while Steve's data showed a modest but delayed increase, and Sally showed no noteworthy increase.

It is worth noting that Bruzek and Thompson (2007) interpreted their observed changes in participants' choices in terms of changes in reinforcer value, and this might appear to be inconsistent with results from our reinforcer assessment. Bruzek and Thompson's reinforcer assessment involved giving participants choices between three different marked areas of a room, two of which were associated with items determined to be of different preference (one high and one low), and one serving as a control with no item. The authors then reported the time participants spent in each area. For two participants, entering an area resulted in continuous access to the item associated with that area. For the other two participants, entering an area

resulted in access to a task, completion of which resulted in access to the item associated with that area. Although an additional response requirement was imposed on the latter two participants, data on that response or the degree to which the requirement was met were not presented. Thus, if one considers that time allocation in Bruzek and Thompon's procedure may be a composite of both 1) the choices participants made between areas and 2) the duration of engagement with the items in those areas, then our results are consistent given that we observed both increases in choices toward (Figure 2), and duration of interaction with (Figure 4) the target items.

Still, it is interesting that changes in preference reported here were not consistently accompanied by changes in behavior during the progressive ratio assessment. Generally, research has found correspondence between assessments involving choice and PR breakpoints (e.g., DeLeon, Frank, Gregory, & Allman, 2009). One possible explanation may be that the lack of correspondence we observed is simply a function of reasonable but imperfect correspondence overall. Data reported by DeLeon, Frank, Gregory, and Allman (2009) showed that rankings obtained from paired stimulus preference assessments and PR schedules disagreed in a third of the stimuli assessed. Thus, careful examination of published data may show that perfect correspondence is actually rare. Another explanation may be that correspondence depends on the specific procedures used. For example, this study used an MSWO, while DeLeon et al. (2009) used a paired-stimulus preference assessment, the latter of which has been shown to be less reliable (DeLeon & Iwata, 1996). Likewise, specific features of the PR schedule, such as the specific sequence of response requirements, or the number of assessment sessions overall, may explain the discrepancy. Most studies involving PR assessments do a few brief sessions in a short period of time. This study ran several successive PR assessments across many calendar days.

Although previous research has shown that fixed-ratio (FR) 1 schedules of reinforcement can be insensitive to qualitative differences in reinforcers (Roscoe, Iwata, & Kahng, 1999), it could be that the relatively low response requirements in such schedules might be better at detecting small increases in reinforcer value as compared to PR schedules. Although, the clinical significance of increases that only appear during FR-1 may be questionable. The lack of substantial differences in frequency of responding may also be attributed to the higher criteria than previous PR assessment have established. Maybe in a concurrent operant FR1 with another low preferred item a more consistent change may have been observed.

Still, there may be clinical benefits from interventions that increase preference but not the reinforcing value of an item. Some kinds of activities may require extensive exposure before naturally occurring contingencies of reinforcement are contacted. In such cases, modeling approaches using video may help maintain approaches and engagement with the activities until naturally occurring reinforcement takes hold.

Only one instance of an avoidance response occurred in which Sally threw her target item during a baseline preference assessment. The response was recorded and she was prompted to make another selection. The target item that occasioned an avoidance response was not Sally's lowest preferred toy. All participants appeared to enjoy the video and all made comments while observing it. George echoed "wow" following the initial viewing of the intervention video. During Sally's initial viewing she stated, "I want monster truck. Ready, set, go." Also during the initial video presentation for Steve, he commented, "My sister has that toy." While this was not a true measurement of social validity, it points to the social acceptance of the videos and intervention.

Parents reported that they felt the activities during the PR assessments were appropriate. When asked if George's task was appropriate for this study, George's mom stated that she felt he would be able to easily complete the task as he had been working on similar activities at school and home therapy sessions. Steve's mom felt the response of "raising his arm" was one of the few appropriate tasks he could physically perform. Sally's mom too reported her task would be easily completed and that she colored often in the home. Researchers attempted to make the PR assessments as easy to terminate as possible and once the session was terminated, participants had free access to items and activities in the home.

Our interpretation of the reinforcer assessment data rests on the logic of the multiple baseline design.

During one intervention session (indicated in Fig. 3 with a star) with Steve, the television was left on. It does not appear that leaving the television on had a clear effect on his behavior. However in a previous session, when the initial contingency statement was provided during the reinforcer assessment, Steve stated that he did not want to work for the peppa pig house and that he wanted to work for the tv.

One challenge was the inability to ensure the target items were easily accessible to the researcher for all sessions. Often, the participants would interact with the toys in between sessions and made it difficult to find during subsequent sessions. One baseline session involving George had to be canceled after the experimenter arrived after being informed that the target item was left at his other parent's home. After this realization, the toys were retrieved and the subsequent sessions continued as planned. Minimal technical difficulties occurred including a delay in buffering with some of the videos, which were viewed using Dropbox. When this occurred, the researcher restarted the video from the beginning after it was given time to load.

Although the presence of the low preferred toy can account for some of the effects observed in the results, future research on this topic should focus on the effects of different variables featured in the video model. Sally may have paid more attention to the peer's interactions with the toy versus the peer's facial expressions due to her functioning level. Whether or not the social characteristics of the peers made a difference on the effects would be interesting to compare across varying functioning levels. It is also important to further evaluate the effects of the intervention on other populations and demographics. It would also be relevant to compare responding for the high-preferred item for the same topography of response for the low preferred. Larger effects in responding may have been observed when compared to evaluations of responding for access to both the high and low preferred toys.

Chapter Four: References

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Appendix A:

Dialogue

VIDEO	AUDIO
Fade in: Close up of toy item	Upbeat background music without vocals
Cut to: Child playing with toy item with its intended use and smiling (angle of left side of child's face/body) in the living room	"Wow!"
Close up of toy item while child interacts with item	"With the _____ (i.e. toy item) you can _____ (i.e. jump, skip, and laugh) with your friends!"
Cut to: Child laughing with toy item in hand	
Zoom to: Close up of toy item	
Fade to: Child hugging or holding the toy while smiling.	

Appendix B:
IRB Approval



RESEARCH INTEGRITY AND COMPLIANCE
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11/9/2015

Brienna Meuret

USF Department of Psychology

4202 East Fowler Ave. PCD 4118G Tampa,
FL 33620

RE: **Expedited Approval for Initial Review**

IRB#: Pro00023604

Title: Effects of Video Modeling on Preference and Reinforcer Value for Toys

Study Approval Period: 11/9/2015 to 11/9/2016

Dear Ms. Meuret:

On 11/9/2015, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents contained within, including those outlined below.

Approved Item(s):

Protocol Document(s):

[USF IRB PROTOCOL.docx](#)

Consent/Assent Document(s)*:

[consent form.pdf](#)

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR

56.110. The research proposed in this study is categorized under the following expedited review category:

- (6) Collection of data from voice, video, digital, or image recordings made for research purposes.
- (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

This study involving child participants falls under the minimal risk category 45 CFR 46.404: Research not involving greater than minimal risk.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval via an amendment. Additionally, all unanticipated problems must be reported to the USF IRB within five (5) calendar days.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



John Schinka, Ph.D., Chairperson

USF Institutional Review Board