The Effects of Video Modeling on Spontaneous Requesting in Children Diagnosed With Autism Spectrum Disorder (ASD)

THESIS

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Abstract

Applied behavioral analysis (ABA) is the science in which tactics derived from the principles of behavior are applied systematically to improve socially significant behavior and experimentation is used to identify the variables responsible for behavior change (Cooper, Heron, & Heward, 2007). Through the research of ABA, we are advancing ways to teach and help individuals with ASD. One excellent evidence of this is video modeling and the effects it has on children with ASD.

This study was created to observe the effects of video modeling on spontaneous requesting of rehearsed and non-rehearsed targets. Additionally, this study focused on limitations to video modeling by conducting research in the participant’s classroom, having the participant’s teacher lead the research, and utilizing paraprofessionals to collect data. Two parallel multiple baseline experiments were conducted for six students, though only five completed intervention. Of the five who completed intervention, five effects were demonstrated. All five participant’s maintained levels of spontaneous requesting without additional intervention reviews.
Acknowledgments

I am truly thankful to The Ohio State University for this incredible learning experience. I was able to apply an intervention in my classroom and watch my students grow – for that I am grateful! I want to thank Dr. Malone and Rachel for your patience and mentoring during this experience. Dr. Brock thank you for being a part of my panel.
Vita

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Fields of Study

Major Field: Educational Studies
Table of Contents

Abstract .............................................................................................................................................. ii
Acknowledgments .......................................................................................................................... iii
Vita ................................................................................................................................................ iv
List of Tables ..................................................................................................................................... vi
List of Figures ................................................................................................................................... vii
Chapter 1: Research ......................................................................................................................... 1
Chapter 2: Method ............................................................................................................................. 8
Chapter 3: Results ............................................................................................................................ 18
Chapter 4: Discussion ....................................................................................................................... 25
References .......................................................................................................................................... 30
Appendix A: Intervention Procedural Integrity .................................................................................. 37
Appendix B: Pre- and Post- Intervention Survey ............................................................................... 40
List of Tables

Table 1. Percentage and Range Break Down of Individual Spontaneous Requesting ..... 24
List of Figures

Figure 1. Spontaneous requests per school day (sessions) for each participant .............. 22
Chapter 1

Introduction

Individuals with Autism Spectrum Disorder (ASD) have communication deficits (e.g., responding inappropriately, misreading nonverbal cues, building friendships). These deficits are common among people with ASD, with the severity of symptoms ranging from mild to severe, which means each person who has been diagnosed with ASD can be very different (APA, 2016). Given the common communication limitations, it is important to understand and identify ways we can best help individuals with ASD learn and teach to their unique learning styles (e.g., discrete trial, task analysis, prompting, reinforcement, modeling) (National Professional Development Center, 2014).

As a result of these challenges, some individuals with ASD may develop aggressive or self-injurious behaviors as a way to communicate wants and needs (Durand & Merges, 2001). It is important to replace challenging behaviors with appropriate communicative behaviors to provide individuals with ASD a means to communicate what they want or need without causing harm to themselves or others, impairing relationships with others, or attracting negative attention (Durand & Carr, 1991). Without the skills to appropriately communicate, one may engage in non-desired behaviors as a result of not acquiring items they are seeking (Carr & Durand, 1985). Also, students with ASD who
engage in challenging behavior are often limited to more restrictive environments and potentially to limited social groups (Carr & Durand, 1985). Communicating independently can contribute to a person’s meaningful participation in society and overall quality of life (Gardner & Wolfe, 2013). One way to increase a student’s overall independence is to teach them to request desired items. Specifically, spontaneous requesting, when a person independently (without any prompts) asks for a desired item to fulfill a want or need not tied to verbal cues, can increase independence and access to wants and needs, and possibly access to less restrictive environments and social opportunities (Charlop et al., 1985).

**Teaching Spontaneous Communication**

For individuals with ASD to have access to the same benefits as their typically developing peers, social skills often have to be taught (Krasny et al., 2003). Benefits gained with social skills (e.g., sharing, turn taking) can include an increase in parent-child interactions (Gordon et al., 2011), integration into general education classrooms (Panerai et al., 2002), the replacement of challenging behaviors (Goldstein, 2002), and an increase in positive interactions with peers (Thiemann & Goldstein, 2001).

To teach spontaneous communication to students with ASD, researchers have effectively used practices such as instructional modeling (McCoy & Hermansen, 2007), script-based instruction (Sansosti and Powell-Smith, 2008), time delay (Leung, 1994), and visual prompts (Krantz & McClannahan, 1993). There are however, limitations of effective and commonly used interventions to promote spontaneous communication. For example, Charlop et al. (1985) completed a study on seven children with ASD to
determine whether they could increase spontaneous speech utilizing time delay. They showed the participants an item and modeled an appropriate response to ask for the item (e.g., “I want candy” when presented a piece of candy). They then increased the amount of time between presenting an item and modeling a request. They found that the participants were initially successful. However, maintenance data were not collected to show if there was continued progress. Researchers have also used script-based instructional programs to increase spontaneous communication in children with ASD. For example, Krantz and McClannahan (1993) studied the effectiveness of a script-fading procedure on four children with ASD. Initially, participants were provided a script to initiate peer interaction, which was gradually faded out. Though the participants had severe social and verbal deficits, they demonstrated continued growth utilizing this learning tool, and maintenance data showed levels of peer initiations were within the same range as three same-age peers without disabilities. Unfortunately, the effectiveness of this type of intervention relies on developed literacy skills among participants. If an individual does not have developed literacy skills, this method of learning will not be successful.

The Picture Exchange Communication System (PECS) (Greenberg et al., 2014) has been used to teach spontaneous requesting to people with a variety of disabilities. For example, Charlop-Christy, Carpenter, Le, LeBlanc, and Kellet (2002) researched the effects of PECS training on the development of speech in play and academic settings. They observed three children with autism demonstrating growth in their verbal speech and spontaneous requesting. Practitioners may find initial success using PECS with their
students, but may struggle with maintenance and generalization due to the student needing to carry around a larger number of PECS icons as their vocabulary expands. As their PECS book expands, locating vocabulary may become more difficult. Time, effort, and energy involved in learning the location of their PECS vocabulary needs to be efficient for the individual’s communication to occur at high rates (Johnston, Reichle, Feeley, & Jones, 2012).

Although several interventions have been successfully used to increase spontaneous communication, they present several limitations for practitioners such as limited maintenance data to show ongoing progress, the need for developed literacy skills connected to the script-based instructional programs, an item to carry around or another person in the community understanding the form of communication being used by the individual relating to PECS, or lack of research conducted in the participants’ classrooms or school environments.

**Video Modeling to Teach Spontaneous Requesting**

Utilizing an evidence-based practice, such as video modeling, can eliminate the limitations that other learning tools require (National Professional Development Center, 2014). Video modeling is an evidence-based practice (Wong, et. al., 2013) that allows an individual to sit in a one-on-one setting and watch a short prerecorded video focusing on a desired learning target (i.e., sharing, conversation skills, turn taking) demonstrated by a typically developing peer. After viewing the video, each individual is provided a situation and an opportunity to imitate the targeted skill. If no response is given, the stimulus is removed and the next video is shown. Once the individual is engaging in the desired
learning target and has met the intervention criteria, videos are faded out. Video modeling has been used among children with ASD (Charlop & Milstein, 1989) in play rooms (Nikopoulou & Keenan, 2004), after school programs (LeBlanc et al., 2003), therapy rooms (Charlop & Freeman, 2000), and in the home (Taylor & Jasper, 1999). Video modeling has been chosen to teach play skills (Reagon & Endicott, 2006), turn taking (LeBlanc et al., 2003), sharing (Wang & Parrila, 2011), and conversation skills (Scattone, 2008). Specifically, past research has shown that video modeling can lead to increased mands (Lasater & Brady, 1995), conversational speech and variation in conversational speech (Charlop & Milstein, 1989), solitary and reciprocal pretend play actions and verbalizations (D’Ateno et al., 2003), adaptive skills (Corbett & Abdullah, 2005), and vocalization skills (MacManus et al., 2015).

Gardner and Wolfe (2013) note that as a result of individuals with ASD often struggling with attention skills, utilizing evidence-based practices can help target critical information needed to direct individual’s attention and direct their learning to acquiring new skills, such as spontaneous requesting. They also note that video modeling is a tool that can help teachers simulate real life settings and activities and provide students an opportunity to practice a targeted skill. Video modeling has been shown to be more effective for rapid skill acquisition and generalization than other effective modeling techniques (Gardner & Wolfe, 2013). Creating videos for students allows the teacher to control the content and set up situations that directly align to the desired learning target (e.g., wanting a student to ask for a drink, showing them a video of a student asking for juice, having juice available when the student asks) (Wert & Neisworth, 2015). In
addition, video modeling provides a learning opportunity in a short, direct, video clip in a format that can help catch the interest of the individual learner. Videos can be as short as 10–15 s each. Video modeling can provide a new way to learn a behavior without needing proficient reading skills. They also teach the learner a means of communicating that can be used in the classroom, home, and/or community.

In comparison to other interventions used to help individuals acquire spontaneous requesting, video modeling has demonstrated quicker rates of acquisition and increases in generalization (McCoy & Hermansen, 2007). Moreover, implementing video modeling can be cost and time efficient in contrast to other behavioral interventions (McCoy & Hermansen, 2007). Once the video models are created, they can be used as often as needed with no additional development. They can also be directly aligned to a specific goal (e.g., spontaneously requesting a drink). Using video modeling, it is possible for practitioners to make and use the videos themselves; they can also share the intervention with other practitioners and be confident that the instruction will be delivered in a similar fashion across people. Utilizing a technique that aligns to individual learning styles, is evidence based, and can capture the individual’s attention are additional benefits of video modeling. Video modeling research has shown positive research outcomes and an increase in learning opportunities (Dorwick, 2000; Hitchcock et al., 2003).

Although research on video modeling is rapidly growing, further research is essential (McCoy & Hermansen, 2007). Plavnick and Ferreri (2011) compared mand acquisition when video modeling was either related or unrelated to the targeted mand (e.g., related videos were designed to teach a response that was functionally equivalent to
the participant’s gesture and unrelated were designed to demonstrate an unrelated verbal response). The participant first watched a prerecorded video directly aligned to a target mand. They were then provided a situation that presented an opportunity to engage in the targeted mand. Individuals were trained for generalization and they found that mand acquisition was more successful when video modeling was related to the target (Plavnick & Ferreri, 2011). Although they found video modeling to be successful, they did not explicitly target rehearsed verse non-rehearsed targets.

Though there is evidence to support video modeling enhancing communication, limitations still exist. Given that appropriate spontaneous communication is difficult for students with autism, examining the effects of video modeling on spontaneous requesting will provide critical information. Therefore, the purpose of this study was to explore the effects of videos modeling on spontaneous requesting in children with autism spectrum disorder. Specifically the research questions are: (a) What are the effects of video modeling on spontaneous requesting of rehearsed targets? (b) What are the effects of video modeling on spontaneous requesting of non-rehearsed targets? Additionally, this study focused on limitations to video modeling by conducting research in the participant’s classroom, having the participant’s teacher lead the research and utilizing paraprofessionals to collect data.
Chapter 2

Method

Participants

For participants to be considered for this study, they had to be enrolled in my classroom and engage in low levels of spontaneous requesting. My classroom consists of six students with ASD and two paraprofessionals. All six students have an IEP and receive education in all core subject areas in my classroom. Their academics are aligned to the Ohio Content Standards—Extended. Students in my classroom receive occupational therapy, speech language therapy, adaptive physical therapy, and physical therapy services. They participate in extracurricular activities gym, art, and music with their same-age peers with the assistance of a paraprofessional. Participants included six students (five males, one female) diagnosed with autism spectrum disorder (ASD), ranging in age from 7–12 who were struggling with spontaneous requesting.

Michael. Michael is an African American 12-year-old male in the 6th grade diagnosed with ASD. Michael receptively and expressively labels 50+ common items and can communicate in 3–5 word sentences. Results from the Vineland Adaptive Behavior Assessment (Sparrow et al., 1984) showed a composite standard score of 58 and age equivalent score of 6 years 6 months. At the time of assessment, his chronological age was 12 years 4 months. His communication age equivalent score was 5 years 3 months.
Michael lives with his mother, who provided permission for him to participate and completed his pre- and post-questionnaire.

**Ethan.** Ethan is a Caucasian 7-year-old male in the 2nd grade diagnosed with ASD. Ethan receptively and expressively labels 30+ common items and expressively communicates in 1–3 word sentences. He was assessed through the Vineland Adaptive Behavior Assessment. Ethan received a composite standard score of 52 and age equivalent score of 1 year 6 months. At the time of assessment, his chronological age was 7 years 6 months. His communication age equivalent score was 1 year 4 months. Ethan lives with his mother and father, who both provided permission for him to participate and completed his pre- and post-questionnaire.

**Nevin.** Nevin is an African American 12-year-old male in the 5th grade diagnosed with ASD. Nevin receptively and expressively labels 5+ common items and expressively communicates in one word utterances. He was assessed through the Vineland Adaptive Behavior Assessment. Nevin received a composite standard score of 29 and age equivalent score of 1 year 2 months. At the time of assessment, his chronological age was 12 years 0 months. His communication age equivalent score was below the age of 1. Nevin lives with his mother and father, who both provided permission for him to participate and completed his pre- and post-questionnaire.

**Tyler.** Tyler is a Caucasian 11-year-old male in the 6th grade diagnosed with ASD. Tyler receptively and expressively labels 50+ common items and expressively communicates in 3–5 word sentences. He was assessed through the Vineland Adaptive Behavior Assessment. Tyler received a composite standard score of 46 and age equivalent score...
equivalent score of 3 years 1 month. At the time of assessment his chronological age was
11 years 11 months. His communication age equivalent score was two years 7 months.
Tyler lives with his mother and father, who both provided permission for him to
participate and completed his pre- and post-questionnaire.

Sarah. Sarah is a Caucasian 11-year-old female in the 5th grade diagnosed with
ASD. Sarah receptively and expressively labels 20+ common items and expressively
communicates in 1–3 word sentences. She was assessed through the Vineland Adaptive
Behavior Assessment. Sarah received a composite standard score of 35 and age
equivalent score of 1 year 8 months. At the time of assessment her chronological age was
11 years 3 months. Her communication age equivalent score was 1 year 4 months. Sarah
lives with her mother and father, who both provided permission for her to participate and
completed her pre- and post-questionnaire.

Alex. Alex is a Caucasian 11-year-old male in the 5th grade diagnosed with ASD.
Alex receptively labels 5+ and expressively labels 0 common items. He is learning to
communicate through an augmentative communication device. He was assessed through
the Vineland Adaptive Behavior Assessment. Alex received a composite standard score
of 23 and age equivalent score of 1 year 1 month. At the time of assessment his
chronological age was 11 years 9 months. His communication age equivalent score was
below the age of 1. Alex lives with his mother, who provided permission for him to
participate and completed his pre- and post-questionnaire. Due to attendance issues and
factors external to the experiment, Alex did not complete the study.
Video Model Peers. Typically developing peers were selected as the models in the videos. They were in grades Kindergarten through 6th grade, and they attended the same school as the participants. All videos were recorded in the school environment. Each participant had parental consent to participate.

Settings

Training. Training occurred in a 1:1 setting in the student’s special education classroom. Each participant sat with the lead researcher (i.e., lead classroom teacher) at the teacher work table where they regularly work on core curriculum and IEP goals.

Natural Environment. Data were collected on the effects of the intervention across each student’s entire typical school day. Data were collected in the students’ special education classroom, hallways, and their inclusion gym, art, and music rooms. Additionally, data were collected during all related services such as occupational therapy, speech language therapy, physical therapy, and adaptive physical education. Data were collected daily for each student during their normal school hours.

Materials

Materials included pre-created videos displaying a peer without disabilities engaging in an independent spontaneous request. Typically developing students were recorded in their general education classrooms. Students were asked if they would like to participate in a video. All students agreed and each were provided a situation to request an item (e.g., open, drink, pencil). Each student participated in 1–3 videos, which took no more than 5 min to complete.
Three videos were created for each of 10 targeted situations—straw, spoon, pencil, scissors, help, open, bathroom, drink, food, and break—each with a different peer model for a total of 30 different videos. I filmed each video on my cell phone and transferred them to my computer. Once videos were uploaded to my computer, I labeled them and put them in the order they would be viewed by the students. For the straw videos, peer models were presented juice without a straw, and they had to ask for the straw to receive it. For the spoon video, peer models were provided an item to eat without a spoon, and they had to ask for one to eat the item. For the pencil video, peer models were asked to write something down (i.e., write your name) without being given a pencil, and they had to ask for a pencil. To get peers to ask for scissors, they were handed a shape and asked to cut it out—they needed to ask for scissors. In the help videos, peers were asked to complete a difficult math problem that they would need to ask for help in order to complete. To demonstrate open, videos showed a peer model attempting to open an item and asking an adult if they could open it. For the bathroom, drink, and food videos, peer models were recorded asking to go to the bathroom, for water or juice, or a food item such (e.g., cereal, applesauce). In the break videos, peer models were given a sheet of math problems. In the middle of completing their worksheets, students would ask for a break. When they asked for a break, the worksheet was removed.

Other materials needed were a computer to show the video models, food items to open (e.g., chips, juice, applesauce), straws, spoons, pencils, worksheets, scissors, and items students need help with (e.g., zipping coat, words they cannot read, difficult math problems).
Dependent Measures and Data Collection

The dependent variable was spontaneous requesting defined as independently (i.e., without any visual or verbal prompts) asking for a desired item to fulfill a want or need (Charlop et al., 1985). A correct spontaneous request was recorded when the request was independently made by an individual (i.e., you give a child something to eat and they say, “I need a spoon” or they are feeling hungry and the student says “Can I have chips?”). An incorrect spontaneous request was recorded when a student requested an incorrect item (i.e., asked for a pencil when they needed scissors) or when a student needed something opened but asked for an item they already had in hand (e.g., needed applesauce opened but said “applesauce please”).

Spontaneous requesting in training environment. After watching the video model, participants were presented with the materials to request the action that was just shown in the video (e.g., open please). During training, the first six scenarios (i.e., requesting a straw, spoon, pencil, scissors, help, open) were shown three times with an opportunity to engage in the request between each video. The last four scenarios (i.e., bathroom, drink, food, break) were only shown one time during each training session. Given that asking to go to bathroom, or for a drink, food, and break are internal wants or needs, these videos were only shown one time each. Data were collected on independent requesting.

Spontaneous requesting in natural environment. Data were collected on independent spontaneous requesting Monday through Friday for each student during their normal school hours. Each school day consisted of six hours of data collection from the
hours of 9:00 AM to 3:00 PM. Data collection only stopped when the student was in the training environment watching the video models.

**Experimental Design**

A parallel multiple baseline across participants design was used and included baseline and intervention phases. (Gast, Lloyd, & Ledford, 2014). In a multiple baseline across participants design, the independent variable is introduced to one participant at a time. Once a participant displays a stable baseline across 3–5 data points, that participant can begin intervention. The second participant may begin intervention once they have displayed a stable baseline of at least 3–5 data points and the previous participant is showing consist growth in intervention. This process is repeated until all participants are in intervention (Gast et al., 2014). The training condition was concluded when students scored at least 18/22 (82%) spontaneous requests during the training session over 5 consecutive days.

**Reliability and Procedural Integrity**

**Interobserver agreement.** Interobserver agreement (IOA) is the amount of agreement between two or more observers (Cooper, Heron, & Heward, 2007). I conducted all observations in this study with my two paraprofessionals collecting IOA data. Role playing was used to train both paraprofessionals prior to data collection. The criterion for them to start collecting data was to demonstrate 100% agreement on spontaneous requesting over three days. We collected data on all six students during their entire school day Monday through Friday. IOA data were collected twice a week during five day weeks and once a week during three day weeks. Three day weeks occurred due
to holidays and breaks. IOA agreement was calculated as a percentage of agreement between the total number of responses recorded by two observers and was calculated by dividing the smaller number of counts by the larger number of counts and multiplying by 100 (Cooper, Heron, & Heward, 2007). IOA data were collected for an average of 33% (range: 32–34%) of the days with an average of 94% (range: 90–97%) agreement.

**Procedural integrity.** Procedural integrity data were collected during 33% of training sessions observed by one of the paraprofessionals in the classroom. Procedural integrity data indicate whether the lead experimenter performed the training sessions as outlined by completing a checklist (See Appendix A). Procedural integrity data indicate that training sessions were conducted with 100% fidelity. Procedural integrity was calculated as a percentage of agreement between the total number of responses recorded by two observers and is calculated by adding the number of steps completed and dividing it by the total number of steps (Cooper, Heron, & Heward, 2007)

**Procedures**

**Baseline.** Students had access to the Structured Teaching for Autistic and Communication-Delayed Kids (STACK) curriculum, which is their modified curriculum aligned to the state content extended standards for all core subject areas, throughout this study. During baseline, no additional instruction or prompting for requesting were provided. Instances of spontaneous requests were tallied daily for each participant.

**Video modeling.** During the video modeling intervention, participants individually sat with the teacher work table and were asked if they would like to participate in viewing videos. All students agreed and sat for approximately 15 min and
watched the pre-created video models described above. For the first six targets, the students watched one video model, the student was presented the necessary materials, and was given 3–5 s to request the needed item. If no request was made, the materials were removed and the next video was shown. For each of the first six targets, regardless of performance, students watched the three videos for that target, before moving on to the next target. If students stood up, they were prompted to sit back down to complete the video. After watching all of the videos, students continued with their normal school-day routine. Students were shown one video for each bathroom, drink, food, and break per training session. Targets were chosen based upon their usefulness to the classroom environment and basic human needs.

**Natural environment.** Data were collected during the participant’s normal school hours to track all spontaneous requests. No systematic prompts were offered in the natural environment, but situations were provided to elicit spontaneous requesting opportunities. Example situations included providing a student with a worksheet to complete without giving them a pencil, providing them their lunch without a spoon to eat, giving them a difficult work task without provided guidance. Students were provided opportunities from their teacher, paraprofessionals, related service therapists (i.e., occupational therapist, speech language pathologist, physical therapist, and adaptive physical education therapist) and extracurricular teachers (gym, art, music and library) to interact in the situations seen in the videos along with novel situations. Related service therapists and extracurricular teachers were not provided training. However, they were informed of the intervention being implemented.
**Maintenance.** Maintenance began once a student scored 18/22 (82%) on 5 consecutive trials during intervention. Maintenance probes were collected once per week and intervention was no longer implemented.

**Generalization.** This research focused on whether rehearsed (i.e., requesting a straw, spoon, pencil, scissors, help, open) and non-rehearsed targets (i.e., bathroom, drink, food, break) would generalize to the natural environment and/or to new non-targeted communication responses (e.g., iPad, swing, bubbles, tickles).

**Social Validity.** Pre- and post-intervention surveys were sent home to parents. The survey included multiple choice and fill-in-the-blank questions, along with space to add any additional comments about their child’s communication. The pre- and post-intervention surveys each had seven questions (See Appendix B). Parents completed the first survey prior to baseline sessions beginning. They completed the second survey once their child entered the maintenance condition.
Results

Two parallel multiple baseline experiments were conducted for six students, though only five completed intervention. Of the five who completed intervention, five effects were demonstrated. All five participant’s maintained levels of spontaneous requesting without additional intervention reviews. Data are described below and summarized in Figure 1.

In addition to tracking the frequency of each participant’s spontaneous requesting, what they were requesting was tracked as well. Table 1 provides a percentage and range breakdown for each student across rehearsed, non-rehearsed, and non-targeted requests (i.e., other).

Michael

During baseline, Michael engaged in a low, stable level of spontaneous requesting with an average of 0.3 (range: 0–1) spontaneous requests per day. When video modeling began, he rapidly increased his spontaneous requests, reaching a peak of 13 spontaneous requests during session 10. Following, there was a slight drop in level, and then a slightly variable increase in trend until session 12, where 14 spontaneous requests were reached. During intervention, spontaneous requests averaged 8 per day (range: 0–14). During
maintenance, spontaneous requests averaged 17 per day (range: 11–22). Michael engaged in 56% rehearsed, 15% non-rehearsed, and 29% non-targeted spontaneous requests. Non-targets spontaneous requests for Michael included asking for the iPad, swing, art supplies, work materials, computer, YouTube videos books and games.

**Ethan**

During baseline, Ethan engaged in a low, stable level of spontaneous requesting with an average of 0.6 (range: 0–3) per day. When video modeling began, he rapidly increased his spontaneous requests, reaching a peak of 12 spontaneous requests during session 20. Following, there was a slight drop in level, and then a slightly variable increase in trend to session 23, where 16 spontaneous requests were reached. During intervention, spontaneous requests averaged 8 per day (range: 0–16). During maintenance, spontaneous requests averaged 15 per day (range: 9–21). Ethan engaged in 54% rehearsed, 22% non-rehearsed, and 24% non-targeted spontaneous requests. Non-targets spontaneous requests for Ethan included asking for the iPad, glue, toys, and tickles.

**Nevin**

During baseline, Nevin engaged in a low, stable level of spontaneous requesting with an average of 0.1 (range: 0–1) per day. When video modeling began, he rapidly increased his spontaneous requests, reaching a peak of 5 spontaneous requests during session 24. Following, there was a slight drop in level, and then a slightly variable increase in trend until session 33, where 8 spontaneous requests were reached. During
intervention, spontaneous requests averaged 5 per day (range: 1–8). During maintenance, spontaneous requests averaged 9 per day (range: 7–12). Nevin engaged in 69% rehearsed, 15% non-rehearsed, and 16% non-targeted spontaneous requests. Non-targeted spontaneous requests for Nevin included asking for the iPad, ketchup, and glue.

**Tyler**

During baseline, Tyler engaged in a low, stable level of spontaneous requesting with an average of 0.3 (range: 0–1) per day. When video modeling began, he rapidly increased his spontaneous requests, reaching a peak of 11 spontaneous requests during session 10. Following, there was a slight drop in level, and then a slightly variable increase in trend to until session 19, where 17 spontaneous requests were reached. During intervention, spontaneous requests averaged 10 per day (range: 1–17). During maintenance, spontaneous requests averaged 20 per day (range: 14–23). Tyler engaged in 43% rehearsed, 38% non-rehearsed, and 19% non-targeted spontaneous requests. Non-targets spontaneous requests for Tyler included asking for the iPad, swing, walks, computer activities, glue, work materials, and the quiet area.

**Sarah**

During baseline, Sarah engaged in a low, stable level of spontaneous requesting with an average of 1 (range: 0–3) per day. When video modeling began, her spontaneous requesting rapidly increased, reaching a peak of 8 spontaneous requests during session 16. Following, there was a slight drop in level, and then a slightly variable increase in trend to session 27, where 19 spontaneous requests were reached. During intervention, spontaneous requests averaged 12 per day (range: 5–19). During maintenance,
spontaneous requests averaged 19 per day (range: 17–22). Sarah engaged in 41% rehearsed, 37% non-rehearsed, and 22% non-targeted spontaneous requests. Non-targeted spontaneous requests for Sarah included asking for the iPad, swing, glue, tickles, squeezes, and songs.
Social Validity

Figure 1. Spontaneous requests per school day (sessions) for each participant
Figure 1 continued

![Graph showing the trend of spontaneous requests over sessions and weeks for Tyler and Sarah during baseline, intervention, and maintenance phases.](image-url)
<table>
<thead>
<tr>
<th>Students</th>
<th>open</th>
<th>straw</th>
<th>spoon</th>
<th>pencil</th>
<th>scissors</th>
<th>help</th>
<th>bathroom</th>
<th>food</th>
<th>drink</th>
<th>break</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael</td>
<td>1%</td>
<td>7%</td>
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<td>19%</td>
<td>15%</td>
<td>12%</td>
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<tr>
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<td>(0–4)</td>
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</tr>
<tr>
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<td>16%</td>
<td>3%</td>
<td>5%</td>
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<td>(3–118)</td>
<td>(13–27)</td>
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</table>

**Table 1. Percentage and Range Break Down of Individual Spontaneous Requesting**
Many individuals with ASD have communication deficits. One communication skill in particular that many individuals with ASD struggle with is spontaneous requesting. Fortunately, video modeling provides an evidence-based tool that can be utilized to teach individuals to spontaneously request desired items. Results from this study show that individuals with ASD who are struggling with spontaneous requesting can benefit from the evidence-based tool video modeling. During baseline, all six students demonstrated low rates of spontaneous requesting. Intervention was shown to benefit the five students who completed the study. Maintenance data showed that students demonstrated growth without additional reviewing the videos again. The outcomes from this study extend the literature related to using video modeling to teach spontaneous requesting in a number of ways.

An offhand comment was made during a student’s ETR meeting. The parent was sharing how much more their child is talking at home and attempting to request items they were not at the beginning of the school year. Through the post-intervention survey 4/5 parents, of students who completed the study, agreed that the intervention helped their child’s spontaneous requesting.
Results indicate that video modeling may serve as a viable option for students with ASD to acquire spontaneous requesting to novel targets. Similar to Plavnick and Ferreri (2011), my study showed that video modeling was an effective way to teach spontaneous requesting. In contrast, my study focused on and demonstrated that students can generalize to non-rehearsed video modeling targets. Results indicate that students engaged in higher rates of rehearsed targets than non-rehearsed targets. This suggests that students generalized rehearsed opportunities to non-rehearsed targets but were more likely to engage in rehearsed targets for which reinforcement was delivered during training.

In addition to non-rehearsed targets, the results also demonstrate that the students generalized spontaneous requesting to untrained targets (i.e., requests for which they saw no video model). This may have happened because once they started making requests and being reinforced for doing so, they began to engage in additional requesting for items needed and or wanted that they were able to independently label. Increasing student’s expressive vocabulary may help increase non-rehearsed as well as untrained targets.

**Implications for practice**

The results from this study demonstrate that video modeling can be used as an effective evidence-based procedure to increase spontaneous requesting in individuals with ASD. Not only is video modeling effective, but it is a simple tool that can be used in a classroom. Video modeling was incredibly efficient and did not require high level skills to successfully implement. This study validates that video modeling can be implanted by a teacher who has students diagnosed with ASD and are engaging in low levels of
independent requesting to enhance spontaneous requesting skills. Video modeling in this context can be applied within a student’s natural environment with everyday resources. Creating videos for students to learn from is a unique learning tool that helps engage a student’s attention and may help enhance their ability to focus and learn in a way that is enticing to them (Banda, Dogoe, & Matuszny, 2011).

As a result of paraprofessionals collecting data, they were excited about witnessing an increase in student’s spontaneous requesting. Although participant’s spontaneous requests increased from baseline to intervention, the number of opportunities to initiate provided by paraprofessionals increased as well. Even though paraprofessionals were not asked to increase opportunities to initiate, they did as a result of their enthusiasm about the research. When paraprofessionals see their students succeed, they may engage in more teaching to try to see more success.

Limitations and Future Research

Although we targeted open and bathroom in the study, prior to the study, we taught students to use scissors to open difficult items and bathroom is included several times in their daily school schedule. Future researchers should choose targets that do not already have a means of access (i.e., there is a toy on the top shelf that a student cannot reach and does not know how to ask for help). I recommend choosing targets that you do not have to change your schedule or environment for.

Even though the intervention was successful, we did not have 100% IOA agreement. This was due to paraprofessionals working with other students and not hearing requests or needing to leave the room to help other students (e.g., go get lunch,
go the bathroom). I encourage capturing your participants complete school day, Monday through Friday. Collecting data during the entire time they were at school allowed to me view all of their spontaneous requesting abilities while in their school environment. It also provided me the information that my students were generalizing the behavior across teachers and settings. However, future researchers should consider creating data sheets were you can mark times IOA is or is not being collecting as opposed to an entire day stamp to help set in structured time. This would help eliminate confusion on when your IOA collector is out of the room and missing a request instead of a disagreement.

Although participants in this study strongly responded to video modeling as an intervention, they were only shown 10 situations. To extend this research, I recommend future researchers work toward a continuous progression of spontaneous requesting by adding 3 to 5 new video modeling targets every time current targets have reached mastery. This would allow students to expand their practice targets and work toward a continuous goal as the school year progresses. It would also provide you with an extended opportunity to collect maintenance data on previously mastered targets.

Although participants’ spontaneous requests increased from baseline to intervention, the number of opportunities to initiate provided by paraprofessionals increased as well. Due to this change, we were unable to disaggregate these effects. Future researchers should endeavor to measure opportunities to initiate well as spontaneous requests to investigate the correlation between these two components. Future researchers should consider recording opportunities to initiate spontaneous requesting during baseline. Tracking opportunities will allow you to know if opportunities provided
during baseline are equivalent to opportunities provided during intervention and maintenance.

In this study, we practiced collecting data through role play. Although IOA was high, collecting data in the natural environment may have created less excitement after the study began. For future researchers, when implementing this intervention, I recommend having your IOA collectors exercise taking practice data for several days prior to taking real data in addition to several practice training opportunities. This will allow them to fully understand their role and how the research will work. It will also give them ideas how to provide opportunities to initiate spontaneous requesting. In addition, it will provide an opportunity for your IOA collectors to ask questions prior to taking real data.

**Conclusion**

When utilizing video modeling, the person creating the videos and implementing the intervention can do so without needing a high skill level. It is an intervention that can easily be implemented by anyone. Utilizing the paraprofessionals in the classroom as IOA collectors is a great way to incorporate them into the research and not require outside visitors, unfamiliar to the participants, in the classroom. Utilizing video modeling to teach students with ASD to spontaneous request is a great and simple tool that can be implemented in any classroom.
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communication training. Journal of Applied Behavior Analysis, 18, 111–126.

Centers for Disease Control and Prevention. (2016). Facts About ASD. Retrieved from:

picture exchange communication system (PECS) with children with autism: Assessment
of PECS acquisition, speech, social-communicative behavior, and problem behavior.


## Appendix A: Intervention Procedural Integrity

<table>
<thead>
<tr>
<th><strong>Action</strong></th>
<th><strong>Yes / No</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Play video 1 (open)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of child that they cannot open</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 2 (open)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of child that they cannot open</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 3 (open)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of child that they cannot open</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 1 (straw)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of them, they need a straw to drink</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 2 (straw)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of them, they need a straw to drink</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 3 (straw)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of them, they need a straw to drink</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 1 (spoon)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of child, they need to ask for a spoon to eat</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 2 (spoon)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of child, they need to ask for a spoon to eat</td>
<td>Y/N</td>
</tr>
<tr>
<td>Activity Description</td>
<td>Decision</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Play video 3 (spoon)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place item in front of child, they need to ask for a spoon to eat</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 1 (pencil)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place paper in front of child, ask them to write their name</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 2 (pencil)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place paper in front of child, ask them to write their name</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 3 (pencil)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place paper in front of child, ask them to write their name</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 1 (scissors)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place paper in front of child, ask them to cut out a shape</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 2 (scissors)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place paper in front of child, ask them to cut out a shape</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 3 (scissors)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place paper in front of child, ask them to cut out a shape</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 1 (help)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place word problem in front of child they cannot solve independently</td>
<td>Y/N</td>
</tr>
<tr>
<td>Play video 2 (help)</td>
<td>Y/N</td>
</tr>
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<td>Video is over, place word problem in front of child they cannot solve independently</td>
<td>Y/N</td>
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<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Play video 3 (help)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Video is over, place word problem in front of child they cannot solve</td>
<td>Y/N</td>
</tr>
<tr>
<td>independently</td>
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<tr>
<td>Let’s watch a video (bathroom)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Let’s watch a video (drink)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Let’s watch a video (break)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Let’s watch a video (snack)</td>
<td>Y/N</td>
</tr>
</tbody>
</table>
Appendix B: Pre- and Post- Intervention Surveys

Name: _______________________________________

Date:______________________________________

Participant’s name:

______________________________________________

Please answer the following questions. If more than 1 answer applies, you may circle more than one answer.

1. At home, what kind of language does your child use? Please select all that apply.
   a. Scripted  b. 1-3 word utterances  c. full sentences
      d. echolalia language  e. no language

2. If your child uses language at home, can you provide examples of things your child is talking about? Is it always in response to something you’ve said, or will they initiate communication with you?

3. At home, does your child independently and spontaneously request items?
   a. Yes  b. No
4. How often does your child, independently spontaneously request items?
   a. 0 times a day      b. 1-3 times a day      c. 4 or more times a day

5. If 1 or more times a day, what is your child always requesting (i.e., person, food, toy, etc)?

6. Does your child spontaneously request to 1 person or different people within their home environment? For either response, please indicate who your child communicates with regularly.
   a. 1 person      b. More than 1 person

7. What goals do you have for your child with respect to communication? What would you like to see your child doing with spontaneous requesting? Feel free to use back side to answer this question.
1. At home, does your child have spoken language?
   a. Scripted  
   b. 1-3 word utterances  
   c. full sentences  
   d. echolalia language  
   e. no language

2. Is this different than what you were seeing before the study?
   a. Yes  
   b. No

3. If yes, what are you seeing that is different?

4. At home, does your child independently and spontaneously request items?
   a. Yes  
   b. No

5. If 1 or more times a day, what is your child requesting (i.e., person, food, toy, etc.)? Has the type of things your child request changed since the study started?
6. Is your child requesting to 1 person in the home environment? Is this different?
   a. Yes  
   b. No

7. Do you believe this experiment increased your child’s spontaneous requesting?
   a. Yes  
   b. No