Improving Video-Modeling Outcomes in Preschoolers with Autism: A Study on the Effects of Actors on Learning

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Abstract

Video-Modeling is an effective teaching tool that is frequently used to teach new skills to children with Autistic Spectrum Disorder. The main issue to be addressed in this paper is whether the use of strangers versus familiar models as actors in video-modeling scenarios affects the extent to which 2 preschoolers with autism develop and retain modeled play behaviors and scripted verbalizations related to a play set. The study will also address whether the acquired behaviors and verbalizations are maintained in the short and long term following the video modeling.

*Keywords*: autism, ASD, Asperger Disorder, assistive technology, video-modeling, preschoolers, strangers, play
Introduction

Autism is a significant developmental disorder characterized by limitations in social interactions and communication with others, and restricted and repetitive behaviors (American Psychiatric Association, 2000). Research has demonstrated that video modeling is a teaching methodology that can produce rapid acquisition of a variety of skills in children with autism (Buggery, 2005; MacDonald et al, 2005) and typically developing children (Boudreau and D’Entremont, 2010). Video modeling is a technique in which an individual views a videotaped demonstration of a model engaging in a desired behavior and is then given a chance to imitate the model’s actions (Hine and Walery, 2006; Bellini and Akullian, 2007).

Research in video-modeling shows that the most effective models (actors) are those who are close to the observer’s age, with similar characteristics (gender, personality, race) and are functioning only slightly above the level of the observer (Bandura, 1997, 2001). This supports the notion that observers learn best from models with whom they identify. Researchers have proffered that it might be more effective for a child with autism spectrum disorders to be his or her own model, as opposed to a peer (Buggery, 2005). This study seeks to uncover whether the use of strangers versus familiar models as actors in video-modeling scenarios affects the extent to which 2 preschoolers with autism will demonstrate modeled behaviors and scripted verbalizations. Throughout this paper, the term “preschoolers” will refer to children aged 2-5 years old, who have not yet begun to attend elementary school. “Autistic spectrum disorders” (ASD) refers to the spectrum of psychological conditions affecting social and communication skills including Autism, Asperger Disorder, and Pervasive Developmental Disorder (PDD).
While there is growing support for the efficacy of video modeling in producing imitation of play behavior in preschoolers, there is variable data about whether new skills are adequately maintained after videos are withdrawn (Boudreau & D’Entremont, 2010). Also, while there is research on how video-modeling increases positive social interaction of school-aged children (Nikopoulos & Keenan, 2004; LeBlanc et al, 2003, Reeve et al, 2007) there is a need for research specifically pertaining to the use of video-modeling to enhance play and social skills in preschoolers with autism. Families, educators, researchers and caregivers of preschoolers with autism will benefit from the study’s findings because it will add to the existing body of knowledge regarding specific early intervention techniques and what precise factors affect learning and retention for children with autism.

**Literature Review**

Research by Boudreau and D’Entremont (2010) with 2 preschoolers with autism and outlined many of the reasons video modeling is a worthwhile intervention strategy for children with autism, such as: it is more time and cost effective than live modeling, leads to increased generalization to different stimuli, is systematic and controlled, is potentially broad in scope because the same video can be shown to many individuals, and its visual nature benefits those children whose auditory skills might lag behind their visual skills. They also contend that more research is needed on the long term maintenance effects of video modeling interventions in preschoolers with autism (Boudreau and D’Entremont, 2010).

In 2006, Hine and Walery also studied 2 preschoolers with autism using video-modeling; however, the videos they created used “point-of-view” perspective to teach play actions. This
approach shows actions being performed from the child’s perspective looking outward, rather than as if the child were watching someone else. The study found that the preschoolers were able to acquire new play behaviors and partially generalize the skills into the classroom (Hine and Walery, 2006).

A study conducted with a preschooler and a 7 year old with ASD (MacDonald et al, 2005) found that the children were able to develop an extended range of scripted play behaviors (actions and verbalizations) with 3 different play sets after a video modeling intervention that used adult models. A limitation of the study, though, was that the children did not develop any unscripted but contextually-appropriate play (MacDonald et al, 2005).

Reeve et al (2007) studied the impact of a video modeling intervention on the helping behaviors of 4 school aged children with autism. The children in the study did not demonstrate any sharing behaviors at the beginning of the study; however, results showed that all 4 children learned a generalized repertoire of helping responses across various situations after video modeling training, prompting and reinforcement. It was particularly impressive that social validity measures found that the intervention resulted in helping behaviors rated to be similarly appropriate to that of their typically-developing peers (Reeve et al, 2007).

Buggery (2005) conducted research in video self modeling (VSM), which involves using a child as his or her own model, by capturing and then replaying moments when the child has performed at a higher than usual level. With VSM, a child has the chance to repeatedly see him or herself performing in the desired way. Buggery found this approach to be highly effective across a wide range of behaviors in several children with autism who ranged from 5 to 11 years old (2005). He suggested that further research comparing peer and self-modeling, would be
helpful to increase educators’ understanding of what phenomena in particular have the most significant impact on the effectiveness of video modeling (Buggery, 2005).

**Research Purpose and Questions**

The purpose of this study will be to determine if the use of familiar actors versus strangers in a video modeling intervention has any effect on the acquisition of social skills for preschoolers diagnosed with autism spectrum disorders. The study participants will be 2 children with autism who are between 3-5 years old and enrolled in the Preschool Autism Classes (PAC) Program for preschool-aged students with autism in the Fairfax County Public Schools System. The PAC Program operates 5 days a week, between 9am-3:30p and uses Applied Behavior Analysis and Verbal Behavior techniques to teach and encourage communication, social skills, appropriate behavior and other skills. Classes have a 2:1 student-to-staff ratio and systematic instruction is provided in a highly structured setting. The selected children have scores in the mild to moderate range on standard assessment scales for autism (the Childhood Autism Rating Scale).

Specifically, the study will seek to answer the following:

- What effect, if any, does the use of familiar actors versus strangers have on the extent to which preschoolers with autism acquire play skills through video modeling?
• Does the use of familiar actors versus strangers in the video-modeling scenarios affect how well preschoolers are able to retain newly acquired skills after increasingly longer periods without video-modeling?

Method

Participants

Two children (A and B) will participate in the study. The researcher will obtain permissions from the parents of the children and the teacher involved in the study. The children will be selected from a group that participates in a daily 30-minute group play session at the preschool and whose social and play skills have been targeted as an intervention goal.

Each child will meet the following profile:

• between 3-5 years old at the start of the study
• has mild to moderate autism
• has rudimentary speech skills and can use short phrases to ask for objects.
• does not have siblings.
• is able to follow simple directions
• has not had prior experience with video modeling techniques

Setting

The children will watch a video model in one room, and their play behaviors will be measured in the play room. The play room has a large open space in the middle and several activity centers with various toys, books and games along the periphery.
Research Design

Videos using a family dollhouse set with figurines (the Little People Happy Sounds Home Set) and 2 performers will be used for the study. The performers are defined as follows: “familiar teacher” – the preschooler’s teacher in real life, and “stranger” – an adult the child has never met or seen before. It is important to note that the stranger will not have any remarkable characteristics or features that might make him or her threatening to the preschooler.

The study will use a single subject design with multiple baselines across subjects design. Both children will participate in 3 phases of the study; baseline, video modeling, and maintenance (see Table 1). In the Baseline Phase, the preschooler will be given the play set on 4 consecutive days, and told to “Go Play” for approximately 5 minutes. In the Video Modeling Treatment Phase, which will span 10 days, the preschooler will watch the video, then will immediately be given the play set and told to play for 5 minutes. They will not receive any prompting, reinforcement, or instructional cues, other than to be offered the play set as described in the baseline phase. In the Maintenance Phase, the preschoolers are given the play sets without viewing the video. Short term maintenance will be tested in 3 sessions for each child beginning one week following the last video modeling session. Long term maintenance will be tested in 1 session, which will occur 4 weeks following the final short-term maintenance session. All sessions will be videotaped and coded by the researcher.

<table>
<thead>
<tr>
<th>Table 1 Experimental Design</th>
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<tbody>
<tr>
<td><strong>Baseline Phase:</strong></td>
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<tr>
<td><strong>Video modeling Phase:</strong></td>
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<tr>
<td><strong>Maintenance Phase:</strong></td>
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Independent Variable

There will be two versions of the video, one with the stranger (the control video), and another with the familiar teacher. In both versions of the 2 minute video, the adult opens the play set and performs 11 actions and 11 verbalizations (2-4 words in length) appropriate to the play set (See Table 2).

<table>
<thead>
<tr>
<th>Modeled Actions</th>
<th>Scripted Verbalizations</th>
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</thead>
<tbody>
<tr>
<td>1. Press the Doorbell</td>
<td>Ding-Dong! Who’s there?</td>
</tr>
<tr>
<td>2. Open the Door</td>
<td>Hello! Come inside!</td>
</tr>
<tr>
<td>3. Press the Washing Machine Button</td>
<td>Swish-Swish!</td>
</tr>
<tr>
<td>4. Open the Refrigerator</td>
<td>It’s snack time!</td>
</tr>
<tr>
<td>5. Spin the Wheel to the Sun</td>
<td>It’s Morning Time!</td>
</tr>
<tr>
<td>6. Spin the Wheel to the Moon</td>
<td>Time for bed!</td>
</tr>
<tr>
<td>7. Put Baby in the Bathtub</td>
<td>It’s baby bath time!</td>
</tr>
<tr>
<td>8. Lift the Toilet Lid</td>
<td>Whoosh! Flush the potty!</td>
</tr>
<tr>
<td>9. Put figures in chairs around the table</td>
<td>Sit and eat!</td>
</tr>
<tr>
<td>10. Press Phone button</td>
<td>Brrring! Get the phone!</td>
</tr>
<tr>
<td>11. Rock Baby in the Bassinet</td>
<td>Shhh! Baby’s sleeping!</td>
</tr>
</tbody>
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Dependant Measures

The number of modeled actions, unmodeled actions, scripted verbalization, and unscripted verbalizations are the dependant measures in this study. Using the worksheet in Figure 1, observers will record the preschoolers’ behaviors with the play set after viewing the video. Modeled actions will be defined as ones that closely match the model’s motor actions. Unmodeled actions will be any actions that are relevant to the play scenario, but not modeled in the video. Scripted verbalizations will be defined as verbalizations that exactly match or closely
match the wording of the model. Unscripted verbalizations will be defined as those that were not scripted, but were relevant to the scenario.

The researcher will plot the number of actions and verbalizations graphically for each phase and for each child. The researcher will use visual analysis of the data to uncover any noticeable variability or trends.

The study has several limitations. First, only 2 children will be studied. The results might, therefore, be difficult to generalize to other subjects. Future research would have to use more participants in order to validate any conclusions from the present study. Second, since the researcher is the sole coder for the sessions, s/he might have biases that affect the results. Since the sessions are all recorded, this bias could be addressed by using more than one coder and testing for inter-rater reliability.
REFERENCES


