UTILIZING VIDEO MODELING IN AN EDUCATIONAL SETTING TO TEACH
PLAY SKILLS TO YOUNG CHILDREN WITH AUTISM: A PROJECT

By

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ABSTRACT

UTILIZING VIDEO MODELING IN AN EDUCATIONAL SETTING TO TEACH PLAY SKILLS TO YOUNG CHILDREN WITH AUTISM: A PROJECT

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This project examines the factors involved in utilizing the evidence-based intervention practice of video modeling with young children with autism. To better understand the technique, a pilot implementation of video modeling was included in the process of completing the project. The challenge in video modeling is in understanding all of the steps and individualization needed to use it as an effective intervention. In this project there is an overview of various forms of video modeling, play skills to target in an educational setting, tools for creating videos and strategies for implementing the intervention in a school setting. During the pilot, I implemented video modelling with one of my students. As part of standard practice, rates of initiations of play for the pilot student were taken before, during and after the intervention. The student exhibited an increase of the target skill during and after the intervention. Video modeling for the pilot student appeared to support the learning of the target skill.

DESCRIPTORS: children with autism, video modeling, implementation
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# TABLE OF CONTENTS

ABSTRACT ................................................................................................................ ii  
ACKNOWLEDGMENTS .......................................................................................... iii  
TABLE OF CONTENTS ........................................................................................... iv  
LIST OF TABLES .................................................................................................... vii  
CHAPTER 1 INTRODUCTION .................................................................................. 1  
CHAPTER 2 LITERATURE REVIEW ...................................................................... 4  
  Introduction .............................................................................................................. 4  
  Autism ...................................................................................................................... 5  
  Diagnosis and the Spectrum ..................................................................................... 5  
  Demographics ........................................................................................................... 6  
  Intervention Goals .................................................................................................... 7  
  Intervention .............................................................................................................. 8  
  Video Modeling ........................................................................................................ 9  
  Play .......................................................................................................................... 10  
  Communication ...................................................................................................... 11  
  Social skills ............................................................................................................. 11  
  Conclusion .............................................................................................................. 12  
CHAPTER 3 METHOD ............................................................................................. 13  
  The Pilot ................................................................................................................. 14  
  Sam .......................................................................................................................... 15  
  Assessment background ......................................................................................... 16
LIST OF TABLES

Table 1: Bayley Scales of Infant and Toddler development- III-Administered 03/09/12 (Age 34mths 28dys) .................................................................16

Table 2: Adaptive Behavior Scale-Administered 3/09/12- Age 34.28mths...........17

Table 3: ADOS Module 1...................................................................................18

Table 4: ARS for Sam ........................................................................................20

Table 5: Baseline Initiations with Adults and Peers for Student......................24

Table 6: Initiations after video with Adults and Peers for Student .................24

Table 7: Examples of the scripts used in developing a traditional, self-model, and point of view video models .................................................................27

Table 8: Play skills examples ...........................................................................30
CHAPTER 1
INTRODUCTION

In this project the goal is to address the knowledge and steps required to effectively implement video modeling across various learners with the education diagnosis of autism, and outline skills that can be targeted, as well as the components needed to individualize the intervention. Autism spectrum disorder is a neurological disorder that represents a spectrum of severity primarily impairing children’s learning of language and social thinking skills (Lord & Scholper, 1989). Video modeling is considered an evidence-based intervention for children with autism (National Professional Development Center on Autism Spectrum Disorders, 2012). Video modeling is a technique that uses video rather than live scenarios for the child to observe, thus reducing competing stimuli and allowing the focus of attention to be concentrated on the stimulus video (McCoy, K., & Hermansen, E. 2007). The use of video allows practitioners to model a skill repeatedly to a learner at any time. The learner can access the information through visual instruction, which is benefit for children with autism (McCoy, K., & Hermansen, E. 2007). As one of the newer intervention techniques being used, a standard of accessibility and fidelity in implementation is still being developed. Because of the wave of technology that is easily accessible that include devices such as iPads and iPods, video modeling has the potential to become a favorite tool in teacher’s intervention toolboxes (DiGennaro Reed, F. D., Hyman, S. R., & Hirst, J. M., 2011).
Video modeling is the process of videotaping targeted behaviors in order to expand the learner's capability to memorize, imitate, and generalize those skills (Hitchcock, Dowrick, & Prater, 2003; Neumann, 2004). The behaviors that have been successfully targeted include the domains of social communication, play, imitation and positive behaviors (DiGennaro Reed, F. D., Hyman, S. R., & Hirst, J. M., 2011). Individuals with autism are weak gestalt processors; meaning that they cannot pick out relevant points of information in an interaction (DiGennaro Reed, F. D., Hyman, S. R., & Hirst, J. M. (2011). The ability to target and model a skill in a video allows the interventionist to control and show only the relevant information.

For this project, all the various forms of video modeling will be addressed. This includes premade videos utilizing actors or peers. Then video self-models, which utilize the target student in the video and are, created for just that individual. As well as point of view video, which is taken from the perspective of the individual’s eye view. The other form of video modeling is video prompting, which breaks a skill into steps (Franzone, E., & Collet-Klingenber, L., 2008). This work will help a practitioner decide which video format is the best for his or her student and the process involved in creating one.

Researchers have outlined the various types of video models and effects related to them (McCoy, K., & Hermarisen, E., 2007). With fidelity in implementation and
individualization to the learner the technique can effectively teach a target skill (McCoy, K., & Hermarinen, E., 2007). The consistent implementation is key for an effective intervention. (Corbett, B. A., & Abdullah, M., 2005).

The foci for intervention in this project are children on the autism spectrum who would be accessing school-based instruction. Students with an Individual Education Plan, due to a diagnosis of autism spectrum disorder, can range in ages from three to twenty one. Each IEP is individualized around students’ needs, and all students vary in their needs, so will the level and type of intervention. Video modeling has been demonstrated to be effective for student’s ages three to twenty two, creating the potential to utilize it for many students. Also, students may have varying intellectual and adaptive functioning and this technique may benefit a large percentage of them (Committee on Educational Interventions for Children with Autism [CEICA], 2001).

The project will outline a framework for implementing video modeling, selecting types, play skills to target and tools to use to in an educational setting.
CHAPTER 2
LITERATURE REVIEW

Introduction

In this literature review, I will examine instruction for children on the autism spectrum. The demographics of the population, what educational intervention best practices are, and where and how video modeling as intervention techniques fit into teaching skills. For the purpose of this literature review, the term ‘‘intervention’’ refers to the systematic instructional focus on teaching skills that have not naturally appeared with the typical development in a child; included will be the range of skills supported by literature to be effectively taught through video modeling. Intervention is an essential factor in dramatically improving the IQ and social skills of children with autism spectrum disorder (Kasari, Paparella, Freeman, & Jahromi, 2008; Rogers & Vismara, 2008). Intervention for students with autism spectrum disorder refers to children participating in some educational programming that is driven by their Individual Education Plan and is based on a deficit skill (Committee on Educational Interventions for Children with Autism [CEICA], 2001 Best practices in intervention techniques have been published by two different organizations. The National Professional Center on Autism Spectrum Disorders has released the twenty-four evidence-based practices that are supported by research (The National Professional Center on Autism Spectrum Disorder [TNPCASD], 2010). The National Autism Center has published the National Standards project which identifies eleven
established treatments, twenty-two emerging treatments, and five un-established treatments (The National Autism Center [TNAC], 2010).

_Autism_

Autism spectrum disorder is a neurological disorder that presents itself either from birth or very early in children’s development. The disorder varies in severity of symptoms and presence of various features such as mental retardation and language delay (CEICA, 2001). The diagnostic criteria include behavioral deficits in eye contact, ability to orient to one’s name, joint attention behaviors, pretend play, imitation, nonverbal communication, and language development (CEICA, 2001). The term autistic spectrum disorder is the most familiar and most commonly used expression in literature and by professionals in practicing practice (Department of Developmental Services [DDS], 2002). Broadly described, autism spectrum disorder refers to a pattern of behaviors involving three central features; impairments in socialization, verbal and nonverbal communication, and restricted and stereotyped actions—that can vary widely in terms of symptom expression (DDS, 2002).

_Diagnosis and the Spectrum_

The spectrum that autism covers includes a broad range in IQ: both children with profound mental retardation and gifted intellect can qualify for the diagnosis (CEICA, 2001). In addition, children can have other confounding impairments that operate separate to the autism (CWGASD, 1997). Developmental screening is a
short test to tell if children are learning basic skills when they should, or if they might have delays (DDS, 2002). During developmental screening, doctors might ask parents some questions or talk and play with children during an exam to see how they learn, speak, behave, and move (DDS, 2002). A delay in any of these areas could be a sign of a problem (Center for Disease Control [CDC] 2009). The second step of diagnosis is a comprehensive evaluation (DDS, 2002). This thorough review may include looking at children’s behavior and development and interviewing the parents (DDS, 2002). It may also include a hearing and vision screening, genetic testing, neurological testing, and other medical testing (CDC, 2009).

Demographics

One in every eighty-eight American children receives the diagnosis of autism spectrum disorder (CDC, 2012). As of June, 2007, 87% of cases of autism were in children 18 years or younger (DDS, 2009). There has been a 40% increase in individuals diagnosed with autism spectrum disorder but not mental retardation (DDS, 2009). This can be seen dramatically in the numbers of consumers served by Regional Centers, the California state identified agency to provide service to children and adults with disabilities. Currently in California, 40% of Regional Center consumers with autism spectrum disorder are identified ethnically as European American, 27.7% as Latino, 8.9% as Asian, 8.4% as African American, 3.3% as Filipino, .2% as Native American, .2% as Polynesian, and 10.6% as other (DDS, 2009). The ratio of males to females with autism spectrum order is 4.6 to 1.
Cognitively, only 20% of Regional Center consumers with autism spectrum disorder have mild to moderate cognitive impairment, and 8% have profound to severe impairment (DDS, 2009). Sixty-two percent of the populations of individuals diagnosed with autism have experienced no retardation (DDS, 2009).

**Intervention Goals**

Early intervention remains the most effective and powerful indicator of positive long-term outcomes for children with Autism (CEICA, 2001). Strong empirical support exists for the benefits of intensive behavioral programs for young children with Autism spectrum disorders, although the precise teaching strategies and curricula content are often a topic of debate (Lord & Schopler, 1989; Rogers & Vismara, 2008). While the components of intervention programs are often a source of controversy, it is generally agreed that program intensity combined with early diagnosis and intervention can lead to substantial improvement in children’s functioning (Lovas, 1987; Prizant, Wetherby, Rubin, Laurant & Riddell, 2006). Goals for early intervention include the acquisition of communicative competence and the ability to regulate emotions to be available for learning (Prizant et al., 2006). Communicative competence is the ability to communicate verbally or nonverbally to meet one’s needs and wants (Prizant et al., 2006). It requires the ability to direct communication both symbolically (words, picture or signs) and non-verbally (gestures, affect) to other individuals to meet a variety of needs and desires including gaining access to items, activities or people (Prizant et al., 2006).
Communicative competence is also part of the ability to engage with another for a shared experience (Prizant et al., 2006). Research supports the claim that acquisition of many of these skills is learned by typically developing children through play (Boutot, 2005).

**Intervention**

The interventions identified by the National Autism Center are classified into three levels: established treatments, emerging treatments, and unsupported treatments. In the established treatments, the identified interventions are the following: 1. The Antecedent package; Behavioral package; Comprehensive Behavioral Treatment for Young Children; Joint Attention Intervention; Modeling; Naturalistic Teaching Strategies; Peer-Training package; Pivotal Response Treatment; Schedules; Self Management; Story-based intervention (The National Autism Center, 2010). Research supporting their use must meet evidence-based criteria, defined as established peer-reviewed research to support the effectiveness of the treatment (CEICA, 2001). Video modeling is an evidence-based intervention (TNAC, 2010). Scripting is identified in story-based intervention (The National Autism Center, 2010). Intervention for the purpose of this review is defined as some provider (school, private agency, university) purposefully teaching a set of skills through direct adult to child interactions or peer to child interactions. These interactions can include the techniques of positively reinforcing certain behaviors or
language, providing visuals to increase comprehension, or setting up a physical environment that is easy to maneuver through.

Video modeling is a method of teaching that uses technology to record a series of actions or skills and then show the learner those set of behaviors, so that he or she will acquire the targeted skills (The National Professional Development Center on Autism Spectrum Disorders, [TNPDCASD] 2012). There are various technologies available to complete the videoing, such as video recorders, iPods and iPads. There is also various editing software or application so that the targeted skill can be videoed then edited for use. Video modeling includes self-video modeling which has the learner performing parts of the desired skill. Then editing the video to show the skill being performed by the learner but as mastered (TNPDCASD, 2012). An alternate video model utilizes actors to perform the target skills (TNPDCASD, 2012). There is also point of view modeling which shows the target skill from the learner’s perspective (TNPDCASD, 2012). A self-video model is when the target student is used in the video completing the target skill. This typically requires editing to create the appearance that the student can independently complete the skill though in truth they can only complete portions of the skill. Then the edited video is shown to the student.
Play

The domains of communication, social, academic/cognition, and play are represented in evidence-based studies. Typical play development reflects a child’s growing understanding of objects, social awareness of self and others, emotional attachments and relationships with adults and peers (Wolfburg, 2003). A child will move through several stages and types of play as they progress through early childhood (Boutot, 2005). Manipulative play, also referred to as sensorimotor play is evident in early life when a baby is discovering pleasure in sensory experiences with objects, self and others (Wolfburg, 2003). Simple mouthing, patting, swiping, grasping, banging and turning help an infant anticipate the effects of their behavior on objects (Brown, 2001). Near the end of the first year, the capacity to spontaneously engage in functional play emerges (Wolfburg, 2003). Functional play includes a delayed or deferred imitation as a child mimics familiar actions as applied to objects, self and others in everyday life (Wolfenbug, 2003). The child possesses a mental image of what the object can do, but has not yet separated the object from the physical action itself (Wolfburg, 2003). Examples of function play include simple or complex actions with constructive materials, such as placing a peg in a hole, stacking blocks, constructing train a track or building with Legos (Wolfburg, 2003). More complex functional play involves isolated schemes such as placing a blanket on a teddy bear, feeding mommy with a toy spoon, or brushing a doll’s hair (Wolfburg, 2003).
Symbolic-pretend play first emerges between two and three years of age and has three fundamental forms: object substitution—using one object to represent another; attribution of absent or false properties—pretending that a dry table is wet, imaginary objects as present—pretending that an empty cup contains tea (Boutot, 2005).

Communication

The domain of communication is one deficit area that typically needs to be addressed for children on the autism spectrum. Communication includes both verbal repertoires and nonverbal gestures and eye contact. Communication also encompasses back and forth exchanges and the higher level conversation skills (Quill, K., 2011). Within the autism literature video modeling has been used to target communication, including initiations, scripting, and teaching alternative forms of communication such as picture exchange (Banda, D.R., Copple, K.S., Koul, MR. K., Sancibirian, S.L., & Bogschutz, R. J., 2010).

Social skills

One of the criteria in diagnosing an autism spectrum disorder is a deficit in social abilities (CDC, 2012). The criterion related to social impairment in the Diagnostic Statistical Manual is defined as a:

• qualitative impairment in social interaction, as manifested by at least two of the following:
• marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction;
• failure to develop peer relationships appropriate to developmental level;
• a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
• lack of social or emotional reciprocity (American Psychiatric Association (2000)

Social skills can be broken down into steps for teaching. These include showing appreciation, sitting correctly, giving compliments, sharing, changing the game when a friend is bored, turn taking, making empathetic statements, playing indoor and outdoor games, interrupting appropriately, facial recognition (e.g., sad, mad), raising one’s hand, proper greetings, conditioned reinforcement, and cheering for a friend (Leaf, J. B., Dotson, W. H., Oppenheim-Leaf, M. L., Sherman, J. A., & Sheldon, J. B., 2012).

Conclusion

This literature review supplies both an overview of video intervention methodologies and the defining characteristics of students on the autism spectrum. The next chapter will explore the methodology I used to explore the use of video modeling, implementation and effectiveness with a young child on the autism spectrum.
CHAPTER 3

METHOD

The search engines ERIC and OmniFile were searched using the key words: autism, video modeling, effectiveness, skills, and implementation were used to identify literature relevant to the role of video modeling as a teaching technique with children identified on the autism spectrum. The National Professional Development Center evidence-based practice files on video modeling were also reviewed. Evidence-based intervention fidelity checklists (NPDC, 2013) provided the basis for implementation recommendations using video models. The literature review examines several types of video modeling, a range of video-interventions and articles that examined the range of skills that can be effectively taught through video modeling were reviewed. The literature revealed that assessment of baseline skills can be a helpful indicator of what type of video modeling to select for a particular student. Depending on the assessment tool used and the area of focus, implementation of video modeling can vary significantly.

For this project, I piloted an implementation of video modeling with a young child diagnosed with autism. Creating an individualized video designed to increase the rate of initiations for the purpose of play with peers and adults. The video consisted of a script that was used in conjunction with a self-video model. The skill of initiating was defined as approaching and using verbal or physical means to start a communicative play-based interaction with adults or peers.
For the intervention, the definition of play was an activity [that is] shared with another individual for the purpose of partaking in an experience or emotion of a jovial nature. Initiations for food, toys or other activities that do not lead to a shared pleasurable activity or for the sole purpose of gaining an item do not mean the definition. The student participated in a school-based intervention program that operates twenty -hours a week, based on the district’s school calendar. The intervention was performed during the summer session, of school which operated four days a week for four hours a day. I utilized the National Professional Development evidence-based fidelity checklist for video modeling to ensure all the correct steps for implementation were present.

The Pilot

The participant in the study was a student with a medical diagnosis of Autism Spectrum Disorder. The student was a male three year old with the medical diagnosis of autism. ‘’Sam’’, had participated for six months in a special day class placement. The range of autism spectrum disorder is large and individual children vary greatly from one to the other. Therefore, generalizing the results of this study is unwarranted.
Sam meets the qualifying eligibility for Autism Spectrum Disorder which includes qualitative impairment in social interaction, as manifested by at least two of the following (Diagnostic and Statistical Manual of Mental Disorders, Revised 4th ed., American Psychiatric Association, 2000):

1. marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction;
2. failure to develop peer relationships appropriate to developmental level;
3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people, (e.g., by a absence of showing, bringing, or pointing out objects of interest to other people);
4. lack of social or emotional reciprocity (note: in which description, it gives the following as examples: not actively participating in simple social play or games, preferring solitary activities, or involving others in activities only as tools or "mechanical" aids).

He demonstrated impaired ability to use verbal or nonverbal means to initiate and engage with adults or peers. Sam used single words to request highly preferred items and respond to directives. Sam employed around twenty-five different words, all were relating to items that he desired, such as ball, crackers, juice, and recess. He did use his language spontaneously without adult prompting.
Assessment background

Table 1: Bayley Scales of Infant and Toddler development- III- Administered
03/09/12 (Age 34mths 28dys)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Standard Score</th>
<th>Percentile Rank</th>
<th>Developmental Age</th>
<th>Range</th>
<th>Developmental Age 5/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Composite</td>
<td>85</td>
<td>16</td>
<td>26mths</td>
<td>Low Average</td>
<td>19mths</td>
</tr>
<tr>
<td>Language</td>
<td>62</td>
<td>01</td>
<td>-</td>
<td>Extremely Low</td>
<td>-</td>
</tr>
<tr>
<td>Receptive Expressive</td>
<td>04 03</td>
<td>02 01</td>
<td>15mths 16mths</td>
<td>Extremely Low</td>
<td>4.10mths 2.20mths</td>
</tr>
<tr>
<td>Motor</td>
<td>94</td>
<td>34</td>
<td>-</td>
<td>Average</td>
<td>-</td>
</tr>
<tr>
<td>Fine Gross</td>
<td>09 09</td>
<td>37 37</td>
<td>33mths 33mths</td>
<td>Average</td>
<td>20mths 21mths</td>
</tr>
</tbody>
</table>

The Bayley is an assessment designed to measure physical, motor, sensory, and cognitive development in babies and young children. It involves interaction between the child and examiner and observations in a series of tasks. Sam’s assessment showed his cognitive skills at the date 03/09/12 to be in the low average range and his language skills in the extremely low range. His expressive language age equivalency was 16 months and receptive language age 15 months. Sam demonstrated difficulty in tasks that required imitation, following unfamiliar verbal directions, and sustaining interactions with the examiner. Sam was able to assemble simple puzzles, match objects and sort by color. He was able to respond to his name and a request for social routine. He was not able to attend to another’s play routine,
identify objects in the environment. Sam was not able to use a gesture or initiate a play routine Table 1).

Table 2: Adaptive Behavior Scale-Administered 3/09/12 - Age 34.28mths

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Standard Score</th>
<th>Percentile Rank</th>
<th>Ability Rank</th>
<th>Upper Age Equivalency scores-months</th>
<th>Standard Score 5/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Adaptive Composite</td>
<td>67</td>
<td>01</td>
<td>Extremely Low</td>
<td>Average=22.7</td>
<td>67</td>
</tr>
<tr>
<td>Conceptual Composite</td>
<td>59</td>
<td>03</td>
<td>Extremely Low</td>
<td>Average=18.3</td>
<td>67</td>
</tr>
<tr>
<td>Communication</td>
<td>03</td>
<td>01</td>
<td>Extremely Low</td>
<td>13</td>
<td>03</td>
</tr>
<tr>
<td>Functional Pre-Academics</td>
<td>04</td>
<td>02</td>
<td>Extremely Low</td>
<td>21</td>
<td>05</td>
</tr>
<tr>
<td>Self-Direction</td>
<td>05</td>
<td>05</td>
<td>Borderline</td>
<td>21</td>
<td>07</td>
</tr>
<tr>
<td>Social Composite</td>
<td>74</td>
<td>04</td>
<td>Borderline</td>
<td>Average=21</td>
<td>71</td>
</tr>
<tr>
<td>Leisure</td>
<td>06</td>
<td>09</td>
<td>Borderline</td>
<td>21</td>
<td>05</td>
</tr>
<tr>
<td>Social</td>
<td>06</td>
<td>09</td>
<td>Borderline</td>
<td>21</td>
<td>06</td>
</tr>
<tr>
<td>Practical Composite</td>
<td>74</td>
<td>04</td>
<td>Borderline</td>
<td>Average=23</td>
<td>79</td>
</tr>
<tr>
<td>Community Use</td>
<td>06</td>
<td>09</td>
<td>Borderline</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Home Living</td>
<td>09</td>
<td>37</td>
<td>Average</td>
<td>29</td>
<td>09</td>
</tr>
<tr>
<td>Health and Safety</td>
<td>06</td>
<td>09</td>
<td>Borderline</td>
<td>21</td>
<td>05</td>
</tr>
<tr>
<td>Self care</td>
<td>04</td>
<td>02</td>
<td>Extremely Low</td>
<td>19</td>
<td>04</td>
</tr>
<tr>
<td>Motor</td>
<td>11</td>
<td>63</td>
<td>Average</td>
<td>38</td>
<td>07</td>
</tr>
</tbody>
</table>

Sam’s adaptive skills were in the extremely low range, which indicates he has fewer adaptive skills than others his age. It is difficult for him to say the names of other people and point to items in the room when asked. He is able to choose a toy during
playtime and play simple games with others. It is difficult for him to seek friendships and invite others to play (Table 2). Sam’s mother was described as having a normal pregnancy. Both his parents at the time of the intervention were residing in the same home. Sam had typical development until eighteen months when there was a regression in skills, which led the family to pursue a developmental evaluation.

Table 3: ADOS Module 1

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Score</th>
<th>Autism Cut-Off</th>
<th>ASD Cut-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>05</td>
<td>04</td>
<td>02</td>
</tr>
<tr>
<td>Reciprocal Social Interaction</td>
<td>07</td>
<td>07</td>
<td>04</td>
</tr>
<tr>
<td>Communication + Social Total</td>
<td>12</td>
<td>12</td>
<td>07</td>
</tr>
<tr>
<td>Play</td>
<td>02</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Stereotyped behaviors/Restricted Interests</td>
<td>03</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Sam was administered the ADOS module one he scored in the autism cutoff range. These assessments were provided in March 2010, which was five months prior to the video modeling intervention. The description given is an early look at how Sam was operating in March. He had made progress in the intervention program since the completion of the report. Sam was using more language and play skills in the
intervention than were described in his March assessment. He was actively engaging in the classroom activities and demonstrating positive classroom behaviors (Table 3).

Sam’s educational intervention profile

In intervention and education, standardized scores for assessments are not the basis for choosing educational intervention techniques. Different teaching curriculums can be accessed to provide an autism-specific profile of targeted learning. The Social Communication Emotional Regulation Transactional Supports (SCERTS) (Prizant et al., 2006) was utilized to create a profile describing Sam and assisting in the development of individual educational plans. The other tool used in creating profile/profiles for understanding the learner(s) was the Autism Intervventional Responsiveness Scale.

Sam and SCERTS

Sam on the SCERTS framework was a language partner. This is the middle level of the assessment. This means he had over three words (roughly twenty-five) that he regularly used referentially with communicative intent. The categories used to describe his profile are joint attention, symbol use, mutual regulation, and self-regulation. The four attributes that profile the learner are divided into prompts that range from twenty-five to thirty behaviors, with each individually rated from never happens, to sometimes happens or always happens with tied ratings of 0, 1, 2. According the SCERTS Sam could engage in a two time back and forth exchange;
he could share attention, emotion and intentions with an adult moderately. He could learn by imitation and observation and had some symbolic play skill, used words to express meaning and could do so without contextual cues. He could express simple emotions and accept assistance for regulation from adults. He demonstrated availability for learning and could regulate using behavioral and language strategies for most activities and initiate with adults but not peers conventionally.

*Autism Responsiveness Scale-Sam*

**Table 4: ARS for Sam**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive Motor Behavior</td>
<td>Infrequent mild self-stimulatory behavior when excited or upset</td>
</tr>
<tr>
<td>Intellectual Ability</td>
<td>85</td>
</tr>
<tr>
<td>Attention</td>
<td>Attention to tasks for extended periods of time</td>
</tr>
<tr>
<td>Activity</td>
<td>Generally calm, readily remains seated, does not appear more active than typical peers</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Not overly apprehensive; exhibits anxiety in novel situations</td>
</tr>
<tr>
<td>Physical Features</td>
<td>Typical features resembling those of other family members and typical peers</td>
</tr>
<tr>
<td>Communication</td>
<td>Uses spoken words to communicate: follows single-step directions</td>
</tr>
<tr>
<td>Joint Attention</td>
<td>Frequent joint attention</td>
</tr>
<tr>
<td>Imitation</td>
<td>Good motor and moderate- to-good verbal imitation</td>
</tr>
<tr>
<td>Social Interest</td>
<td>Definite social interest; prefers to be with others but lacks typical social skills</td>
</tr>
<tr>
<td>Insistence on Sameness</td>
<td>Has one or two specific routines but otherwise flexible about daily activities</td>
</tr>
<tr>
<td>Narrow Interests</td>
<td>Interested in specific toys but can be distracted easily</td>
</tr>
</tbody>
</table>
Each area of the scale has a corresponding number value of one, two or three. Sam’s score put him in a range that indicates he could benefit from naturalistic teaching strategies. The focus of the scale is to clarify which students would be best instructed through direct teaching or naturalistic teaching (Table 4).

Sam as a Pilot

Sam was selected as the pilot as he had participated in intervention but would still be accessible for follow up. Being that he would be eligible for preschool services for another two years and be within the scope of program in some capacity.

Instruments

Sam was also selected based on his current levels of play skills, specifically on presentation of deficits in initiation ability as documented in his individual education plan. I used an event/frequency recoding data sheet to track baseline presentation of the target skills. The form used was a traditional frequency data sheet that was slightly modified so that I could make notations on the side bar. I completed four observations on four different days for a length of sixty minutes each; during times the students would have access to other peers and access to toys. Baseline observations occurred specifically on Tuesday, Wednesday and Thursday and one subsequent Monday. Observations involved sitting in the room in an area not designated for student use, so as not to be a distraction. Sam attended the same special day classroom as his peers. The classroom consisted of seven students, one
lead teacher and two instructional aides. Observations, because they were over an hour, occurred in the mornings between nine and eleven. These times included free play, circle, bathroom, and recess and table top work time. Subsequently, the intervention was done within the same time frame and across the same days. During the baseline observations, recording of student behavior was completed for the creation of the video-self model. To establish the number of initiation behaviors, the National Professional Development Center for Autism Spectrum Disorder implementation checklist for video modeling was used as a step-by-step guide to ensure fidelity in implementation for each of the two students.

**Intervention**

A video of each student performing a nonverbal initiation play activity was created utilizing video footage taken during baseline observations. The videos were edited to show the initiation steps being performed, using video of the individual child as much as possible. The sequence was

1. A title of the video with a picture of the student “Sam Playing with Friends”

2. Video of the child playing and the printed text and voice-over of “at school my friends are”

3. Pictures and labels of each of the other students and adults in the room with text and a voice-over saying their names.
4. The child with peers in an activity with the text “When I want to play I have to” and a voice-over.

5. The image of eyes with a voice-over of the text “Look with your eyes”.

6. An image of the child walking and the text “walk toward” with a voice-over

7. An image of a child speaking with the text “say what you want” and a voice-over

8. Then the target child looking toward the camera, and walking toward another peer with the text and voice-over of “look, walk, say, let’s play”

9. Then a video of the child near peers with the text and voice-over of a voice read over and text of “things I can play with friends”

10. A succession of images that included ring around the rosie, sand table, children reading, children building, children playing with cars, children playing ball, children racing, with those images labeled in text and voice-over. The last image was of a happy face with the text and voice-over of “playing with friends is fun”.

The videos were taken with an Ipad 2, and Microsoft Windows Movie Maker was used to create an individualized videos. Sam was then given scheduled times to watch the video at the work table in the classroom. Sam viewed the video individually and if he asked questions, these were answered by the researcher. The activities that were suggested in the video were all activities those commonly observed of students participating in in that setting. I sat at the same work table to
both take observational data and then to show the video to the individual student. I did not interact with Sam after showing the video for the remainder of the school day of all the viewings. This occurred four times in the classroom for four non-consecutive days of over two school weeks. I collected data with frequency time sheet to see if the target skills were increasing (Table 5).

Results from the Pilot

Table 5: Baseline Initiations with Adults and Peers for Student

<table>
<thead>
<tr>
<th>Probe number</th>
<th>Student Sam Adult</th>
<th>Student Sam Peers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probe 1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Probe 2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Probe 3</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Intervention data

Table 6: Initiations after video with Adults and Peers for Student

<table>
<thead>
<tr>
<th>Probe number</th>
<th>Student Sam Adult</th>
<th>Student Sam Peer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probe 1</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Probe 2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Probe 3</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Probe 4</td>
<td>9</td>
<td>2</td>
</tr>
</tbody>
</table>
The number of play initiations did increase between the target student and adults (Table 6). With the implementation came some insights that should be taken into consideration on understanding and utilizing video modeling. A first issue is that having an assessment tool that can frame the target skill is important when beginning to decide which video will be selected. As students vary greatly in abilities, a play assessment can be helpful in consistency of understanding the target behavior and tracking skill progression. Other aspects included taking video and having enough of it to create a meaningful project. An interventionist is going to have to ensure the or she spends enough time selecting and recording the information that will assist him or her in targeting the skill. This can require assistance from other staff in prompting children to play or participate in a certain way, in order to capture the footage.
CHAPTER 4

CONTENT

*Video Model Types*

There are various approaches to video modeling. These include premade videos that can be purchased from companies. Current examples of premade videos are Model Me Kids, which target social skills, Social Skill Builder, which focuses on play and social skills, Watch Me Learn, a program focused on play and social skills, The Planet, aimed at teenagers on the autism spectrum and teaching age-relevant social skills, and Teach2Talk which teaches play and social skills. While these videos may be effective, more individualized forms of video modeling allow an interventionist, to create video specifically designed for the learner and the target skill (Wilson, K., 2013).

*Traditional Video Model*

A traditional video model is one that is created by an interventionist using actors or typically developing peers to act out a target skill. If verbal initiations are being targeted to teach through a video model, then the actor to another actor or set of actors performs a specific initiation. In a school-based program using peers that are a part of the target students school life as the actors in the video can be powerful and convenient (McCoy, K., & Hermarsen, E., 2007). For teaching play initiations, the script in a traditional video model would indicate what the actors do and say. The
video could include various components, including a voice-over of the skill being taught, or subtitles dictating what is happening, or both. Traditional video modeling makes a point to clearly identify the skill being focused on through either voice or text- so that the viewer has a clear understanding of what is being shown to him or her (Table 7).

Table 7: Examples of the scripts used in developing a traditional, self-model, and point of view video models

<table>
<thead>
<tr>
<th>Model</th>
<th>Skill and Script</th>
<th>Voice-over</th>
<th>Subtitles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Video Model</td>
<td>Physical and verbal imitation: Actor approaches another actor, reaches out with hand and taps other actor and says, “Hi”</td>
<td>A voice saying: When children want to play they walk up to them, tap them to get their attention and say, “Hi”.</td>
<td>When children want to play with friends, they walk up to them; tap them to get their attention and say, “Hi”.</td>
</tr>
<tr>
<td>Video Self-Model</td>
<td>Physical and verbal initiation to peer: Record student approaching another student, interventionist physically prompts student to tap, visually prompts a “Hi” from target student with a visual cue card</td>
<td>When children want to play with friends, they walk up to them; tap them to get their attention and say, “Hi”.</td>
<td>When children want to play with friends, they walk up to them; tap them to get their attention and say, “Hi”.</td>
</tr>
<tr>
<td>Point of view modeling</td>
<td>Physical and verbal initiation of play: Record video from physical perspective of student, account for view from child’s height, record walking to another student, using hand to tap student, and say, “Hi”, while recording device is “looking” at other student (other student has been primed to participate in the video)</td>
<td>When children want to play with friends, they walk up to them; tap them to get their attention and say, “Hi”.</td>
<td>When children want to play with friends, they walk up to them; tap them to get their attention and say, “Hi”.</td>
</tr>
</tbody>
</table>
Video Self-Model

Video self-modeling uses the target student as the actor in the video portraying the desired skill. In this approach the student performs the parts of the skill that they are able to do. The interventionist must obtain video of as much of that skill as possible. They can also choose to prompt the student through the skill and later edit out the prompts, so the viewer cannot see those prompts in the final product. The video is then presented to the learner depicting that student performing the target skill independently (Table 7).

Point of view video modeling

Another form of video modeling is point-of-view which aims to teach a target skill through the lens of the target student, with all video filmed through the student’s perspective showing what the student would see as the skill is performed. Many times the interventionist will bring the video equipment to his or her eye level and film from there. For example, showing how to tie a shoe will show hands tying the shoe lace. For transitioning from one room to another room, the image would begin with a view of the desk from the student’s perspective, to rising up and then filming at the child’s standing level, to movement toward the hall, then the hallway, and then the other room (Table 7).
Video prompting

The last video technique is video prompting, which breaks the target skill down into steps; the video is not viewed as whole, but only in sections. As the student completes the skill, he/she is presented the next step. Students are required to successfully demonstrate the target skill before he or she is allowed to attempt the next part of the skill. For example, a student learning to paint would be presented the first step of getting paper through the video, then the student does that and the next part of the video is shown, which is getting paint, and subsequently the student is given time to perform that, and so on.

Skills to target

Video modeling has proven to be effective in a range of domains (Belini, S.J., & Akulian, J., 2007). Within that range, the interventionist must identify through assessment and observation what skill each learner needs to be taught, how to present it in a video, and how often the learner should be exposed to the video. The domains of communication, social, academic/cognition, and play have been used (Franzone, E., & Collet-Klingenberg, L. 2008). For the focus of this project, only play skills will be looked at in depth. Examples of possible play skills to teach are listed in (Table 8).
### Table 8: Play skills examples

<table>
<thead>
<tr>
<th>Functional and Symbolic play</th>
<th>Functional Use of Objects as Actions of Toys</th>
<th>Play Schemes</th>
<th>Sequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>using a toy car to go down a track</td>
<td>pretending to cut with a toy knife</td>
<td>being a doctor and giving pretend shots, band aides</td>
<td>Stirring a spoon in a bowl and putting the spoon up to one’s mouth</td>
</tr>
<tr>
<td>putting pretend dishes on the table</td>
<td>pretending to wash dishes in a toy sink</td>
<td>being a server in a restaurant</td>
<td>Feeding a baby with a bottle, wrapping the baby in a blanket, and putting the baby to bed</td>
</tr>
<tr>
<td>building a house with blocks</td>
<td></td>
<td></td>
<td>Pushing a block on a train track, and connecting it to another block to make a longer train and pushing it across a track</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stirring a block in a bowl and putting it up to a doll’s mouth to eat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Holding hand to ear to talk on phone and giving to a peer to talk</td>
</tr>
</tbody>
</table>

(Wolfenburg, P., 2003)

**Play skills assessment**

To effectively target a skill for video modeling, completing a formal assessment of play skills is highly recommended. Here is a list of some informal play skills assessments each provide a framework for targeting skills.
1. The Preschool Play Behavior Scale (PPBS; Coplan & Rubin, 1998) is a teacher’s rating scale designed to assess the multiple forms of young children's solitary behaviors. The PPBS is an 18-item rating scale which evaluates social and nonsocial behaviors during peer play. This scale consists of items for five play factors, including reticent behavior, solitary-passive behavior, solitary-active behavior, social play and rough-and-tumble play. Each item is rated on a five-point Likert scale to determine how often the participant typically engages in the behavior (never, hardly ever, sometimes, often, and very often). To score the measure, the relevant items for each factor are totaled to provide the participant with a score for each of the five factors.

2. *Moving Toward Social Competency* includes a play section that assesses skills for very early learners to higher level learners. It is produced by the Minnesota Autism Project (2011), and includes a range of skills from basic and emergent to functional.


4. Jed Baker’s book (2009), *Social Skills Training for Children and Adolescents with Asperger’s and Social-Communication Problem*, provides a checklist of skills to use as an outline for selecting target skills to teach. This particular book includes skills beyond play, but is still a resource in selecting video modeling targets.
5. The Social Skills PRE-K to Early Elementary checklist (2013), used by Escambia County School District in Florida is also a useful resource in designing a video intervention. It covers a range of skills, including play, emotions and conversation.

*Individualizing for learner*

Whatever specific skill one chooses to address in an intervention using video modeling, the process should include collecting formal pre-intervention baseline data (Collaborative Work Group Resources in Education, California Department of Education, 1997). To effectively select a target, a prerequisite skill should be identified as being present and then a baseline of the target skill should be tracked. The baseline could be the absence of the skill, as long as there is enough data to justify that the skill is in the deficit range and warrants intervention (CWGRE, 1997). For each skill, there are a variety of assessments, as identified above. Whichever one is chosen formal or informal assessment justifying the selection should be acquired before beginning the intervention (Belini, S., & McConnell, L.L., 2010).

*Tools*

Video equipment can range from traditional video cameras, which require a disk or tape, to more contemporary digital tablets which record and have installed applications to edit the material. Video recorders have become accessible and affordable, and are even provided to some teachers, therapists, and/or schools. Small,
USB-ready video cameras range in price, with the more expensive options generally producing better video and audio quality (Wilson, P.K., 2013). Software like iMovie or Movie Maker are convenient and easy-to-use tool for editing and creating personalized videos. The iMovie also comes in an application that can be loaded on an iPod or iPad. Popular flip video cameras or digital video cameras can be purchased for less than $100 dollars. Those devices often come with their own downloading software and are compatible with iMovie. The qualities that are a priority are the accessibility of editing and sharing the created product.

Implementation

Implementation of the intervention is also very individualized. After creating the video, the intervention team can select points in the day at which the students would have access to viewing without distraction. This should occur strategically before activities that require the skill to be applied. Because of the individuality of the learner, the team would need to track data to monitor the presence of the skills. Data should be monitored weekly at a minimum to identify progress or lack of progress throughout the intervention period. Exposure to the video should be tapered off or stopped altogether once the skill has been demonstrated to a sufficient level.

Scripts and voice-over

The use of scripts and voice-overs can be helpful, depending on the level of the student. A voice-over is typically recorded by the interventionist or an actor, such as
a same-gendered child, speaking a specific script on the video to explain a skill or clarify the expectations of the video being presented (Dudek, K., Beck, A. R., & Thompson, J. R., 2006). A script is pre-determined story line or the video. The use of subtitles may also be recommended dependent on the learner (Balconi, M., Amenta, S., & Ferrari, C., 2012). For children with hyperlexia or unusually advanced reading capabilities, the use of subtitles is display of words detailing the skill or expectations can be particularly effective.

Checklist For Implementing a Video Model Intervention For Play Skills

1. Identify student and complete a play skills assessment to determine present levels of strengths and weaknesses.

2. Identify target skill through data frequency or duration samples. Samples should at minimum represent three different days, and the length of the sample should be sufficient to determine absence or presence of specific behavior. The sample should also represent various times of day, across activities or settings.

3. Decide which type of video modeling the team will be using: point of view, traditional, pre-made, or video prompting.

4. Identify video equipment and software: flip video, iPod, Microsoft Windows Movie Maker or iMovie etc...

5. Shoot your video footage and create a finished product. If it is a premade video, then this next step is unnecessary.
a. Consider the flow of the video, length and inclusion of scripts and voice
overs.

b. Customize the presentation according to the needs of the specific learner. How long can the learner attend, do they read or are they hyperlexic, and can a child’s voice be used if a voice over is provided.

6. Identify times in the day and week when that child will view the video. Decide how many times should the child view the video and across how many days.

7. Identify times to do follow-up probes to determine if the video is being effective.

8. Make modifications to the number of viewings as is necessary to support the behavior.

Video releases and other considerations

It is extremely important to consider ethical and legal factors in recording a student. One must obtain permission from the family to video the student is. If other students are in the video, the same permission must be factored in. For the purpose of instruction, the video created should only be seen by the target student and, once completed, kept in a safe location so access is only available to interventionist staff. It is recommended to use a video permission form when utilizing video modeling in one’s program. After the skill is no longer being targeted, it is recommended to destroy the created video in order to protect the individual’s privacy.
Other considerations for video modeling implemented in a school-based setting are the training the staff has and time for development. Some families may give cultural reasons for not wanting their children in videos. Certain schools have not embraced video modeling as an intervention. Additionally equipment may be limited to what the school district owns or what an individual teacher can purchase out of his or her classroom budget. Time spent on creating the video typically occurs during prep periods.
Sample Permission Form

Permission Form – Participation Consent and Photo/Video Release

Agency Name

Agency Address

Agency Contact Information: Name

Email: Phone:

Name of Child/Student: _________________________

Date of Birth: __________________________________

The (agency) program incorporates parent involvement and consultation on the educational program of their child. As part of this involvement, students may be videoed to create video models and evidence-based intervention. These videos will be used to teach skills to your child or another student. Since confidentiality is of the utmost importance in relation to the services we offer, we would like to get your approval on the level of comfort you have in your student being videoed.

I agree to my child being videoed for intervention purposes for him or herself:

__________________________ signature and date

I agree to my child being videoed for creation of intervention videos for others:

__________________________ signature and date
Discussion

The pilot implementation demonstrated an increase in initiations by the student. The maintenance of these skills, though, would need to be tracked to establish how dependent they were on viewing the video. In addition, observation would be needed to establish if those initiations would be generalized across other settings and then to other individuals. The pilot did support the potential effectiveness of the use of video modeling and better informed the production of this project. Important points learned from the pilot included the need for large amounts of video to select from to create a high quality video. Having completed the pilot implementation the process of learning to edit and be mindful when videoing where important aspects in completing the intervention. Understanding editing software and the limits that some applications and software have, as familiarity with the technology will expedite implementation in creating videos. Taking the time to understand the tools before beginning the intervention would be beneficial for the person taking on this technique.

Data Collection

Data collection is an important part of intervention. Baseline and on going data collection will demonstrate whether the video is a successful teaching tool. Various data sheets can be used. Decide the target to be taught. Then if frequency, duration or both are to be tracked use a data collection sheet that is consistent and comprehensive to the target.
CHAPTER 5
CONCLUSION

The utilization of video modeling to teach play skills is an effective intervention, according to the research and professional agencies that are focusing on autism intervention. Video modeling can be used to teach various skills. The best intervention utilizes assessment, data collection, individualization of the video and an adherence to fidelity in the implementation. There are play skills checklists to utilize in assessment and a variety of video tools, including IPads and flip video that are accessible to an interventionist. Steps involved in the implementation included baseline assessment of the target students, identification of the video model type, acquiring footage to create a video, and editing and viewing with the target students. Limitations that were discovered during the production of the design included not always having access to the newest video equipment. Creating a video can be a challenge in a classroom environment. Future research should look at other skills that can be targeted through video modeling, such as life skills and perspective taking. The outcome of this project suggests that video modeling should be one of the tools actively used for teaching play skills to children on the autism spectrum. A further analysis of programs should look at how frequent interventionist, are using this tool, and if not, what the barriers are to its use.
Individuals who are planning on utilizing video modeling as an intervention should have some background in knowledge about children with Autism. However, individuals with the expertise needed to utilize and create a video model are fairly limited. Parents and professionals should be able to access this tool. In this project the target audiences are teachers who are supporting children with autism spectrum disorder between the ages of three and five. Requirements for being a teacher included participating and completing an accredited credential program in mild to moderate, or moderate to severe education or general education. Overall background knowledge of autism spectrum disorder is suggested to effectively understand the use of the intervention and how the strategy is implemented. The type of training to gain that knowledge varies from simply reading literature related to the disorder to participating in seminars on the subject.
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