VIDEO MODELING FOR TEACHING SOCIAL SKILLS TO STUDENTS WITH AUTISM SPECTRUM DISORDERS

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VIDEO MODELING FOR TEACHING SOCIAL SKILLS TO STUDENTS
WITH AUTISM SPECTRUM DISORDERS

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ABSTRACT

VIDEO MODELING FOR TEACHING SOCIAL SKILLS TO STUDENTS WITH AUTISM SPECTRUM DISORDERS

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Numerous studies have shown that video modeling (VM) interventions can improve various skills of children with autism spectrum disorders (ASD). VM is a technique that involves participants watching a video of a peer model demonstrating a desired behavior and then imitating the same behavior. The purpose of this research was to examine the impact of a VM intervention on social skills, defined as appropriate greeting tasks, of three elementary school-aged students with ASD. This study expands previous research on VM by measuring social skills using a social story as primer. A multiple baseline across participants design was used to determine if the students would imitate the greeting behavior after watching a video of a same-age peer reading the embedded social story and then demonstrating the greeting. A visual analysis of graphed data, effect size, and goal attainment scale for each student revealed that two out of three students improved significantly, while the third student exhibited no improvement.

Keywords: autism spectrum disorders, social skills, and video modeling
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INTRODUCTION

Video Modeling for Teaching Social Skills to Students with Autism Spectrum Disorders

Students with Autism Spectrum Disorders (ASD) have difficulty exhibiting appropriate basic social skills such as greeting others and starting conversations. In fact, approximately 50% of them are nonverbal or speak with very few words and phrases (National Research Council, 2001). Social skills deficits can lead to a cycle of withdrawal and social anxiety, subsequently leading to further rejection, isolation, and depression (Tantam 2000). These deficits compounded with the increase in the number of students with ASD in education settings over the past 10 years compel the need for schools to deliver evidenced-based interventions (Shattuck, 2006).

Visual cues such as social scripts or stories have shown to increase the social skills of students with ASD (Ganz, Bourgeois, Hadden, &Kaylor, 2008; Goldstein, 2002). These scripts or stories are written instructions using words and or pictures to describe a desired behavior (Gray, 2003).

Over the past twenty years, video modeling (VM) has been increasingly used as an effective teaching method for children with autism (Bellini & Akullian, 2007). The models may be self, peer, or an adult. Essentially, the student watches the video and then
is given the opportunity to perform the observed behavior (Reagon, Higbee, & Endicott, 2006). Research has shown that peer modeling has been a manageable and effective method of teaching students with ASD social skills such as social initiation, greeting, and sharing. (McCoy & Hermansen, 2007).

The purpose of this study was to examine the effects of VM on the greeting skills of three students with ASD. The video incorporated the use of a social story to teach three 9-year-old students the four steps of appropriate greeting skills.
Chapter I

Literature Review

According to the DSM-IV-TR (APA, 2000), Autism Disorder, Rett’s Disorder, Childhood Disintegrative Disorder, Asperger’s Disorder, and Pervasive Developmental Disorder Not Otherwise Specified are listed in the category of Pervasive Developmental Disorders. Of these five disorders, Autism and Asperger’s are the most common and well known on the autism spectrum due to the noticeable impaired ability or desire to communicate, socialize, and express interests in various activities.

The Centers for Disease Control and Prevention (2009) reports that the incidence rate of ASD is 1 in 110 children (almost 1 out of 70 in boys), an increase from the one out of 160 reported in 2006. This reveals that as many as 1.5 million Americans are believed to have some type of ASD, which occurs across all social, racial, ethnic, and economic backgrounds. The United States Department of Education and other governmental agencies’ statistics show a consistent world-wide rate of growth at 10-17% per year (Ohio Center for Autism and Low Incidence, 2007). If this current trend continues, the projected number could reach 4 million in ten years.

The Individuals with Disabilities Education Act (IDEA) of 1975 was passed to assist children who face special challenges in school. Due to the increased prevalence of ASD diagnoses, as well as the severe deficits within the learning environment, Autism Spectrum Disorders (ASD) was added as a disability category in 1990 so that students
whose academic performance is adversely impacted due to having an autism spectrum disorder can receive the same level of educational opportunities as their peers without disabilities (Jacob & Hartshorne, 2007). As a result of this legislation, significant responsibilities are placed on the school staff, parents, and professionals to teach students with ASD various adaptive social and behavior skills. Social behavioral modeling is a promising method for such instruction.

**Development of Social Skills**

Social skills are socially acceptable behaviors that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses (Gresham & Elliot, 1990). According to Vygotsky’s sociocultural theory, language is the basic foundation in learning social skills (Learning Theories Knowledgebase, 2011). Although Vygotsky’s beliefs purport that children learn by independent discovery, he placed great emphasis on how adults are needed to guide learning with individually tailored interventions based on the student’s current performance level. Vygotsky’s theory promotes a learning environment in which teachers collaborate with the students as they play an active role in learning. Learning is considered a reciprocal experience between the students and teacher. Therefore, language development requires that teachers adjust and modify instructions to support or match the child’s current level of performance.

As early as the age of two, typically-developing children display basic skills entailing face-to-face interactions, turn-taking with an adult or peer, and responding appropriately to others’ remarks (Berk, 2007). During the elementary school years, the students’ social skills are affected by the development of their vocabulary, use of humor,
memory, and perspective-taking (Berk, 2007). The skill of perspective-taking is especially important and children who master this skill are more likely to handle difficult social situations and be accepted by their peers.

Developmental delays in speech and language, sensory processing, and other communication skills impede the ability to follow the daily routine and respond to adult expectations both at home and school. At an early age, children with ASD show differences in communication and social development. For instance, young children with ASD between ages of 24-47 months old have shown delays in pretend play, which is an important aspect of social skill development (Rutherford & Rogers, 2003). The eventual consequences of poor social skills may include poor academic performance, lack of friendships, rejection, isolation, anxiety, depression, substance abuse, and suicidal ideation (Bellini, 2006).

Social relationships are affected by students with ASD due to communication impairment, aloofness, and empathic deficits (Kerig & Wenar, 2006). For some individuals with ASD, excessive worry and distress may deter the establishment of meaningful relationships. For example, adolescents with ASD have been shown to experience more anxiety than the general population in social settings (Bellini, 2006).

This social anxiety may prevent students with ASD from having close friends and a social support. For example, Koning and Magill-Evans (2001) found that 12 to 15-year-old boys with Asperger’s Syndrome scored lower in the areas of social competence, social skills, number of friends, and frequency of contacts with peers compared to peers with no disabilities. Depression has been shown to be a potential association of social failure for persons with Asperger’s Syndrome. Barnhill (2001) studied 33 adolescents
with Asperger’s Syndrome and found that depression rates were higher for those who attributed social failure to the lack of their own ability to make friends.

The National Research Council recommends that all children with ASD, regardless of severity of function, be eligible for special education services within the category of autism (National Research Council, 2001). Furthermore, the committee has prioritized social instruction as one of the six types of interventions that should occur throughout the day in various settings, using specific activities and interventions to meet goals (e.g. opportunities for imitation of peers and cooperative play with peers). However, while empirical studies have been conducted regarding social skills education programs, their findings have not been integrated into the classrooms.

**Greeting Skills.** According to sociologists, the institutional ritual of greeting others is an exchange of symbols to build solidarity between people (Calhoun, Gerteis, Moody, Pfaff, & Virk, 2007). As Myles and Simpson (2001) explain, greeting skills appear basic and are, therefore, taken for granted. In fact, the greeting behavior requires several steps that can appear complex for students with ASD. One component of greeting behavior pertains to the context of the situation; how one greets others differs depending on whether the recipient is a peer or adult, where they meet, and how often this meeting occurs.

In the middle childhood ages of 8 to 11, prosocial development occurs when the student shifts from a self-focus to a focus on the views of others (Piaget, 1967). This perspective-taking is fundamental for connecting with others, to organize their observations of others and look at others for information about themselves. Typical development starts with the social smile at 3 to 6 months, promoting the forming of
attachments to caregivers at 6 to 9 months. Studies have shown that teachers value social skills such as attending to teacher’s instruction and asking the teacher questions. Attempts of social initiation with friendly smiling initiations are more likely accepted (Leiter, 1977).

**Video Modeling (VM)**

Students with ASD have difficulty processing information from the environment; thus, they rely on explicit, concrete details and information to gain appropriate skills. Most of these individuals have visual strengths or can be taught to use information that is visually clear (Buggey, 2007). Modeling is an example of this visual-learning process. According to the theorist, Albert Bandura, children learn social behaviors through modeling—by observing and imitating people who demonstrate appropriate behavior (Bandura, 1977).

VM is a visual technique that provides the learner with a concrete style of learning. VM has been demonstrated to be an effective social skill intervention for developing certain behaviors with a variety of students (Simpson, Langone, & Ayres, 2004). This technique involves showing a video-recording or DVD of a person modeling a desired target behavior. The VM enables students to see and review a perfect example of themselves or others as they perform a task or set of skills. The following is an examination of how three factors are incorporated into the video modeling procedure.

**Selecting the Model.** Selecting the model to demonstrate the desired behavior is an important detail in VM. Research has explored the efficacy of using the target student versus another person as the model. A study by Sherer et al. (2001) involving five children with ASD, ages 4 to 11 years, compared self and another student without a
disability as models for teaching conversational skills. Findings from this study suggested that using another student as a model was equally effective as using self as model in the video. Furthermore, researchers have found that the most effective models tend to be students who are as similar to the observer’s age and other characteristics (gender, race, personality, and mood) and are functioning at a level only slightly above the level of the observer (Bandura, 2001).

Other studies support the use of self as the model for desired results. Marcus and Wilder (2009) demonstrated that self modeling was more effective than peer modeling in their study of VM with elementary-aged students. The results of this study indicated that the particular peer was not a good match for the students or not similar enough to them to be an effective model.

There are a limited number of studies comparing in-vivo (live modeling) and video modeling (VM) as techniques to teach social skills. Researchers found that in-vivo and VM were equally successful in teaching appropriate social behaviors: sympathy, appreciation, and disapproval in preschoolers with ASD (Gena, Couloura, & Kymissis, 2005). However, another study showed VM was more effective than in-vivo modeling (Charlop-Christy, Le, & Freeman, 2000). In this study, students with ASD, ages 7 to 11 were presented two different modeling conditions, a prerecorded model performing target behaviors and a live model performing the same behaviors. Results demonstrated that the students learned social/communication tasks with more speed and generalization by means of the VM than in-vivo. The researchers suggested that the video was more motivational and associated with recreation. Also, watching a video does not expect social responses as live modeling may incur. The use of VM supports the idea that
students with ASD attend to objects better than people. The current study will use a peer of same age, gender, and ethnicity as the VM model in order to address the unresolved results of previous studies.

**Generalization of Social Skills.** A meta-analysis of 23 peer-reviewed studies involving participants from early childhood to adolescence, showed that VM effectively promoted generalized learning with positive behaviors occurring at various times and settings (Bellini & Akullian, 2007). Researchers have support that VM training effectively increased conversational skills (Hwang & Hughes, 2000; McConnell, 2002; Rogers, 2000). Results indicated that these learned skills were generalized to novel situations including new toys, unfamiliar persons, and untrained topics (Charlop & Milstein, 1989). Charlop et al. (2010) demonstrated generalization over setting, person, and stimuli for students ages 7, 8, and 11 with ASD. Using VM to teach expressive language skills with verbal comments, intonation, gestures, and facial expressions, the students expressed the learned skills at later times with different people and situations.

Another study demonstrated VM’s efficacy as children with ASD learned social skills with quickness and generalization over time and across settings (e.g. recess, lunch time) (Buggey, 2005). The findings indicated that social-skills training conducted for ten days in the spring was shown to immediately decrease undesirable behavior, and the improvement lasted throughout the remainder of the school year. In addition, the intervention was deemed acceptable by those who were in charged with implementation. Buggey noted, “The school staff and students enjoyed the VM taping which proved to be effective and cost efficient” (p.61).
Nikopoulos and Keenan (2003) reported that children ages 9 to 15 with ASD improved their social initiation skills after observing a video of simple social interactions between an adult and peer. Four out of the seven participants in their study displayed enhanced social-initiation and appropriate play generalizing across settings, peers, and toys. These changes were maintained after a one-and two-month follow-up period.

The perspective-taking behaviors such as sharing, taking turns, empathy, and verbal imitation are difficult for children with ASD. These behaviors were targeted using VM with adult models and edible treats or pennies as reinforcers in a study by LeBlanc et al. (2003). Results indicated that VM with reinforcement was effective in teaching perspective-taking for all three children with ASD. Two of the children showed generalization by appropriately responding to two novel situations, not previously shown on video.

The natural setting appears to be important for teaching social skills (Gresham & Elliot, 1990). The researchers found that intervention training conducted in isolated or clinical settings failed to promote social skills to more natural setting such as home and playground. For instance, studies have demonstrated greater efficacy when the training occurred in the natural settings such as the preschool classroom (e.g., Bellini, Akullian, & Hopf, 2007). The results revealed that the preschoolers with ASD showed an increase of social interactions across all types of peers and natural settings after watching a video of themselves doing so independently.

**Scripts Versus Unscripted Settings.** The VM intervention may involve either scripted or unscripted (naturalistic) settings. Scripted videos incorporate a script of words, story board, or listing precise instructions on how to display the desirable
behavior, as opposed to natural or unscripted play elicited by the model or the participant (Bellini and Akullian, 2007). One study showed that two children with ASD learned appropriate play behaviors by following a scripted video with VM (MacDonald, Clark, Garrigan, and Vangala, 2005). Findings from this study indicated that after watching a 4-minute video, the children followed the script exactly, performing the same play behavior, plus generalizing the behavior across different settings and times. However, as with typical children with ASD, these children did not show any behaviors other than what the script taught them.

Regardless of the impact of the script on the results, an overall guide is needed in order for the modeling intervention to proceed in an organized, consistent fashion. Although still in need of further research, there is promising evidence regarding the need for using a script and/or priming as part of the intervention method.

Delano (2007) reviewed 19 studies of VM using peers, adults, and self as models and concluded that overall VM was associated with positive gains in social-communication, functional, perspective-talking, and problem-behavior. However, five studies showed mixed results where VM alone was not associated with an increase in social initiations (Apple et al., 2005; D'Ateno et al., 2003; Nikopoulous & Keenan, 2003; Sherer et al., 2001; Taylor et al., 1999). For example, in one of these studies, three of the seven participants did not engage in social initiations (Nikopoulous & Keenan, 2003). Based on the research, Delano suggested that VM may need to be combined with another intervention to increase initiations. A script or social story is a method of teaching social skills, which may be incorporated into the VM intervention.
Social Stories

Priming, a technique used to increase structure and predictability in behavior, occurs when an individual is prepared in advance through exposure to a situation, skill, or lesson (Sansosti, 2010). An example of priming is the use of a social story, a text or script describing a specific social situation (Gray, 2003). A social story provides written and visual cues that are formatted in a book or story board; it is individually designed to match the child’s needs. The development of the story followed the guidelines offered for social stories as offered by Carol Gray (2003). The guidelines are:

Guidelines for Social Stories:
Describe the situation using language well within the child’s comprehension level.
Describe the situation by answering “wh” questions.
Keep story and statements short and to the point.
Use pictures when possible.
Deal with one concept per page.
Write in the first person.
Write in the present tense.
Explain any variations in the routine.
Use terms like “sometimes” and “usually”, use “at about” when referring to time concepts (Gray, 2003, pp. 3-8).

The use of the social story intervention embedded in the VM intervention is an example of priming and modeling (Sansosti & Powell-Smith, 2008). These researchers examined the effectiveness of computer-presented social stories and video models on the social-communication skills of ages 6 to 10 years of children with ASD. Results indicated an increase in the number of initiated play and conversations with peers.

One meta-analysis compared the effectiveness of social stories, peer mediation and video modeling as interventions for children with autism (Wang & Spillane, 2009). Results indicated that although all three met the criteria as evidence-based; the effectiveness for the social-stories intervention was questionable due to the low percent
of non-overlapping data (PND) (46.7% to 100%; mean 60.69%). Only VM met the criteria as both an evidence-based intervention (EBI) and as an effective intervention for teaching social skills (PND mean = 84.25%). Additional research resulted in positive trends of social skills (Thieman and Goldstein, 2001; Ivey et al., 2004; and Sansosti & Powell-Smith, 2006). However, methodological concerns were noted (Sansosti, Powell-Smith, and Kincaid, 2004). Several studies support the recommendation of using social stories in combination of another intervention to meet the EBI standards (Attwood, 2000; see also Rogers, 2000; Safran, 2001).

One of the pronounced symptoms of autism is the impairment in the development of reciprocal social-interaction skills (APA, 2000). Individuals with autism display marked impairments in the use of multiple nonverbal behaviors, such as eye-to-eye gaze, facial expressions, body postures, and gestures to regulate social interaction (APA, 2000). Reichow and Sabornie (2009) explored how the social-story intervention related to verbal greetings of an 11 year old boy with autism. In this study, the ABAB design (reversal design) revealed that the student learned verbal greetings during the intervention phases, a behavior that should not be reversible. However, the behavior frequency returned to baseline level during the second baseline, which raises the question as to whether a social story should be used as the sole intervention.

**Reason for Proposed Study**

As the number of students with ASD grows, schools are increasingly challenged with the task of instructing these students in the general education classrooms and to provide specific training in social skills. The complexity of ASD and the increase in the number of students receiving services has intensified the need for school staff to utilize
empirically validated interventions targeting communication and social skills (Bellini, Akullian, & Hopf, 2007). To help address this challenge, research on video modeling gives promise to staff and parents as a potentially effective technique for teaching social skills to students with ASD (Buggey, 2007).

The purpose of this study was to examine the effectiveness of implementing VM as an effective method to teach social skills. A social story was embedded in the video. It was hypothesized that the students with ASD would improve their greeting skills by watching a video of a same-age peer performing the desired skill. The entire study was performed in the natural setting during students’ daily routine in their familiar class routine.
Chapter II

Method

Participants

The participants were selected based on three criteria: a diagnosis of an autism spectrum disorder, a history of successfully learning simple behaviors using photographs or picture cards in the classroom, and a demonstrated need to improve social interactions with others. Three nine-year old male students with the medical and educational diagnosis of autism were selected for this study based on the above criteria and judgment of the classroom teacher, paraprofessional, and the parents. Permission letters were signed and returned by the school administrators and parents (See Appendices A and B). The students were identified with fictitious names, “Eli”, “Mike”, and “John”. Although Eli and Mike communicated in full sentences, they did not greet others appropriately. Often they made irrelevant comments that would confuse the listener.

John’s speech was limited to short phrases and only when prompted. Often John spoke too quietly and mumbles, making his speech difficult to understand. Although John did not appear interested in social contact with any age group nor was he greatly motivated by visual aids such as videos, the teacher believed that he would be a good candidate for the study. The teacher had classroom experience in using the VM intervention for students with ASD. The students were served in a special needs classroom involving eight students, one teacher, and two paraprofessionals. The room
was located in a public school building, serving grades kindergarten through 8, located in a small village of 3,000 people in northwestern Ohio.

Because this study focused on improving social skills, the teacher was interviewed to verify notable deficits in greeting behaviors. The students had informal training on saying “please” and “thank you” but not on specific greeting behaviors. Greeting others was defined as looking, smiling, saying “hi”, and walking on.

**Design**

The multiple-baseline design across participants was used to investigate the relationship between the dependent and independent variables across the three students (Hunley & McNamara, 2010). The hypothesis of this study was that the intervention of video modeling with a social story (independent variable) would increase their usage of the target behavior, greeting others (dependent variable).

The targeted greeting behavior was defined as an appropriate set of tasks that an elementary school student would use to greet his teacher in a natural school setting. A task analysis was conducted to delineate the components or tasks of the targeted greeting behavior. The four tasks were: look, smile, saying “hi,” and walking on. Each of these four tasks was monitored by the paraprofessional during each baseline and intervention session to see how independently the student performed them. During the baseline sessions, the paraprofessional verbally asked the student to greet the teacher the next time he entered the classroom as the teacher awaited just inside the door.

As the independent variable, the intervention was a two-minute video of a peer model demonstrating the social greeting behavior skill independently. A typical-developing male peer model of the same age was selected and parental permission was
obtained (See Appendix C). The peer model read a social story and then performed the targeted greeting behavior in a natural school setting such as entering a classroom and greeting a teacher.

**Materials**

One social story was designed to illustrate one - to two - word commands and corresponding pictorial cues adapted from McGinnis and Goldstein (2003). Using Microsoft Power Point, one simple slide was created with a white background with each of the four commands and pictures separated by quadrants (See Appendix E). The colorful pictures retrieved from http://www. Google.com/imghp (Google Images) provided an interesting story to the student.

A video approximately 2 minutes long was constructed using a digital video camera to record the peer model reading the social story followed by demonstrating the greeting skill in a natural way. A laptop computer was used by the teacher and researcher for downloading, editing, and presenting the video to each student.

The peer model was trained by the researcher through direction, instruction, and demonstration of the targeted greeting behavior. After the model knew how to perform all four components or tasks of the greeting behavior, the paraprofessional and researcher recorded a video of the peer model performing the greeting tasks in the classroom with the teacher. The video was then edited by the teacher and the researcher to eliminate any extraneous sounds or images.

**Social Validity.** A social validity assessment was conducted to assess the social significance and appropriateness of the procedures. After completion of all intervention phases, the teacher and the paraprofessional together completed a Social Validity
Questionnaire Using a 5-point Likert-type Scale (i.e., 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, and 5 = Strongly Agree), rating their perceptions of the VM intervention and greeting skills (See Appendix F). The questionnaire contained the following seven items: 1) the VM intervention is easy to implement, 2) the VM is enjoyable to implement, 3) the VM is enjoyable for the student, 4) the VM intervention is effective in improving the greeting skills of each student, 5) the behavior of greeting others is an important social skill for all students to learn, 6) the students will display their new learned greeting skills in a variety of other places, and 7) overall satisfaction with the VM intervention.

**Intervention Integrity.** In order to ensure that the intervention was implemented as designed, an intervention integrity data collection sheet was completed by the paraprofessional for each student during the individual intervention sessions (See Appendix G). The intervention integrity data listed eight action items for each intervention session; 1) that the student was told he was going to watch a video of someone; 2) that the video played; 3) that the student watched the video; 4a and 4b) did the paraprofessional verbally prompt the student and/or make a physical gesture to ensure attentive watching of the video; 5) if the equipment functioned properly; 6) was the student praised; and 7) was the student told “let’s do the same.” A score of one point was given for each “yes” and zero for each “no”. There was a possible score of eight points per session.

**Procedures**

A social story was created to reflect the tasks needed to complete the targeted greeting behavior (See Appendix E). This story was used to guide the development of
the social story video and to monitor progress during both the baseline and intervention phases.

This study took place during the last semester of the 2010-2011 school year. After receiving training from the investigator, the paraprofessional implemented the intervention during the last 41 days of the school year. She completed the task analysis data collection sheet by observing and recording the baseline and intervention scores of each of the four steps of the greeting behavior (Look, Smile, Say “hi”, and Walk on). Each step was individually marked with a score of 3, 2, 1, or 0 corresponding to the level of independence (independent, verbal prompt, physical gesture, or null, respectively). If a student gained a score of 3 on all four steps, he would receive the optimal score of 12 for that session. The goal of the study was for each of the three students to receive an average score of 12 during the final week of the intervention. The investigator collected the baseline and intervention data on a weekly basis, calculated each student’s score, and transferred the total to the tabulated student scores.

During the intervention sessions, the paraprofessional viewed the video with the student, then verbally asked the student to greet the teacher while entering the classroom. In the event the student did not perform the greeting tasks independently upon entering the classroom, the paraprofessional made a verbal prompt, and if necessary a physical gesture in an effort to remind the student of the expected behavior.

The level of independence in task completion was scored and recorded by the paraprofessional on the task-analysis data collection sheet (See Appendix D). Each level was assigned a number of 3, 2, 1, or 0. Total Independence received a score of 3. If verbal prompting was required to successfully complete a task, the behavior earned a 2.
Physical prompting was assigned a score of 1 and no demonstration of the task was given a score of 0. The scores were added together for a total score ranging from 0 to 12 for each session.

Each student completed a combined 41 baseline and intervention sessions. During the baseline phase, independence level for performing greeting behavior tasks was recorded by the paraprofessional during each daily session for each of the three students. The baseline phase entailed the student walking into the classroom, the teacher standing in the doorway available for interaction, and the paraprofessional observing and documenting any statements or behavior made by the student.

Once baseline had been established, the intervention began with the independent variable being applied to the first student while baseline conditions remained in effect for the second and third students. After two weeks of intervention implementation for the first student, the intervention was conducted for the second student. Two weeks after the intervention was implemented for the second student the intervention was implemented for the third student.

During the intervention phase, the video was shown in the classroom to each of the three students in an individual setting, while the rest of the students were in a different location. To ensure consistency, the video was watched each school day at the same time in the presence of the teacher or paraprofessional. The time of day used to view the video was built into the student’s routine by the teacher and paraprofessional as appropriate for each student. The paraprofessional was instructed not to interact with the student but only to give redirection if the student stopped watching the video. Scripts were provided for the redirection: “watch the video” or “look at the screen” while
pointing to the screen. The student was told to watch the video of a child reading the
social story and then performing the greeting behavior in the classroom doorway.
Immediately after viewing the video, each student attempted the greeting tasks with the
paraprofessional close by to provide prompting and to record the level of independence
achieved by the student. The student was asked to perform the greeting tasks upon
entering the classroom, in the same manner as in the video. The teacher was available to
be greeted just inside the doorway.

Each step of the task was evaluated by the paraprofessional as to the level of
independence shown by the student. Any prompting needed to complete the tasks, such
as a verbal prompt or physical gesture was recorded on a task-analysis data collection
sheet (See Appendix D). Prompting was defined as either a verbal prompt or physical
gesture to motivate the student to attempt each task of the greeting behavior. The type or
level of prompting required was an indicator of the student’s degree of success.
Specifically, for a verbal prompt, the paraprofessional verbally responded without using
any physical gesture to encourage the student to start or finish the task. The physical
prompt consisted of a light tap on the shoulder or a hand movement. The prompts did not
include the paraprofessional doing the task for the student, but only reminding the student
of the greeting behavior.

During each session of the baseline and intervention phases, the paraprofessional
indicated a Yes or No in each level of prompting within each task of the targeted
behavior. In order to maintain procedural control, the paraprofessional was not cognizant
of the scoring method. Only the researcher calculated and summarized the numerical
results to prevent any differential treatment by the teacher or paraprofessional.
The researcher monitored the data from the task-analysis data collection sheets (See Appendix D), social validity questionnaire (See Appendix F), and the intervention integrity data collection sheet (See Appendix G) on a weekly basis in order to identify any anomalies and ensure that the intervention was being administered correctly as designed. A goal attainment scale (GAS) was formulated for each student during the baseline data collection depicting a 5-point scale. As displayed below the greeting scores ranged from less than three to 12. The researcher conducted semi-structured interviews with the teacher and building principal for their general observations of the students during the study.
Chapter III

Results

The final outcome of this study was analyzed with three evaluation methods: visual inspection of the graphs, the $g$-index for effect size, and the goal attainment scale (GAS). The $g$-index score evaluated the level of change across the baseline and intervention phases. The larger the effect size, the larger the impact that the intervention had on the greeting skill. The GAS scale was a five-point rating scale, ranking the outcome from +2 (great improvement) to 0 (no change) to -2 (great deterioration). The results of this study also were examined by the use of the social validity questionnaire, intervention integrity checklist, and a semi-structured interview with the teacher and school principal.

In order to monitor the progress and evaluate the overall outcome of this study the scores were graphed, illustrating the baseline and intervention phases as shown in Figure 1. The multiple-baseline design was used because the target behavior was the same for all three students. Baseline data gathering began on the same day for all three students, though the beginning of the intervention phase was staggered for each student. Trend lines for both baseline and the intervention phases were formulated and graphed for each student.
Figure 1. Students’ total scores for each session during baseline and intervention phases. Data were collected using a task analysis sheet depicting four steps to the greeting skill.
**Eli.** During the 7-day baseline phase, Eli’s scores ranged from 7 to 10 (out of a possible 12 points), resulting in a slight upward trend line. He relied on verbal prompts to look, smile, and say “hi”, and he independently walked on after the greeting. During the first five days of the intervention phase, he scored 6, which is below both the baseline and trend line. On the second week of intervention there was an upward trend when he became independent in all the steps but walking on. According to the paraprofessional, after saying hi Eli wanted to stand next to the teacher instead of walking on. After the second week of intervention, he walked on independently and received the optimal score of 12. Overall, Eli demonstrated an increase in greeting scores during the intervention phase and met the study’s goal.

Eli’s g-index score was 3.85, indicating a positive improvement from baseline to intervention phase. The GAS score for Eli is shown in Table 1. Eli’s greeting skills during the last week of intervention scored an average of 12; earning him a GAS score of +2.
Table 1.
Goal Attainment Scale for Eli

<table>
<thead>
<tr>
<th>Level of Attainment</th>
<th>Greeting Task Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much Worse -2</td>
<td>&lt;=3</td>
</tr>
<tr>
<td>Slightly Worse -1</td>
<td>4-5</td>
</tr>
<tr>
<td>No Change 0</td>
<td>6-9</td>
</tr>
<tr>
<td>Slightly Improved +1</td>
<td>10-11</td>
</tr>
<tr>
<td><strong>Much Improved +2</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

*Note.* Eli’s GAS score of +2 is in boldface.

Visual inspection, effect size, and GAS indicate that the intervention was effective in increasing the Eli’s greeting skills. According to his teacher, Eli communicated in full sentences and enjoyed watching videos more often than the other students in the classroom. The school principal noted an increase in responses when he interacted with the office staff during the intervention phase.

**Mike.** During baseline Mike’s scores for the first 10 sessions were 10, resulting in a straight line with no change. He was independent in smiling and walking on, but required verbal prompts to say “hi”. During the intervention phase the scored dropped to 7 for two weeks, which was lower than expected according to the intervention trend line. Mike did not smile and relied on verbal prompts to look, say “hi”, and walk on. On day 11 Mike earned an 11, which was above the trend line. He independently looked, said
hi, and walked on. By the third week of the intervention, Mike performed all four steps independently, gaining a score of 12.

Mike’s g-index score was 1.13, indicating a small positive improvement from baseline to intervention phase. As indicated by the Table 2, the GAS score was a +2 as he earned an average score of 12 during the last week of the intervention phase. Mike’s scores reveal an improved level of independent greeting skills during the VM intervention, meeting the measurable average goal of 12.

Table 2.
Goal Attainment Scale for Mike

<table>
<thead>
<tr>
<th>Level of Attainment</th>
<th>Greeting Task Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much Worse -2</td>
<td>&lt;=3</td>
</tr>
<tr>
<td>Slightly Worse -1</td>
<td>4-5</td>
</tr>
<tr>
<td>No Change 0</td>
<td>6-9</td>
</tr>
<tr>
<td>Slightly Improved +1</td>
<td>10-11</td>
</tr>
<tr>
<td>Much Improved +2</td>
<td>12</td>
</tr>
</tbody>
</table>

Note. Mike’s GAS score of +2 is in boldface.

Both the teacher and the school principal agreed that Mike improved his greeting skills by making more appropriate comments when interacting with the office staff.

**John.** As indicated by the graph, John’s scores were level across the 23-day baseline phase. During the intervention phase his scores were slightly above the baseline trend. John would not look or smile but during the intervention phase he responded with
a verbal prompt. John increased his greeting skills for three days with a score of 9 out of 12 but then dropped back down to the baseline levels of 7. During three days in mid-intervention phase John smiled with a verbal prompt, but then did not smile for the remainder of the study. John was independent in walking on, the fourth step during the entire study. John received low scores due to the fact he continued to rely on verbal prompts to look and say hi, without smiling throughout the intervention phase.

John’s g-index score was .35 indicating a very small but positive improvement from baseline to intervention phase. Because John’s score did not improve during the intervention phase, he obtained a GAS score of 0 (See Table 3). All three methods of evaluation indicated that the VM intervention did not have an impact on his greeting skills.
Table 3.
Goal Attainment Scale for John

<table>
<thead>
<tr>
<th>Level of Attainment</th>
<th>Greeting Task Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much Worse -2</td>
<td>&lt;=3</td>
</tr>
<tr>
<td>Slightly Worse -1</td>
<td>4-5</td>
</tr>
<tr>
<td>No Change 0</td>
<td>6-9</td>
</tr>
<tr>
<td>Slightly Improved +1</td>
<td>10-11</td>
</tr>
<tr>
<td>Much Improved +2</td>
<td>12</td>
</tr>
</tbody>
</table>

*Note. John’s GAS score of 0 is in boldface.*

According to the observations of the teacher and school principal, John’s greeting skills did not generalize to other situations. His social skills remained the same with no marked improvement during the intervention phase.

**Social Validity**

The questionnaire contained the following seven items: 1) the VM intervention is easy to implement, 2) the VM is enjoyable to implement, 3) the VM is enjoyable for the student, 4) the VM intervention is effective in improving the greeting skills of each student, 5) the behavior of greeting others is an important social skill for all students to learn, 6) the students will display their new learned greeting skills in a variety of other places, and 7) overall satisfaction with the VM intervention. Items 1, 4, and 6 each received a score of 4. Items 2, 3, 5, and 7 were marked as 5. Overall, the respondents
believed the VM intervention was an easy and effective method of teaching greeting skills in the classroom. According to the teacher, the students did have daily opportunities to greet other adults and students outside the classroom. Some generalization was observed by the school principal and her secretary.

**Intervention Integrity**

Total scores were calculated on a percentage basis and documented in the final results data. Final results indicate that the intervention was properly implemented 100% of the time. The VM intervention was formatted into the daily classroom routine, which supported the integrity of the study. The students complied with watching the videos without difficulty. The video was shown each day without any equipment malfunction.
Chapter IV

Discussion

The goal for each student was to increase his independence in greeting his teacher in the classroom and reach the highest average score of 12 during the last week of the intervention. The first two students, Eli and Mike, increased their independence in the greeting skills, receiving an average of 12. Thus, they achieved the study’s goal.

According to their teacher during a semi-structured interview, the VM intervention may have been effective because both Eli and Mike who communicate in full sentences, seem more interested in socializing with other adults, and are motivated to imitate visual cues.

On the other hand, John exhibits more limited communication skills. He speaks only in phrases, often repeating what he has heard only when asked. Often John speaks too quietly and mumbles, making his speech difficult to understand. He does not appear interested in social contact with any age group, and he appears less motivated by visual aids such as videos compared to his classmates. John cooperated with the presented tasks, but remained dependent on verbal prompts through the intervention phase in order to look, smile, and say “hi.” He had no difficulty walking on perhaps because he was not interested in the interaction with the teacher. According the results, John’s greeting skills did not improve during the intervention phase.

Further work is necessary to examine the lack of improvement in John’s social skills. As indicated earlier, research supports the idea that students with ASD tend to be
visual learners. If John’s learning style is not visual, he may have had difficulty attending to the social story, as well as, the video. John’s verbal communication was limited; therefore, a nonverbal intelligence assessment may indicate if his ability to learn using visual aids. An assessment of John’s nonverbal intelligence would indicate if he is indeed a visual learner or not (Scherer et al. 2001). Without knowing John’s level of nonverbal intelligence, we cannot infer the meaning to his lack of improvement in greeting.

Another topic worth discussion is whether students like John who do not respond well to VM interventions, present a deficit in learning or a lack of motivation. Was John not capable of learning with visual aids or was he not motivated perform. Simply phrased, was this a skill deficit or a performance deficit?

The difference between a deficit in performance and a deficit in skill dictates which statistical method to use to measure the magnitude of change. As explained by (Hunley & McNamara, 2010), the $g$-index is used when there is a skill deficit and learning is being measured. The $d$-index is used for behavioral issues or lack of performance. The premise of this study was to measure the learning of social skills; therefore, we used the $g$-index to measure the ongoing effect of the VM intervention.

The results of this study supported previous research that VM is an effective method of teaching social skills for two of the three participants. Similar to past studies, the participants were male and elementary school-aged with regular attendance. The three students had not received VM in the past, but showed basic potential in social behavior. This study adds to the body of research supporting the efficacy of the VM intervention by increasing desirable behavior of greeting others. The unique feature of the
video in this study was the peer model reading the social story embedded in the video. Social scripts or stories are easy to create using a variety of art forms or technology such as Microsoft Power-Point. The VM method was easy to produce and cost-effective. Equipment is accessible with the variety of recording devices available at low costs and most classrooms having computers.

**Limitations and Suggestions for Future Research**

One of the limitations of this study was the time frame used. Starting the project close to the last nine weeks of school had both its advantages and disadvantages. The students were very familiar and comfortable with the routine and staff by the time the project started. Second, the staff and students were familiar enough so they could quickly recognize any new or unusual behaviors exhibited by the students. In other words, no interruptions in the daily routine had occurred that would interfere with the study’s intention. However, because the intervention phase ended the last day of school it was not possible to explore maintenance and generalization of the greeting behavior. Future studies should begin the data collection immediately after the mid-year holiday break to allow for follow-up reviews.

A second limitation was the lack of variety in the video itself. According to the teacher, the students enjoyed watching the video but did get bored after watching it multiple times, perhaps because these three students do not tend to perseverate on preferred activities as many other students with autism do. One suggestion is that students are given a choice of two or three videos to watch and then practice the skill in a variety of settings in order to reduce the chances of boredom. Individual videos for each student based on his or her preference with more than one scenario to add interest is
another approach to maintain interest (Charlop, Dennis, College, Carpenter, & Greenberg, 2010). As evident in this study, John appeared uninterested in watching the video and greeting his teacher each day in the classroom. Another factor to consider is the speed of the video as examined by researchers, Tardif, Laine, Rodriguez, and Gepner (2007). Their results indicated that slowing down the pace of visual and auditory cues improved the attention and perception and induced imitation of facial and vocal behavior for students with ASD. The rate of speed and timing are interesting factors to examine considering John’ possible need of modifications to the VM intervention.

One final limitation was the ceiling effect that occurred as a result of the two students reaching the optimal score of 12 before the end of the intervention phase. For future consideration, a changing-criterion design may provide more challenging steps in improving the greeting skills. This type of design entails a series of treatment phases used to evaluate the effects of an intervention on a gradual or stepwise improvement (Cooper, Heron, and Heward, 2007).

**Conclusion**

VM is an evidence-based method of teaching a variety of skills for students with ASD. There is a remarkable body of research indicating these students will imitate appropriate social skills. The current study examined whether using VM with a peer model would be effective in increasing the greeting skills in the classroom. To increase the effectiveness of the method, the VM had a social story embedded in the video depicting the four steps of the greeting skill. A multiple baseline across participants design demonstrated that two students increased their independence in greeting their
teacher in the classroom. However, the third student made no change in greeting skills, suggesting several changes to the intervention are warranted to match his needs.
References


Gray, Carol (2003). Social Stories™ 10.0. Updated guidelines and criteria for writing social stories (PDF download).


Appendix A

School District Authorization to Conduct a Research Study

**Project Title:** Video Modeling to Teach Social Skills for Students with Autism Spectrum Disorders

**Investigator:** Barbara Rhinehart, graduate student in the School Psychology program at the University of Dayton

**Purpose of the Research:** This research is investigating if video modeling helps children with autism spectrum disorders greet their teacher in school.

**Procedure:** Three selected students will be monitored by a paraprofessional for the social skills of *greeting their teacher* in the school. The student’s teacher and paraprofessional will be trained in the details of the procedure; have standardized data collection sheets, and a scenario to follow. Student one will be initially monitored over a two week time period for his ability to greet teachers in school. Concurrently, student two will be initially monitored over a four week time period, and student three over a six week time period. The initial phase of this study is comprised of a paraprofessional saying to the student “Let’s greet the teacher” while they both enter the classroom. These three minute sessions will be conducted at a predetermined time, four days per week over the above mentioned time periods. Information on the student’s ability to greet independently will be collected by the paraprofessional. Some verbal prompting or physical gesturing may be offered by the paraprofessional.

When student one completes the initial phase, he will move into the secondary phase where he will be monitored by the paraprofessional over a six week time period. When student two moves into phase two, he will be monitored over a four week time period and student three a two week time period. Therefore, each of the three students will be monitored over the same eight week time period to complete both phases of the study. As in the initial phase, the second phase is comprised of each student being monitored four times per week over the above mentioned time periods. In phase two, the students will be individually and privately viewing a three minute video of a peer model telling a story and demonstrating a desired greeting behavior. Immediately following the video they will be monitored for their ability to socially greet teachers as they enter the classroom in the exact same manner as accomplished in phase one.

**Anticipated Risks and/or Discomfort:** Due to the nature of the autism spectrum disorders, there may be times that the student feels uncomfortable due to changes in daily routine. Every effort will be made to recognize any distress or discomfort of the student. Trained staff familiar with the student will monitor him and allow him to delay or discontinue any session.

**Benefits to the Students:** Students will have an opportunity to increase their social skills.
Confidentiality: No records of any student’s participation in this research will be shared with others. The student’s real name will not be used in any documents resulting from this research. The student’s information will be recorded anonymously. A false name will be randomly selected and used with each student’s data. All data will be stored in a locked cabinet to which only the investigator has access. All data will be destroyed within six months after the completion of the study.

Contact Persons for Questions or Concerns: If you have any questions or concerns regarding this research, contact Barbara Rhinehart at (419) 305-7995, b.rhinehart@nktelco.net or her advisor Dr. Sawyer Hunley at (513) 325-1527, sawyer.hunley@notes.udayton.edu. Questions concerning the rights of the student should be addressed to Dr. Mary Connolly, Interim Chair of Committee for the Protection of Human Subjects at (937) 229-3493, mary.connolly@notes.udayton.edu.

Authorization to conduct research study: I have voluntarily decided to allow students to participate in this research project. The investigator will obtain consent forms from each student’s parent/guardian prior to commencing the study and will sufficiently answer all questions they have about this research, the procedures involved, and the student’s participation. I understand that the investigator or her program advisor will be available to answer any questions regarding the procedures involved throughout this project. I also understand that I may terminate any student’s participation in this research at any time. The investigator may also terminate any student’s participation in this research if she feels that this would be in the child’s best interest. In addition, I certify that I am a duly authorized agent of the school district.

______________________________ _____________________
Signature of Director of Special Education    Date

______________________________
Printed Name of Director of Special Education

______________________________ _____________________
Signature of School Principal      Date

______________________________
Printed Name of School Principal

______________________________ _____________________
Signature of Investigator      Date

______________________________
Printed Name of Investigator
Appendix B

Informed Consent to Participate in a Research Study (Students)

Project Title: Video Modeling for Teaching Social Skills to Students with Autism Spectrum Disorders

Investigator: Barbara Rhinehart, graduate student in the School Psychology program at the University of Dayton

Purpose of the Research: This research is investigating if video modeling helps children with autism spectrum disorders greet their teacher in school.

Procedure: Your child will be assessed for the social skills of greeting their teacher in the school. Your child will be initially assessed over a two to six week time period for his ability to greet teachers in school. Subsequent to the initial assessment and for an additional two to six week time period, he will view a three minute video four times a week of a same-age peer performing this greeting task. Lastly, he will be assessed for his ability to socially greet teachers immediately after each viewing of the video.

Anticipated Risks and/or Discomfort: Due to the nature of autism spectrum disorders, your child may feel uncomfortable due to changes in his daily routine. Every effort will be made to recognize any distress or discomfort of your student. Trained staff familiar with your student will monitor them and allow them to delay or discontinue any session.

Benefits to the Student: Students will be allowed an opportunity to increase their social skills. Furthermore, this study will contribute to the research for effective teaching tools and interventions for students with autism spectrum disorder.

Confidentiality: No records of your student’s participation in this research will be shared with others. Your child’s real name will not be used in any documents resulting from this research. Your child’s information will be recorded anonymously under a randomly selected pseudonym. All data will be stored in a locked cabinet to which only the investigator has access. All data will be destroyed within six months after the results of the study are finalized.

Contact Person for Questions or Concerns: If you have any questions or concerns regarding this research, contact Barbara Rhinehart at (419) 305-7995, b.rhinehart@nktelco.net, or her advisor Dr. Sawyer Hunley at (513) 325-1527, sawyer.hunley@notes.udayton.edu. Questions concerning the rights of the student should be addressed to Dr. Mary Connolly, Interim Chair of Committee for the Protection of Human Subjects at (937) 229-3493, mary.connolly@notes.udayton.edu.

Consent to Participate: I have voluntarily decided to allow my student to participate in this research project. The investigator has sufficiently answered all questions I have about this research, the procedures involved, and my child’s participation. I understand that the
investigator or her program advisor will be available to answer any of my questions regarding the procedures involved throughout this project. I also understand that I may refuse to participate or voluntarily terminate my student’s participation in this research at any time without penalty or loss of benefits. The investigator may also terminate my student’s participation in this research if she feels that this would be in my child’s best interest. In addition, I certify that I am my student’s legal guardian.

_____________________________________________ _____________________
Signature of Parental Guardian     Date

_____________________________________________ _____________________
Signature of Investigator      Date
Appendix C

Informed Consent to Participate in a Research Study (Peer Model)

**Project Title:** Video Modeling for Teaching Social Skills to Students with Autism Spectrum Disorders

**Investigator:** Barbara Rhinehart, graduate student in the School Psychology program at the University of Dayton

**Purpose of the Research:** This research is investigating if video modeling helps children with autism spectrum disorders greet their teacher in school.

**Procedure:** Your child will be utilized as a same-age peer model performing a three minute greeting task on video tape. They will read a story and demonstrate appropriate greeting skills.

**Anticipated Risks and/or Discomfort:** Every effort will be made to recognize any distress or discomfort of your child. Trained staff familiar with your child will monitor them and allow them to delay or discontinue the video modeling if needed. You may be present during the recording session which will be conducted at your child’s elementary school building.

**Benefits to the Student:** Students will be allowed an opportunity to increase their social skills by watching your child model appropriate greeting tasks. Furthermore, this study will contribute to the research for effective teaching tools and interventions for students with autism spectrum disorder.

**Confidentiality:** No records of your child’s participation in this research will be shared with others. Your child’s real name will not be used in any documents resulting from this research. Your child’s video will be viewed by the investigator, the three students participating in the study, their teacher, and paraprofessionals. The video will be kept in a locked cabinet to which only the investigator has access. All data and the video will be destroyed within six months after the results of the study are finalized.

**Contact Person for Questions or Concerns:** If you have any questions or concerns regarding this research, contact Barbara Rhinehart at (419) 305-7995, b.rhinehart@nktelco.net, or her advisor Dr. Sawyer Hunley at (513) 325-1527, sawyer.hunley@notes.udayton.edu. Questions concerning the rights of the child should be addressed to Dr. Mary Connolly, Interim Chair of Committee for the Protection of Human Subjects at (937) 229-3493, mary.connolly@notes.udayton.edu.

**Consent to Participate:** I have voluntarily decided to allow my child to participate in this research project. The investigator has sufficiently answered all questions I have about this research, the procedures involved, and my child’s participation. I understand that the investigator or her program advisor will be available to answer any of my questions
regarding the procedures involved throughout this project. I also understand that I may refuse to participate or voluntarily terminate my child’s participation in this research at any time without penalty or loss of benefits. The investigator may also terminate my child’s participation in this research if she feels that this would be in my child’s best interest. In addition, I certify that I am my child’s legal guardian.

_____________________________________________ _____________________
Signature of Parental Guardian     Date

_____________________________________________ _____________________
Signature of Investigator      Date
### Task Analysis Data Collection Sheet

**Student:**

**Teacher:**

**Paraprofessional completing form:**

**Task:** Greeting Skills

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Session Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Look</td>
<td>Independent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Independent</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Verbal Prompt</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Physical Gesture</td>
<td>Yes</td>
</tr>
<tr>
<td>02 Smile</td>
<td>Independent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Independent</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Verbal Prompt</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Physical Gesture</td>
<td>Yes</td>
</tr>
<tr>
<td>03 Say Hi</td>
<td>Independent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Independent</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Verbal Prompt</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Physical Gesture</td>
<td>Yes</td>
</tr>
<tr>
<td>04 Walk on</td>
<td>Independent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Independent</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Verbal Prompt</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Physical Gesture</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Session Scores:**

(I = 3, V = 2, P = 1, and null = 0)
Appendix E

Social Story

1 - Look

2 - Smile

3 - Say Hi

4 - Walk On
Appendix F

Social Validity Questionnaire

Please circle one of the five choices that best describe the extent to which you agree or disagree with each of the seven statements below.

1=Strongly Disagree  2=Disagree  3=Undecided  4=Agree  5=Strongly Agree

1. The VM intervention is easy to implement.
   1 2 3 4 5

2. The VM is enjoyable to implement.
   1 2 3 4 5

3. The VM is enjoyable for the student.
   1 2 3 4 5

4. The VM intervention is effective in improving the greeting skills of each student.
   1 2 3 4 5

5. The behavior of greeting others is an important social skill for all students to learn.
   1 2 3 4 5

6. I believe the students will display their new learned greeting skills in a variety of other places.
   1 2 3 4 5

7. Overall, I am very satisfied with VM intervention.
   1 2 3 4 5

Comments about the student’s behavior:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Name (optional): _______________________________________________________

Relation to the student (optional): ________________________________________
Appendix G

Intervention Integrity Data Collection Sheet

Student: ________________________________
Teacher: ________________________________
Paraprofessional completing form: ________________________________

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Session Date &amp; Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Was the Student told &quot;Your going to watch a video of someone&quot;</td>
<td>Yes No Yes No Yes No Yes No</td>
</tr>
<tr>
<td>02</td>
<td>Did the video play</td>
<td>Yes No Yes No Yes No Yes No</td>
</tr>
<tr>
<td>03</td>
<td>Did the student watch the video</td>
<td>Yes No Yes No Yes No Yes No</td>
</tr>
<tr>
<td>04a</td>
<td>Was prompting and gesturing used to keep the student watching the video</td>
<td>Verbal Yes No Verbal Yes No Verbal Yes No Verbal Yes No Verbal Yes No</td>
</tr>
<tr>
<td>04b</td>
<td>Physical Yes No Physical Yes No Physical Yes No Physical Yes No Physical Yes No Physical Yes No</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Did equipment function properly</td>
<td>Yes No Yes No Yes No Yes No</td>
</tr>
<tr>
<td>06</td>
<td>Was student praised for watching</td>
<td>Yes No Yes No Yes No Yes No</td>
</tr>
<tr>
<td>07</td>
<td>Was student told &quot;Let's do the same&quot;</td>
<td>Yes No Yes No Yes No Yes No</td>
</tr>
</tbody>
</table>

Session Scores:
(Yes = 1, No = 0)