

## Video Modelling and Peer-Mediated Instruction of Social Skills for Students with Autism Spectrum Disorders

### Abstract

*This study explored the impact of video modelling and peer-mediated instruction of five social skills on middle school students with autism spectrum disorders (ASD) using a multiple baseline across subjects design. Three students with ASD were observed in inclusion classrooms to determine levels of demonstration of five social skills. The participants were then shown video models of the skills, followed by participation in role-plays with peer mentors, and further observations were made to document differences in the level of the demonstration of the five social skills. The results indicated that the intervention positively impacted the social skills of the students with ASD, including increases in social initiation (greeting a peer/teacher) and tracking the talker.*

### Introduction

Impairments in social skills inherent to individuals with autism spectrum disorders (ASD) can impact the way they are viewed by their peers, teachers and society in general (American Psychiatric Association, 2000; Volkmar & Tidmarsh, 2003). For students with ASD who are included in an inclusion setting in middle school, the need to master the "hidden curriculum" (Smith-Myles & Simpson, 2001) occurs not just daily, but hourly. Teaching social skills to students with ASD can be challenging (Weiss & Harris, 2001), yet can be facilitated through the pairing of social skills curricula with video modelling and peer-mediated instruction (Bellini, 2008; Fuchs & Fuchs, 2005) to further assist students in understanding the sometimes hidden nature of social skills.

One approach to providing social skills instruction across all grade levels is using the *Skillstreaming the Adolescent* (Goldstein & McGinnis, 1997) curriculum. The *Skillstreaming the Adolescent* curriculum was developed for elementary and adolescent students. *Skillstreaming the Adolescent* maximizes the potential for skill mastery by incorporating role playing as a method of instruction. *Skillstreaming the Adolescent* potentially could be an effective technique for social skills instruction for middle school students with ASD because of the concrete steps outlined for each skill and the use of role playing.

One method for providing models of the *Skillstreaming the Adolescent* curriculum for students with ASD is video modelling. In 1977, Bandura demonstrated that children acquire skills through observing other people performing

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the skills. According to Delano (2007) only limited research studies have been conducted using video modelling for students with ASD over 12 years of age. One study (LeBlanc et al., 2003) investigated using video modelling and reinforcement to teach perspective-taking skills to the participants. Video modelling was shown to be an effective teaching method for perspective-taking skills for the participants in the investigation.

Additionally, video modelling has proven to be an effective technique of instruction for individuals with ASD because it accounts for stimulus overselectivity and incorporates video as an instructional tool. These aspects of video use are highly reinforcing for many individuals with ASD (Bellini & Akullian, 2007; Sherer et al., 2001). Stimulus overselectivity describes the tendency to take in visual information without the ability to effectively filter out unnecessary information. Video modelling reduces stimulus overselectivity by minimizing the focus area the child is watching. The child's attention is drawn to the screen rather than focusing on other activities or objects in the learning setting (Sherer et al., 2001). Furthermore, individuals with ASD can become preoccupied with reciting the same lines from a favorite TV show (Bellini & Akullian, 2007), making video modelling a beneficial intervention through employing visual stimuli similar to TV shows (Bellini, 2008; Charlop-Christy, Le, & Freeman, 2000; Smith-Myles & Simpson, 2001).

Students with ASD also can learn new behaviours from peer-mediated instruction. According to Loncola and Craig-Unkefer (2005), "... children with autism can learn skills simply by sitting next to and attending to a peer model" (p. 244). Peer-mediated instruction involves one or more peers without disabilities providing academic and social supports to a student with disabilities (Carter, Cushing, Clark, & Kennedy, 2005). Furthermore, Matson, Matson, and Rivet (2007) noted peer-mediated instruction as a valuable technique for teaching social skills to students with ASD.

Morrison, Kamps, Garcia, and Parker (2001) also investigated peer-mediated instruction as a method for improving social skills for students with ASD. In their investigation, four middle school students with ASD were paired

with three to four peer mentors. This investigation indicated an increase in requesting behaviours and an increase in social initiations by the participants with ASD. Specifically, the four participants increased initiations to peers during the intervention.

While both video modelling and peer mentoring have been documented as meaningful interventions individually for teaching social skills to individuals with ASD, little research exists on the combination of video modelling and peer mentoring of social skills as an intervention. The purpose of this investigation was to combine video modelling and peer mentoring of social skills to add to the research base for these interventions and to further validate the strength of this combination as an approach to social skills instruction.

## Methods

### Research Ethics Issues

This project was approved by the University Research Ethics Board. In order to maintain confidentiality, the gender of the study participants has not been revealed.

### Research Questions

The independent variables were the video models and the peer mentors. The dependent variable was the level of demonstration of each of the five social skills for inclusion. The dependent variable was observed in an inclusion setting. The primary research questions for this investigation included: 1) To what extent did the combination of video modelling and peer-mediated instruction of five social skills increase the level of demonstration of these skills in the inclusion setting? and 2) What was the specific gain in social functioning as a result of the intervention as measured by the *Social Responsiveness Scale* and *Autism Social Skills Profile*?

### Dependent Variable

Five social skills were chosen that were described as those skills most necessary for success in the inclusion classroom. Ten teach-

ers who served secondary students with ASD were asked to choose ten of the 50 social skills contained in Goldstein and McGinnis' (1997) *Skillstreaming the Adolescent* curriculum. The teachers surveyed were actively teaching students with ASD in grades six through twelve. The teachers polled were instructed to choose skills they felt were most important to successful inclusion of students with ASD in the inclusion setting. The list of ten skills critical to inclusion selected by the teachers was then used to narrow the list of skills to five. The five social skills were selected from the list of ten using the following criteria: (a) literature review; (b) input from the special education teacher; and (c) skills that were both observable and measurable.

The level of demonstration of each of the five social skills was determined by the researcher after observing classrooms of students with and without disabilities. The researcher observed students in various classes to determine what

each of the five social skills would look like as demonstrated by middle school students. From this, the researcher created a three point scale for each of the five social skills, ranging from a score of one (low-level demonstration) to a score of three (high-level demonstration) to use during the investigation. Table 1 provides descriptions of the levels of demonstration of each of the five social skills.

Each primary participant was observed three times per week in one inclusion classroom. Scores for each observation were recorded by the researcher with interrater reliability used on 25% of the scores (Kazdin, 1982). If a behaviour was not observed during a data collection session, the researcher and interrater marked "0" on the data recording form. To determine a score for each observation, the researcher evaluated all skills at the end of the 15-minute observation. The participant could get a maximum score of three for each skill.

Table 1. *Level of Demonstration of Social Skills*

<i>Skill</i>	<i>Low-level demonstration</i>	<i>Mid-level demonstration</i>	<i>High-level demonstration</i>
Greeting a peer/teacher	ignoring a peer/teacher's greeting; not initiating any interaction	looking at the peer/teacher	initiating a greeting; maintaining eye contact; responding to a greeting
Participating in a conversation	no verbal interactions with peers or teachers	responding to questions/comments with one-word responses; participating in one reciprocal interaction with a peer/teacher	responding to questions/comments with more than one-word responses; participating in two or more reciprocal exchanges with a peer/teacher
Tracking the talker	not looking in the talker's direction and/or playing with objects on desk or in hands	tracking the talker less than 50% of the intervals	tracking the talker more than 50% of the intervals
Following directions	self-stimulation, rocking, and/or participation in tasks other than assigned	time sampling for engagement in the assigned task of less than 50% of the intervals	time sampling for engagement in the assigned task of more than 50% of the intervals
Asking a question	not asking any questions	calling out to a peer/teacher; pointing to an object or person	raising a hand and/or making eye contact with the peer/teacher, waiting to be acknowledged, and then asking a question

## Independent Variables

The video models in this investigation were created by the researcher and were based on the *Skillstreaming the Adolescent* curriculum (Goldstein & McGinnis, 1997). The video models were validated by an expert panel, including one of the authors of the *Skillstreaming the Adolescent* curriculum. The actors in the video models were 10 middle school-aged student volunteers.

The total time for all five video models was four minutes and 52 seconds in length and included an introduction to the video and five video vignettes featuring the social skills being investigated. The main title screen featured the title "Making Sense of Middle School: Five Skills to Make Middle School a Little Less Confusing!" A narrator provided a short introduction that described each of the five video models. Each scenario opened with the name of the skill and each of the steps necessary for completing the skill. The narrator read the name of the skill and each of the steps after which the video model played. This was followed by the video model replaying with a narrator pointing out each step of the skill.

For greeting a peer/teacher, the video model was designed to represent the beginning of a class where two students greet each other and make "small talk." The video model was 51 seconds long. In the second video model, the actors modelled participating in a conversation. In this video model, the three actors demonstrated each of the steps of participating in a conversation by discussing their weekend plans. The video model was 14 seconds long. The third video model was for tracking the talker. This video model featured eight actors including six middle school-aged girls, one boy, and a female teacher. The scene was designed to represent a teacher introducing a lesson with the students demonstrating tracking the talker by watching her as she moved around the classroom. The video model was 20 seconds long. The fourth video model focused following directions. As the teacher gave directions, the students demonstrated following directions by completing the tasks given by the teacher. The video model was one minute and 22 seconds long. Finally, the actors modelled asking a question. In this model, a student waits for an appropriate time to ask a question, gets the teacher's attention and then asks his question. This video model was 28 seconds long.

Three peer mentors were involved to support in this intervention. Peer mentors were selected based upon their meeting the criteria outlined for the peer-mediated instruction program at the selected middle school. To participate in this investigation, the peer mentors attended training sessions including previewing the video model, reviewing the steps of each social skill with the investigator, and brainstorming ideas for role plays. Additionally, the investigator briefed the peer mentors on the expectations for their interactions with the primary participants in the inclusion settings. The training for the peer mentors lasted one hour. The peer mentors worked with the primary participants to role-play the social skills and were also present (as students) in the inclusion classrooms with their primary participant.

## Participants

The primary participants were selected based upon the following qualifications: (a) a diagnosis of autism spectrum disorders by a qualified professional; (b) an IQ score above 70; and (c) inclusion in at least one general education inclusion setting. The primary participants were three middle school-aged students with diagnoses of ASD in grades six and seven. All primary participants carried a diagnosis of ASD obtained independently from a physician, licensed psychologist, or diagnostic center. All students were also native English speakers.

At the time of the intervention, primary participant 1 was a 14-year-old student of Latin American/American descent in the seventh grade. This student carried a diagnosis of Pervasive Developmental Disorder--Not Otherwise Specified (PDD-NOS) and had been diagnosed by a licensed psychiatrist in 1998. This child had an Intelligence Quotient (IQ) score of 86 using the *Weschler Intelligence Scale for Children III* (WISC III) (Weschler, 1991). Additionally, this young person had been assessed using the *Gilliam Autism Rating Scale* (GARS) (Gilliam, 1995) in 2004. The score on the GARS was 132 which indicated a high probability of an ASD. This student was included in three inclusion classes including science, Junior Reserve Officer Training Core (ROTC), and physical education.

Primary participant 2 was 12 years old, in the seventh grade, and was of European/American descent. This child carried a diagnosis of mild/moderate autism and was diagnosed by

a licensed psychiatrist in 1998. The student was assessed using the CARS in 1998, and the examiner reported a score of 31.5, or mild to moderate autism. The last assessment had been in 2004 when an IQ score of 77 was recorded. This student participated in two inclusion classes including art and physical education.

At the time of the intervention, primary participant 3 was a sixth grade Caucasian student with a diagnosis of moderate developmental delay from a medical doctor in 1997. This child received a diagnosis of autism in 2004, and participated in a health/physical education inclusion class. The last assessment had been in 2000 when the examiner reported an IQ score of 71.

The special educator, who was the primary implementer of the intervention, was an alternatively certified special educator by the state of Florida and was responsible for: (a) introducing the intervention; (b) monitoring the intervention; and (c) facilitating communication between the researcher and the parents of the primary participants and the inclusion teachers. She also completed the *Social Responsiveness Scale* (Constantino & Gruber, 2005) and the *Autism Social Skills Profile* (Bellini, 2008) for each primary participant. The special educator was provided the following materials during an hour long training session with the researcher: (a) an overview of the investigation; (b) scripts for each day of the intervention; (c) copies of the video model; and (d) copies of the *Skillstreaming the Adolescent* materials utilized in the investigation.

Parents of the primary participant were provided with an overview of the goals of the investigation by the special educator during individual face-to-face meetings at the selected middle school. Parents completed the *Social Responsiveness Scale* (Constantino & Gruber, 2005) and the *Autism Social Skills Profile* (Bellini, 2008) during the pre-intervention phase and again at the completion of the investigation.

## Setting

This investigation took place in multiple settings within a middle school in central Florida that enrolled 1,159 students in the 2006–2007 school year. The settings included a resource room and general education inclusion classrooms. The general education inclusion classrooms included a seventh grade science class, a sixth grade art class, and a sixth grade physical

education/health class. The science class contained eleven students, eight of whom received some kind of special education services. The art class contained 30 students, with three students in the classroom receiving some kind of special education services. The physical education/health class contained 48 students with 12 receiving some kind of special education services and seven students receiving English as a second language (ESOL) services.

## Procedure

### Baseline

During the baseline phase, the researcher observed the primary participants in an inclusion classroom. Data collected during the baseline included the level of demonstration of each of the five skills. An a priori decision for stability was determined by the researcher to be no more than one variation in score over four days with no ascending trend.

### Intervention

On day one of the intervention, the special educator, primary participant, and peer mentor sat at the desk in the resource room. The researcher observed the intervention and completed a fidelity checklist. The special educator had a script and two sets of eight-inch square cards. Each card listed the name of the skill and the steps prescribed by the *Skillstreaming the Adolescent* curriculum. There was a Dell laptop with a 15-inch screen on the desk, which was used to play the video models.

Day one of the intervention lasted 20 minutes with 10 minutes for the introduction of the videos for greeting a peer/teacher and participating in a conversation. After viewing the video model the first skill, the primary participant/peer mentor reviewed the steps orally and role-played the skill. Then the primary participant/peer mentor pair viewed the video model for participating in a conversation, reviewed the steps orally, and role-played the skill.

The procedure for day two of the intervention was identical to the procedure in day one. The special educator had a researcher-prepared script and two sets of social skills cards. Day

two of the intervention lasted 30 minutes with approximately 10 minutes devoted to each skill. First, the special educator introduced the video model for tracking the talker. The primary participant/peer mentor pair viewed the video, reviewed the steps of the skill orally, and then role-played the skill. Next, the primary participant/peer mentor pair viewed the video model for following directions, reviewed the steps orally, and role-played the skill. Finally, the primary participant/peer mentor pair video viewed for asking a question, reviewed the steps orally, and role-played the skill.

Day three of the intervention package occurred in the resource room setting as well and 45 minutes with approximately eight minutes devoted to role-playing each skill and the remaining five minutes devoted to role-playing all five skills together. On this day of the intervention, the primary participant/peer mentor pair watched all five video models. Then, the pair role-played each of the five social skills. The peer mentors utilized the steps based upon the *Skillstreaming the Adolescent* curriculum to guide the role plays. In the general education inclusion settings, the peer mentors did not provide social skill cues or supports in reference to the five specific skills in this investigation. This decision was made to not have the peer mentors prompt the participants with ASD to avoid differences in levels and kinds of prompting. In future investigations, the inclusion of in-class prompting by peer mentors could be beneficial if investigated.

Following the intervention, if there was no change or a decrease of two data points over three days in the demonstration of any of the five skills for any of the individuals with ASD,

the individual with ASD and the peer mentor were invited to review the video model for the specific skill. The purpose of this re-viewing was to provide the individual with ASD a visual reminder of the skill.

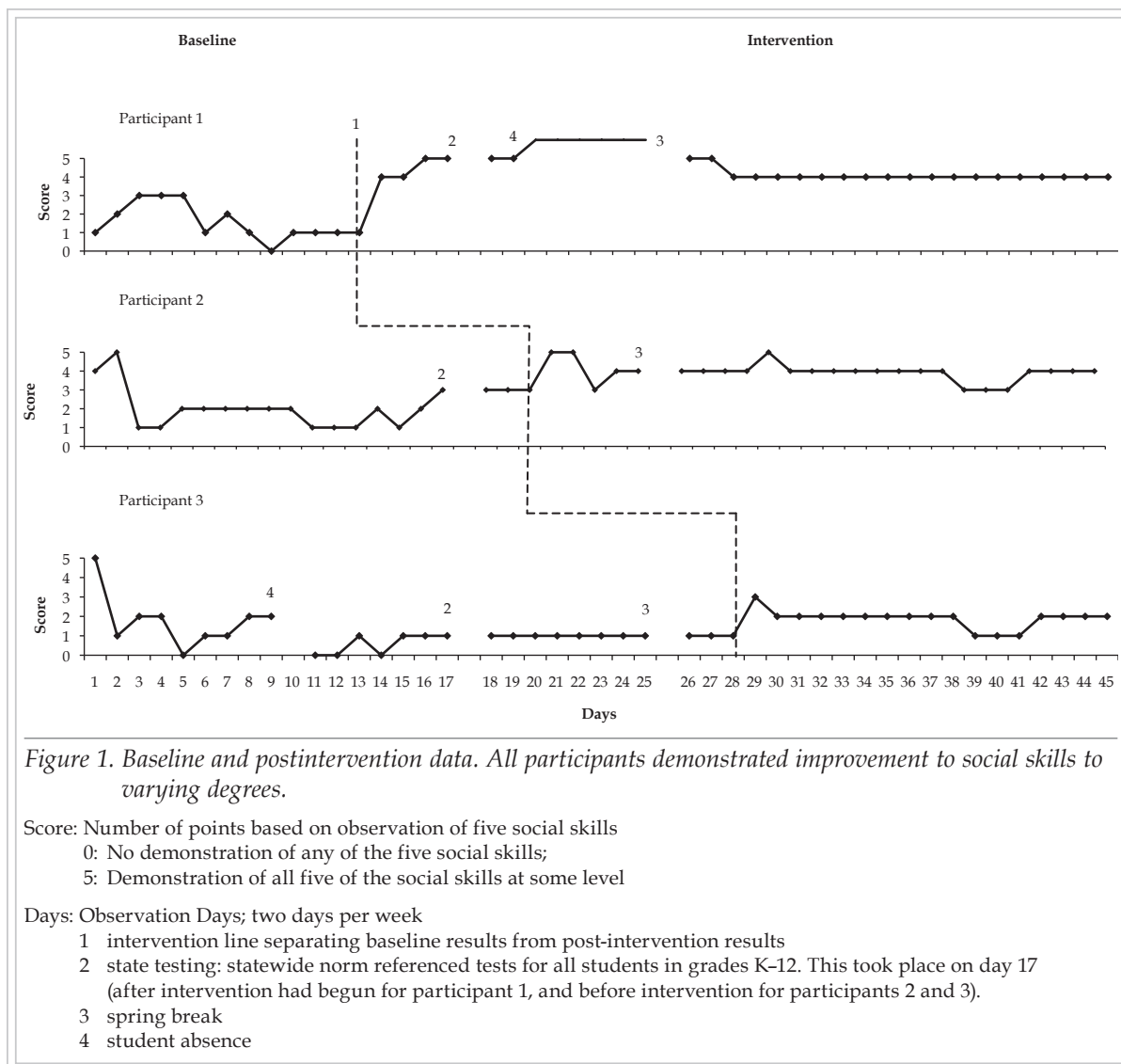
## Data Collection

This single subject investigation featured a multiple baseline design over 35 data collection days. Data were collected by the researcher and an interrater in the general education inclusion setting. The interrater was present for 25% of the observations. Data were collected for each participant three times per week on Tuesdays, Wednesdays and Thursdays, in the general education inclusion classroom. An a priori decision for stability within the multiple baseline design was determined by the researcher to be no more than one variation of a primary participant's score over four days with no ascending trend. The three students with ASD were considered the primary participants.

Interobserver agreement (IOA) is defined as the extent to which two or more observers agree that a behaviour occurred as well as when and how long a behaviour occurred (Kazdin, 1982). The researcher and interrater participated in three training sessions before observing participants for this investigation. The interrater was one of the paraprofessionals that worked in the classroom for students with ASD. The training sessions consisted of the researcher and interrater watching videos of middle school classrooms. After 15 minutes of watching the video, the researcher and interrater compared their observations, point by point. According to Alberto and Troutman (1995), the recommended range

Table 2. Interobserver Agreement

Social Skill	Percent Interobserver Agreement
greeting a peer/teacher	92%
participating in a conversation	98%
asking a question	99%
following directions	99%
tracking the talker	98%
overall	97.2%



for IOA was between 80 and 90%. For this investigation, an 85% IOA was sought. The researcher and interrater observed each primary participant at the same time on the same day each week in the inclusion setting. The IOA for reliability in this investigation was calculated both within participants and across the study. See Table 2 for the results of the analysis for interobserver agreement for the intervention.

## Results

The first research question addressed was: To what extent did the combination of video modelling and peer-mediated instruction of five social skills increase the level of demon-

stration of these skills in the inclusion setting? All three participants showed increases in the level of demonstration of the social skills after the intervention. From visual inspection of the data, each student demonstrated increases in social skill functioning over time with slight increases or decreases in performance on specific days. Figure 1 displays the graphed results of the data.

The most specific individual gain for primary participant 1 from baseline to day 25 was in tracking the talker. After the intervention, this child consistently tracked the person who was talking in both lecture settings and one-to-one conversations. Primary participant 1 showed quite a bit of fluctuation in the scores

during days one through thirteen of this investigation, which could be attributed to the following events. On day three of baseline data collection, this child was “promoted” in their Reserve Officers Training Corps (ROTC) class and given the job of leading the exercises during class. Their role continued through days four and five. On day six, because they were late to class, they were not allowed to lead the exercises. On day seven, the child resumed the job of leading the class exercises. On day eight, they were given negative feedback from the ROTC instructor and warned that their disruptive behaviour could result in losing his position. On day nine, they continued to have difficulty in the ROTC class and the role of leading class exercises was taken away once again. On day 14, the day of the intervention, however, this child’s demonstration of the social skills jumped by two points and remained fairly consistent throughout the rest of data collection.

Primary participant 2 exhibited scores that stabilized by day 13; however, initially scores varied the first few days of school. After the intervention, the level of demonstration of the five social skills went from a score of three to a high score of five. Primary participant 2’s scores decreased and then stabilized again on day 18. On day 29 of data collection, primary participant 2 had a noticeable increase in her score to a five, which was a gain in the social skill of greeting a peer/teacher and participating in a conversation. For primary participant 2, the level of demonstration of the five social skills incorporated in this investigation appeared to be related to the events in the class before her inclusion art class. On day 23, this child had experienced difficulty in completing an assignment during the class right before art. This difficulty in completing the assignment elicited a large amount of verbal redirection by the special educator. Upon entering the art class after the reading class, this child was observed to be more solicitous in their greeting of their peer mentor. Conversely, on day 30, primary participant 2 had been celebrated for accomplishing a difficult task in reading class. When this child went to art class during the following period, the researcher observed that the peer mentor was asked more personal questions. For primary participant 2, increases or decreases in scores often appeared to relate to performance and feedback from the teacher during the period prior to art class.

From visual inspection of the graphs, the gains in the level of demonstration of social skills were less by primary participant 3 in comparison to the other primary participants. During baseline, this child demonstrated great variation in the first 14 days of data collection. On the first day of observation, the physical education class was completing a unit on basketball. Basketball was a favoured activity of primary participant 3. The researcher observed that this child was following the directions of the physical education teacher and initiating conversations with peers. On day two of the investigation, the topic in the physical education class switched to soccer. Soccer was not a favourite activity of primary participant 3 and the researcher observed that this child appeared to pay less attention to the directions, demonstrated a lack of greeting to peers and teachers, and did not appear to be tracking the talker. On days 10–15, primary participant 3 demonstrated a stable baseline of only one point on average until the intervention. On day 28, the special educator implemented the social skills intervention with primary participant 3. The researcher noted an increase from a score of three on day 28; after which this participant had an average score of two for the remainder of data collection. The specific skills in which this participant showed increases in social skills after the intervention were in greeting a peer/teacher and tracking the talker. Also, the researcher noted that primary participant 3 demonstrated the skill of greeting a peer/teacher while transitioning between classes and when someone entered the classroom.

The second research question addressed in this investigation was: What was the specific gain in social functioning as a result of the intervention as measured by the *Social Responsiveness Scale (SRS)* and the *Autism Social Skills Profile (ASSP)*? The purpose for administering the SRS and the ASSP was to delineate any specific gains in social skills functioning for each of the primary participants. The results of the pre- and post-ASSP and -SRS did not reveal notable gains in social functioning overall. However, some specific gains in social functioning were noted for both primary participants 1 and 2.

The *Autism Social Skills Profile (ASSP)* was administered to provide additional information in regard to changes in social functioning for each of the primary participants. The 4-point Likert style scale allowed those completing the ASSP to rate the occurrence of 49 social



behaviours from “never” to “very often.” While minor increases and decreases were revealed in the pre- and post-test scores for the *Autism Social Skills Profile*, the changes in scores were not remarkable for any of the participants. Table 3 displays the ASSP results.

For primary participant 1, the pre and post test scores for the ASSP were within a 5-point range with a low score of 120 and a high score of 125. The special educator rated primary participant 1 highest, followed by similar scores from the general educator and the parent of primary participant 1. When considering each individual question, the pre- and post-test ratings for each question for primary participant 1 varied in that the statements referring to appropriate eye contact were rated “very often” as opposed to earlier ratings of “often” by all three evaluators. For example, such changes in rating were noted in the following statements: “maintains eye contact during conversations” and “maintains the give and take of conversations.”

Primary participant 2 was rated highest by the special educator with a score of 113 on the ASSP. The general educator differed in her rating of primary participant 2 with a pretest score of 108.5 and a post-test score of 110. The parent of primary participant 2 did not report any change in scores. In a question by question analysis, changes of ratings from “often” to “very often” were reported by the general educator for statements regarding initiating conversations. For example, the statement “interacts with peers during structured activities” from the *Autism Social Skills Profile* (ASSP) was rated “often” by the general educator in the pretest and changed to “very often” in the post-test.

Primary participant 3 also was rated with scores within a 5-point range with a high pre test score of 121 and a low pretest score of 116. The special educator rated primary participant 3 highest for both the pre- and post-test measures while the parents of primary participant 3 rated his scores lowest. A question by question analysis for the ASSP completed for primary participant 3 did not reveal any positive increases in social skills.

The *Social Responsiveness Scale* (SRS) was administered to provide additional information about any observed changes in social skill functioning for each of the primary participants. Three

Table 3. Pre- and Post-Autism Social Skills Profile Scores

Primary participant	Special educator		General educator		Parent	
	pre	post	pre	post	pre	post
1	125	125	120	123	121	122
2	113	115	109	110	111	111
3	121	120	118	119	116	116

Table 4. Pre- and Post-Social Responsiveness Scale Scores

Scores	Primary Participants		
	1	2	3
special educator			
pretest	159	185	146
pretest t-score	≥90	≥90	≥90
post-test	159	187	146
post-test T	≥90	≥90	≥90
general educator			
pretest	158	134	144
pretest t-score	≥90	88	≥90
post-test	158	134	143
post-test t-score	≥90	88	≥90
parent			
pretest	160	141	144
retest t-score	≥90	≥90	≥90
post-test	161	143	143
post-test t-score	≥90	≥90	≥90

levels of rating exist on the SRS: severe autism, mild to moderate autism, and normal ranges of social functioning. T-scores were calculated based upon raw scores. A t-score of 76 or higher indicates severe ASD; a t-score of 60–75 indicates mild to moderate ASD; and a t-score of 59 or less indicates normal range social functioning. The pre- and post- scores for the *Social Responsiveness Scales* are presented in Table 4. No significant gain in social functioning was demonstrated by the participants.

Primary participant 1 was rated highest by their parent for both the pre- and post-test of the SRS. All scores for primary participant 1 were within a 4-point range with a high score of 161 and a low score of 158. All t-scores for primary participant 1 placed them in the severe range regarding social skill impairment. Primary participant 2 was rated differently between the special educator (pre- 185; post- 187), the general educator (pre- 134; post- 134) and parent (pre- 141; post- 143). The pre- and post-test scores for primary participant 2 had the widest range from a high score of 187 to a low score of 134, which represents a range of 53 points. The t-scores for primary participant 2 placed them in the severe range regarding social skill impairment as rated by the special educator. However, the general educator evaluated primary participant 2 as being in the mild to moderate range of social functioning. The pre- and post-test scores for primary participant 3 were all in the 140s. The special educator rated primary participant 3 highest with consistent pre- and post-test scores of 146. Both the general educator and the parent of primary participant 3 had similar ratings for this child (pre- 144; post- 143). All t-scores for primary participant 3 placed them in the severe range regarding social skill impairment.

### Social Validity

The researcher completed three focus groups with the participants of the investigation including separate groups for the peer mentors, the parents of primary participants, and the primary participants. Groups were asked specific questions about their participation to add measures of social validity to the investigation.

Overall, the primary participants enjoyed watching the videos and role-playing with the peer mentors. One primary participant said the video was too fast and should have been played slower. All three primary participants reported liking learning the social skills because they were able to watch the videos more than once and they received one-to-one time with their peer mentors. Two of the primary participants liked the actors in the video, while a third primary participant stated that the actors looked too old for middle school.

The parents of the primary participants reported being pleased that their children were being provided social skills instruction. One parent

reported that her son had participated in social skills lessons before but that this was the first time using video models. The other two parents were unsure if their son/daughter had participated in social skills training in previous years. All parents felt their child benefitted from the experience but could not comment directly on any specific gains. One parent felt her son was initiating more conversations with people they met in stores.

### Discussion

It is difficult to extrapolate exactly which part of the intervention, video models or peer-mediated instruction, produced more salient results. However, the investigation demonstrated that the combination of video models and peer mentors did positively impact the level of demonstration of social skills for students with ASD. Teachers could be impacted by the inclusion of video modelling and peer-mediated instruction in their classrooms. Increases in positive social interactions as a result of social skill instruction via video models could result in fewer behaviour disruptions in classrooms and greater time on learning. Furthermore, video modelling provides practitioners with a tool for repetitive teaching, drawing on one of the learning strengths for students with ASD (Smith-Myles & Simpson, 2001) and that is precisely what happened as noted in this investigation.

This intervention provided a framework for implementing a structured social skills approach incorporating video models and peer-mediated instruction that can greatly influence future research and practice. Additionally, the technology involved in creating the video models is easily accessible on most personal computers. The availability of lower-cost, high quality video cameras also helps to make this intervention viable for classroom teachers. This intervention provides a framework for implementing social skills instruction that can be further developed to improve the inclusion experiences for students with ASD and their peers.

### Limitations

While the intervention in this investigation positively impacted the primary participants, limitations existed within the investigation that may have impacted the outcomes. First, the

three primary participants carried diagnoses of ASD. Due to the variations in behaviours of individuals on the autism spectrum, it is uncertain that the findings could be replicated with individuals with differential diagnoses of ASD.

The video model, while validated by a panel of experts, was also a limitation. The actors and actresses in the video models were unfamiliar to the primary participants in the investigation and some appeared significantly older than the primary participants. According to researchers in the field of video modelling (Bellini & Akullian, 2007; Delano, 2007), individuals with ASD relate better to actors and actresses in video models that most closely resemble themselves.

The pairing of the peer mentors was a limitation of this investigation as the pairings were based upon class schedules rather than familiarity between the primary participants and the peer mentors (Fuchs & Fuchs, 2005). Peer mentors were matched with primary participants according to the periods of the school day in which both the peer mentor and primary participant were scheduled to be in the resource room, making the selection was based upon availability.

The general educators of the primary participants were a limitation to the study in that the researcher was not in control of either the teacher or the inclusion class that the primary participants attended. The schedule of inclusion classes for the primary participants had been arranged at the beginning of the year by the special educator. Each of the primary participants attended different inclusion classes with different teachers and different peer groups. The researcher was not able to control for the activities taking place during the class, the perceptions and opinions of the classroom teacher regarding including children with ASD, or the peer groups present in the classroom, all of which could impact the potential for replication of the intervention.

Future research for using video modelling is multifaceted and promising. Examples include exploring the use of iPods and similar technology, creating libraries of social skills videos for teachers to use in their classrooms, replicating the investigation with students with ASD at the elementary and high school levels, and utilizing technology such as virtual environments for social skills instruction and training.

The availability of increasingly sophisticated, although relatively simple to use, technology, video phones, digital cameras, etc., provides increased access to video modelling as a tool. Video models could be created by teachers in their classrooms using their own students and uploaded to computers or iPods for immediate viewing. Replication of the intervention package developed for use in conducting the present research could result in a comprehensive social skills curriculum for students with ASD.

The positive results of this intervention have increased the research base for social skills instruction for students with ASD in middle school and provided an initial framework for future research in developing social skills interventions. As more and more students are diagnosed with ASD and these students reach middle school age, structured social skills interventions like the one used in this investigation are needed. Tools that incorporate appealing technology, repetition of visual stimuli, and peer-mediated instruction with typical peers can increase the levels of social skills functioning in students with ASD. Increasing the social skills of students with ASD benefits these individuals in all areas of their life while increasing their potential to be successful contributors to their families, schools, and communities—the ultimate goal of education for any student.

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