Review of the Literature Focused on the Effects of Video Modeling, Created by the Researcher, on the Social Skills of Children with Autism

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Deficiencies in social skills are one of the primary features of autism spectrum disorders (ASD) and are a major source of impairment, especially with regard to interacting and socializing with peers (Maione & Mirenda, 2006). Children with autism must learn to respond appropriately to peers as well as initiate social interactions because peer interactions are important in children's lives (Nikopoulos & Keenan 2007). While numerous interventions and treatment procedures have been developed to teach social skills to individuals with autism, video modeling has been shown to be effective in teaching social behaviors, particularly when it is followed up with additional practice and prompting (Apple, Billingsley & Schwartz, 2005). It is an evidence based practice and serves as a realistic means of providing instruction by replicating real-life scenarios and incorporating visual and auditory features relevant to the learner (Maione & Mirenda, 2006). The basic concept is learning through observation so video modeling procedures have been used successfully to improve a variety of social skills including: verbal initiations and responses, modification of behaviors, play activities, and sequencing of behaviors. Typically, video modeling involves the child observing another person engage in a target behavior then imitating that behavior (Charlop-Christy, Le & Freeman, 2000). More specifically, interventions using video modeling involve a participant watching video tapes of target behaviors then replicating that behavior. A number of studies suggest that video modeling is an effective intervention and can improve social and communication skills for children with disabilities.

Method

Data Collection

An electronic search was conducted for studies from 2000 through 2010 using the Educational Resources Information Center (ERIC), Google Scholar and PsycINFO. Key words used in the search include: autism, social skills, multiple baseline and video modeling. The objective of this literature synthesis is to summarize current empirical literature that evaluates the effects of different types of video modeling on the social skills of children with autism.

The articles selected for inclusion needed to meet five criteria. The first criterion is that studies must be published in a peer reviewed journal between the years 2000 and 2010. Second, participants in the studies must have a diagnosis of autism. Third, the dependent variable in the experimental design is social skills. Fourth, the manipulated independent variable was a form of video modeling, created by the researcher. Fifth, the study uses a multiple baseline design. Additional studies were included if they were cited in articles from the initial search and met the inclusionary criteria. Studies were excluded if they did not use instructor created videos and if they did not use a multiple baseline design. This paper analyzes video modeling practices used in social skills training. More specifically it examines the effectiveness of each type of video modeling and the strength of the intervention. Results of the data within each of the studies was recorded on a table and analyzed for strength of intervention. Strength of intervention was determined with

four criteria: replicated experimental effects, baseline, repeatedly measured dependent variable and percentage of overlap of observable data.

Results

Ten studies that met the criteria were reviewed. The research questions across the studies compared the effects of various types of video modeling on the acquisition of target behaviors of children with autism. Two studies (Apple et al., 2005: Maione & Mirenda, 2006) involved two experiments that compared video modeling alone to video modeling with explicit instructions or feedback. Two studies (Charlop-Christy et al., 2000; Marcus & Wilder, 2009) compared two different types of video modeling and four investigated video modeling alone (Buggey, 2005; Nikopoulos & Keenan, 2007; Nikopoulos & Keenan, 2004; and Reagon, Higbee & Endicott, 2006). One investigated the use of self-modeling (Marcus & Wilder, 2009) to modify participant behaviors and two explored the effects of point-of-view modeling (Hine & Wolery, 2006; Tetreault & Lerman, 2010).

Participant Characteristics

Across the ten studies there were 31 participants with autism. Of these, there were 24 males and seven females ranging in age from 2 – 11 years old. The average age of the participants was age six. Three of the studies observed two or less participants and seven of the studies used between 3 and 5 participants. All of the children had diagnoses on the autistic spectrum. All children observed exhibited some level of language ability and all had impaired social capabilities.

Setting Descriptions

Most of the studies took place within an education school-based program. One study was conducted in an integrated preschool (Apple et al., 2005). Five studies were conducted in inclusive settings but three were in an urban, private school (Buggy, 2005; Nikopoulos & Keenan, 2007, Nikopoulos & Keenan, 2004) and the other two were in a university setting (Hine & Wolery, 2006; Reagon et al., 2006). The therapy room at a children's after-school program was also used as an experimental setting (Charlop-Christy et al., 2000). Two studies were conducted in the participant's home (Maione & Mirenda, 2006; Marcus & Wilder, 2009) and another took place at a specialized treatment center (Tetreault & Lerman, 2010).

Experimental Design

All of the studies used a single subject design. Each established a baseline prior to any video modeling interventions. Five of the investigations used a multiple baseline design across participants (Apple et al., 2005; Charlop-Christy et al., 2000; Marcus & Wilder, 2009; Nikopoulos & Keenan, 2007; Nikopoulos & Keenan, 2004. Three used a multiple baseline across behaviors (Buggey, 2005; Hine & Wolery, 2006; Tetreault & Lerman, 2010) and two used a multiple baseline across activities (Maione & Mirenda, 2006; Reagon et al., 2006).

Video Modeling Described

Video modeling is an intervention method used to promote or change desired behaviors and interactions. The basic concept is learning through observation. Implementation of video modeling generally follows a series of steps. Initially, the target behavior is determined then a decision is made as to who should demonstrate the

behavior on the video: self, adult or a peer. Next the scenario is set up and videotaped then baseline data is collected. Finally the video is shown and discussed with the participant. Additional data is collected as the participant demonstrates the targeted behavior.

Implementation of Video Modeling

A form of video modeling was the primary treatment used across the studies. Five of the studies (Apple et al., 2005; Maione & Mirenda, 2006; Marcus & Wilder, 2009; Nikopoulos & Keenan, 2007; Nikopoulos & Keenan, 2004) conducted activity sessions 2-3 times per week and conducted video modeling sessions daily until criterion was met. Activity sessions are when the participant is observed for the targeted behavior. Video modeling sessions are phases when the video with the targeted behavior is viewed by the participant. Two studies (Charlop-Christy et al., 2000; Hine & Wolery, 2006) conducted activity sessions twice a day and Buggey, (2005) and Reagon et al., (2006) conducted activity sessions once a day. Each video modeling session ranged from approximately 3-9 minutes. Data was collected immediately after the viewing except for one study (Nikopoulos & Keenan, 2004). They used a latency phase meaning they observed participants after a period of time. All studies reported at least twenty sessions and one study reported 85 sessions.

Maintenance data was assessed for eight of the ten studies. This follow up phase occurred once the participant reached criterion. Two to six observations were recorded in all of the studies that included maintenance Two studies by Nilopoulos & Keenan, (2007) and (2004) reported follow up data at one and two months. Two studies reported

follow up data after ten days (Reagon et al., 2006; Tetreault & Lerman, 2010). Effects slightly decreased during the follow up phases however overall results remained positive.

Video Modeling Interventions Defined

Although forms of video modeling may vary, four types of video modeling were examined: video modeling with peers, video modeling with feedback, video self-modeling and point of view video modeling. The intervention most commonly used across the studies was the use of peer video modeling. Seven studies used this method however two experiments compared the peer video modeling to self-video modeling. Two studies used point-of-view video modeling and one compared in-vivo modeling to peer video modeling.

Peer video modeling. Peers were used as models in five of the studies (Charlop-Christy et al., 2000; Marcus & Wilder 2009; Nikopoulos & Keenan 2007; Nikopoulos & Keenan 2004; Reagon et al., 2006). In peer video modeling, a video is created of the peer (either adult or child) modeling the targeted behavior. This type of video modeling was used in one of the studies by Nikopoulos & Keenan (2007). A peer was selected and trained as a model to perform the required behaviors in the videotapes. Only the model and the experimenter were shown in the video. Four video tapes were made that showed the appropriate behavior with the experimenter. The participant viewed one of the videos once then the target behavior was assessed. This procedure was repeated for all play conditions.

Peer video modeling with feedback. Two of the studies used video modeling with feedback. This differs slightly from video modeling in that the participant watches a

video tape of his or her own appropriate or inappropriate behaviors. These behaviors are discussed with the experimenter. This method of video modeling provides a range of examples to promote the desired behavior (Maione & Mirenda, 2006).

Video self-modeling. Video self-modeling was used in one study (Buggey, 2005) for three participants. In this type of modeling, the participants view themselves as the models. Videotaping of the participants occurs over time. The tapes are edited so only the desired target behaviors are on the final tape that is shown to the participants. Video self-modeling tapes can also be created by role-playing the desired behavior with the participant. Videos of the participant are than edited to show only the desired behaviors. The participant watches the edited video then preforms the target behaviors.

Point-of-view video modeling. Another type of video modeling reviewed is point-of-view video modeling. This involves the experimenters holding the video camera from the view point of the child (Hine & Wolery, 2006). The video records the targeted behavior from the child's view point. This type of modeling controls for unrelated cues and extraneous variables that can distract the child (Tetreault & Lerman, 2010). Two studies reviewed used point-of-view modeling.

Video Modeling Compared

Two of the studies compared different types of video modeling interventions. One of the comparison studies used peer video modeling and self-video modeling to teach children with autism to respond appropriately to novel items (Marcus & Wilder 2009). Another study (Charlop-Christy et al., 2000) was designed to compare the effectiveness of video modeling to in-vivo modeling. In vivo modeling uses live models to perform the

target behavior whereas video modeling involves the child observing a videotape of the model.

Variations of video model implementation. In another study, participants viewed the video twice then the experimenter began testing acquisition of the target behavior. If the child did not meet the criterion after two testing sessions, the video was presented again and then testing for acquisition was repeated until the criterion was met. (Charlop-Christy et al., 2000). Another variation of a video modeling intervention used 35 second video clips. As participants acquired the initial desired behavior, they were transferred to the next condition which involved viewing a video clip of a more complex sequence of behaviors (Nikopoulos & Keenan, 2004). One study used 10 second video clips but did not indicate the number of days the treatment was implemented and another study used treatment sessions that consisted of three phases: a daily probe of the behavior being modeled, a video viewing phase and a daily practice phase (Hine & Wolery, 2006).

Variation of video modeling using parents. Parents provided the initial video intervention in one study (Marcus & Wilder, 2009). The video model was shown to the participants 3 times per day over 2 days prior to the sessions. The peer video was shown for the first two day session and the self-video model was shown on the following two days. After the initial viewing of both videos over the four day period, both videos were shown once immediately before sessions, three to four days per week. The order of the videos alternated from session to session. Probes were conducted immediately following the videos.

Types of Dependent Measures

A number of social skills were examined across the studies and some of them targeted more than one behavior. Three studies observed only verbalizations. More specifically these included compliment initiations and responses (Apple et al., 2005), verbalizations (Maione & Mirenda, 2006), and correct verbal responses (Marcus & Wilder, 2009).

Seven studies observed language production as well as additional social skills. Specifically these included frequency of social initiations, rate and duration of tantrums, aggressive behavior and verbalizations (Buggey, 2005), expressive language, spontaneous greetings, conversational speech, independent and social play (Charlop-Christy et al., 2000), pretend play (Hine & Wolery, 2006), imitative responses, reciprocal play (Nikopoulos & Keenan, 2004) and sequences of behaviors (Nikopoulos & Keenan, 2007), correct actions, scripted statements, contextually related spontaneous words (Reagon et al., 2006), and social initiations, eye contact and vocal responses (Tetreault & Lerman, 2010).

Effectiveness of Video Modeling

Results of these studies suggest that video modeling is an effective intervention for teaching social skills across a variety of implementation methods. All ten studies reported positive effects in social skills. Apple et al., (2005) reported that social skills for all children improved. Additionally, social initiations increased and aggressive behavior decreased (Buggey, 2005), indicating the efficacy of video modeling. In another study, (Maione & Mirenda, 2006), the data suggests that video modeling was responsible for a

significant increase in social language in two of the three activities however video modeling, feedback and prompting were necessary to achieve a significant and stable change in behavior for the third activity. Video modeling also enhanced the social initiation skills of all children for Nikopoulos & Keenan (2004), and this intervention facilitated reciprocal play as well as imitative responding of a sequence of behaviors (Nikopoulos & Keenan, 2007). Play scenarios and scripted statements also increased after video modeling interventions. Reagon et al., (2006), suggest the results of this study support the finding that siblings of children with autism can be taught to serve as video models and (Charlop-Christy et al., 2000) concluded that video modeling was effective in the acquisition and generalization of target skills in a shorter period of time compared to in-vivo modeling.

Several studies reported mixed effects. For example, one study indicated that video modeling alone does not produce compliment-giving initiations however the addition of explicit instruction succeeded in producing increased initiations (Apple et al., 2005). In the comparison of in vivo modeling to video modeling, (Charlop-Christy et al., 2000) the data indicate that video modeling led to quicker results. In the comparison of video self-modeling to video peer modeling, it was reported that all three participants reached the criterion in the self-modeling condition but only one participant reached criterion in the peer-modeling condition (Marcus & Wilder, 2009). Outcomes of the point-of-view study (Hine & Wolery, 2006) indicate that positive behaviors increased in three of the four sets of observed behaviors however the other point of view study (Tetreault & Lerman, 2010), produced inconclusive results. Overall, social initiations

increased during the video with food/feedback phase but results for each participant were different. Each required different treatments to initiate the expected social initiations resulting in mixed treatment effects.

Strength of Intervention

Results of the data within each of the studies was recorded on a table and analyzed for strength of intervention which was determined with four criteria: replicated experimental effects, baseline, repeatedly measured dependent variable, and percentage of overlap of observable data. Averages were calculated across all ten studies to determine a median for each criterion. Studies that reported results at or higher than the median were awarded 1 point for each criteria met. Studies that did not meet a particular criterion did not receive any points. The total possible score for meeting criteria in each area is 4.

External validity. Replicated experimental effects were used for the first criteria because external validity is enhanced by the replication of the effects across different participants, different conditions, and/ or different measures of the dependent variable (Horner et al. 2005). The panels within each study indicate data points of the replicated experiments, so the number of panels, were considered for strength of intervention. A minimum of three panels is generally acceptable. For the first criteria, all ten studies reported at least three panels of observations across participants or conditions. Two studies, (Marcus & Wilder 2009; Nikopoulos & Keenan 2004) used only three panels and six studies used between four and six panels (Apple et al., 2005; Buggey, 2005; Hine & Wolery, 2006; Maione & Mirenda, 2006; Reagon et al., 2006; Tetreault & Lerman,

2010). The most replicated effects were reported by Charlop-Christy, Le & Freeman (2000) and Nikopoulos & Keenan (2007) with nine and ten replications respectively.

Baseline measures. Measurement of the dependent variable during a baseline should occur until a predictable pattern is observed (Horner et al. 2005). Baseline conditions that included the number of observations as well as no observable trends were the next criteria used to analyze each study to determine strength of intervention. In single subject design, the baseline condition is compared with performance under the intervention condition so replication should include enough data to indicate a pattern or trend. Eight of the studies used more than seven baseline points. Tetreault & Lerman, (2010) used an average of 4.7 across six panels and Reagon et al., (2006) used only one data point to establish a baseline. The median number of baseline points to meet the criteria was 9.

Measures of dependent variable. Studies were also examined for dependent variables that were measured repeatedly within and across conditions. This is important for comparing participant performance as well as establishing an overall pattern of performance. Repeated measures of the dependent variables were used as the third criteria for strength of intervention. The range of intervention data points across studies varied from a low average of 3.2 data points across five panels (Charlop-Christy et al., 2000), through a high average of 23.3 data points across 3 studies (Marcus & Wilder 2009). The median number of data points reported for repeated measures of the dependent variable was eleven.

Observable overlap. The percentage of overlap of observable data was considered for the fourth criteria. This was calculated by determining the number of data points that overlapped with baseline measurements. Next, the number of data overlap was divided by the total number of data observed across the intervention and maintenance periods. The result was represented by a percentage. The average percent of data overlap ranged from 2% - 33% with an average of 14.75% across all ten studies so 15% was used for the fourth criteria.

Buggey, (2005) and Nikopoulos & Keenan, (2007, 2004) reported the least percentage of data overlap at 6%, 4% and 2% respectively. Charlop-Christy et al., (2000), and Maione & Mirenda, (2006) met the criteria with a percent of data overlap of 15% or less. Apple et al., (2005) was close to criteria with an average of 16% across two studies. It should be noted however that their comparison study of video modeling with feedback yielded a 0% data overlap. Four studies exceeded the average percentage of data overlap with the highest percentage (Hine & Wolery, 2006) at 27%, followed by 23% (Tetreault & Lerman, 2010), and Reagon et al., (2006) at 20% and Marcucs & Wilder, (2009) with an average of 19% overlap. It's interesting to note that the two studies with the highest percent of overlap were those that used point of view video modeling (Hine & Wolery, 2006), followed by Tetreault & Lerman, (2010).

Analysis. Each of the ten studies, were analyzed for strength of intervention, across four areas of data within each study. A median was established as a measure of strength for each area. One point was awarded for each area that met the criteria. Results indicate that five of the studies scored a three for strength of intervention (Apple et al.,

2005; Buggey, 2005; Charlop-Christy et al., 2000; Hine & Wolery, 2006; Marcus & Wilder 2009). Two studies scored a two, (Reagon et al., 2006; Tetreault & Lerman, 2010) and three studies met criterion for all four areas (Maione & Mirenda, 2006; Nikopoulos & Keenan 2007; Nikopoulos & Keenan 2004).

The studies that met the highest level of criterion, (Maione & Mirenda, 2006; Nikopoulos & Keenan 2007; Nikopoulos & Keenan 2004) had several commonalities. First, they all used video modeling or video modeling with feedback. They also used more than 9 data points to establish a baseline. Each had an average of 10 intervention data points and each had less than 12% of data overlap. This indicates that the more data points recorded during observations led to a smaller percentage of data overlap. Overall the results indicate that point of view video modeling is the least effective type of video modeling while video modeling and video modeling with feedback are more effective interventions for students with autism.

Inter-observer agreement. All of the studies reported interobserver agreements greater than 85% to establish interrater reliability. Overall procedural fidelity results showed that the baseline, treatment, maintenance, and generalization session protocol was followed with 97% accuracy (range 83.3% - 100%) across the studies.

Treatment fidelity. Treatment fidelity was not specifically addressed in most of the studies. Only one study reported treatment fidelity (Hine & Wolery, 2007) however this was reported as an interobserver agreement of 95%. Treatment fidelity refers to methodological strategies used to monitor and enhance the reliability and validity of behavioral interventions. Treatment fidelity incorporates five areas: study design, training

providers, delivery of treatment, receipt of treatment, and enactment of treatment skills. Of the ten studies reviewed, eight studies addressed all areas of treatment fidelity, two studies (Charlop-Christy et al., 2000: Marcus & Wilder, 2009) met only four of the five areas due to lack of maintenance or follow up probes. According to Horner et al., (2005), "studies with only a baseline followed by an intervention, may provide useful information for the field, but do not provide adequate experimental control".

Generalizations were reported in seven of the ten studies. Evidence of compliment - giving behavior generalized across settings (Apple et al., 2005) and implementation of the video self-modeling intervention generalized across behaviors (Buggey, 2005; Nikopoulos & Keenan, 2004) as well as stimuli, persons and settings (Charlop-Christy et al., 2000). In two studies (Hine & Wolery, 2006; Reagon et al., 2006) observed generalizations across materials and (Nikopoulos & Keenan, 2007) observed generalizations across subjects. Due to time constraints, generalization across novel environments or people was not formally evaluated however (Maione & Mirenda, 2006) reported that there was anecdotal evidence outside of the activity sessions.

Five studies reported measures of social validity. Social validation of the treatment outcome was assessed by ten mothers of school-aged children (Nikopoulos & Keenan, 2007). Separately, each mother watched video clips of the four conditions. They had no prior knowledge of the participants or objectives of the study. After viewing the videos, the experimenter described the target behaviors. The mothers then identified scenes in which the child displayed the target behavior. They also identified the scenes in which the participants behaved similar to their own typically developing children. (Apple

et al., 2005) reported on pre-test, post-test results from both parents and teachers. Parent questionnaires were also used by (Buggey, 2005). Additionally, teachers kept anecdotal records. These indicated that behaviors were maintained and carried through to the end of the school year.

Hine & Wolery, (2006) also reported on social validity. Twenty graduate students were randomly assigned to rate videotapes of pre-training and post-training sessions. The graduate students completed a five item, Likert-type scale questionnaire for each video segment. They rated the child's engagement, manipulation of materials, enjoyment of the activity, and the need for help using the materials. The raters did not know if the video clips they rated were before or after treatment. Social validity was also reported by Charlop-Christy et al., (2000). Measures were taken to assess time and cost efficiency of in-vivo and video modeling. Time, training and cost were more for in-vivo modeling indicating that video modeling is a cost efficient, effective intervention for teaching children with autism new behaviors.

Discussion

Results of the studies indicate that video modeling is an effective intervention. It provides a visual model that tends to improve performance and increase the social skills and behavior for children with autism. Some major trends were noticed across the ten studies. First, all participants are children younger than eleven and most of the participants are boys (77%). Furthermore, most of the video modeling experiments were done in a classroom setting.

Although each study included video modeling, several varied the use of the video modeling technique by including additional feedback for reinforcement (Apple et al., 2005; Maione & Mirenda, 2006) and two of the studies (Tetreault & Lerman, 2010; Hine & Wolery, 2006) used point-of-view video modeling. All of the studies used a multiple baseline design that provided clear documentation of the relationship between the manipulated independent variable and the changes in the dependent variable. The positive effects indicated that video modeling improved the targeted behavior across all ten studies. Additionally, the results indicate that most behaviors generalized after the intervention was withdrawn.

These studies indicate positive effects of video modeling for children with autism. The results suggest that this procedure is effective as well as efficient (Charlop-Christy et al., 2000) for teaching new social skills and behaviors. Although the strength of intervention across studies was not equally strong, all of the results suggest positive outcomes across participants, behaviors and settings. Additionally, anecdotal observations across the studies indicate that generalizations extend to new social behaviors.

Overall video modeling is an effective and resourceful method to foster increased social skills in children with autism. The research shows it promotes generalization of target behaviors, it is easy to implement and with the increased availability of technology, it is an accessible and affordable treatment for children with autism. Video modeling provides a practitioner with a relatively simple, time efficient intervention method that can be used systematically in a non-distracting format. It keeps the participant focused on

the target behavior by eliminating extraneous stimuli and minimizes distractions. It is a convenient intervention that can be used in a familiar environment and it provides immediate feedback because the videos can be reviewed and replayed. Furthermore, specific interventions can be replicated since the sample size is small and the repeated positive results increases the validity of using video modeling for students with autism. With the improvements in technology, videos can be made quickly and easily so they can be used for instruction to foster an assortment of social skills in a variety of settings. This technique can easily be taught to teachers, counselors and intervention specialists who can collaborate to provide additional reinforcement of social skills.

Suggestions For Future Research

Future research in the area of video modeling should further explore comparisons across variations of video modeling. This would indicate the effectiveness of one method of video modeling over another. Information gleaned from highly effective studies could provide information for implementing future video modeling interventions more effectively. Additionally, studies should be conducted to observe target behavior maintenance to determine the lasting effects of video modeling. It would also be informative to observe how long target behaviors continue to generalize after the intervention is removed. Additionally, future research could examine more complex social behaviors for children with autism since video modeling makes use of the visual strengths typically observed in children with autism (Nikopoulos & Keenan 2007). Some of the noticeable gaps in the literature also indicate a need for additional research on older populations of students with autism. Moreover, video modeling should be further

explored in settings outside of the classroom. With the increased use of technology, it is now possible to extend video modeling beyond the classroom walls so future research should lead to more precise procedures for video modeling practices as well as lead to innovative uses of video modeling interventions for children with autism.

References

Apple, A., Billingsley, F., & Schwartz, I. (2005). Effects of video modeling alone and with self-management on compliment-giving behaviors of children with high-functioning ASD. *Journal of Positive Behavior Interventions,*7(1), 33-46.doi:10.1177/10983007050070010401

Buggey, T. (2005). Video self-modeling applications with students with autism spectrum disorder in a small private school setting. *Focus on Autism and Other Developmental Disabilities.*20(1), 52-63. doi: 10.1177/10883576050200010501

Charlop-Christy, M.H., Le, L., Freeman, K.A. (2000). A comparison of video modeling with in-vivo modeling for teaching children with autism. *Journal of Autism and Developmental Disorders.* 30(6), 537-552. doi: 10.1023/A:1005635326276

Dunst, C.J., Hamby, D.W., & Trivette, C.M. (2004). Guidelines for calculating effect sizes for practice-based research syntheses. *Centerscope,* 3(1), 1-10.

Hine, J.F., & Wolery, M. (2006). Using point-of-view video modeling to teach play to preschoolers with autism. *Topics in Early childhood Special Education*. 26(2), 83-93. doi: 10.1177/02711214060260020301

Horner, R.H., Carr, E.G., Halle, J., McGee, G., Odom, S. & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children.* 71(2), 165-179. Retrieved from http://www.cec.sped.org

Maione, L., Mirenda, P. (2006, April). Effects of video modeling and video feedback on peer-directed social language skills of a child with autism. *Journal of Positive Behavior Interventions.* 8(2), 106-118. doi: 10.1177/10983007060080020201

Marcus, A., & Wilder, D.A. (2009). A comparison of peer video modeling and self-video modeling to teach textual responses in children with autism. *Journal of Applied Behavior Analysis*. 42(2), 335-341. doi: 10.1901/jaba.2009.42-335

Nikopoulos, C., & Keenan, M. (2004, Spring). Effects of video modeling on social initiations by children with autism. *Journal of Applied Behavior Analysis*, 37(1), 93-96. doi: 10.1901/jaba.2004.37-93

Nilopoulos, C., & Keenan, M. (2007, August). Using video modeling to teach complex social sequences to children with autism. *Journal of Autism and Developmental Disorders*, 37(4), 678-693. doi: 10.1007/s10803-006-0195-x

Tetreault, A., Lerman, D. (2010, August). Teaching social skills to children with autism using point-of-view video modeling. *Education and Treatment of Children*,33(3), 395-419. doi: 10.1353/etc.0.0105

Appendix A

Citation	Type of intervention	Number of panels	Number of baseline data points	Number of intervention data points	Number of maintenance or follow up probes	Number of data overlap	Percent of data overlap	Overall strength of intervention
Apple, 2010)Billingsley & Schwartz (2005)	Video modeling	5	9	9	3	4	33%	3
	Video modeling with feedback		9	9	3	0	0%	
Buggey (2005)	Video self modeling	6	9.66	7.7	5.17	.83	6%	3
Charlop-Christy, Le & Freeman (2000)	Video modeling	5	7.8	3.2	0	.4	12.5%	3
	Compared to in vivo modeling	5	7.6	6.6	0	2	30%	
Hine & Wolery (2006)	Point of view video modeling	4	7.75	11	8.5	5.25	27%	3
Maione & Mirenda (2006)	Video modeling	3	11	6.7	3	2	21%	4
	Video modeling with feedback	3	11	11.7	3	1.33	9%	
Marcus & Wilder (2009)	Peer video modeling	3	14	23.3	0	4.25	18%	3
	Self- video modeling		14	19.7	0	4	20%	
Nikopoulos & Keenan (2007	Video modeling	9	11	20.3	6	1	4%	4
Nikopoulos & Keenan (2004)	Video modeling	3	10.7	9.7	4	.33	2%	4
Reagpm. Jogbee & Endicott (2006)	Video modeling	4	1	12	1.5	2.7	20%	2
Tetreault & Lerman (2010)	Point of view video modeling	6	4.7	9.7	5.9	3.6	23%	2