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The impact of using video modeling on improving social skills for autistic children in inclusive schools

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# **The impact of using video modeling on improving social skills for autistic children in inclusive schools**

## **Abstract**

Autistic children often show lack of socially expressive skills that would allow them to engage with others more successfully and to facilitate their inclusion. Therefore, this study aims at investigating the impact of using video modeling on improving social skills for autistic children in inclusive school. Video-modeling (VM) is a widely used instructional technique that has been applied to teach children with developmental disabilities. The sample of this study consists of ten children; participants were randomly assigned to an experimental group (5) and control group (5). They aged between (5-7) years. In the present study, video modeling was used to promote appropriate social skills of the experiential group. In treatment program, each child watched a videotape of two persons interacting in a play setting. One person acted as the therapist and presented the social cues. The second acted as the child, and provided models of appropriate responses. Mann-Whitne, U and Wilcoxon were used for data analysis. Results indicated that there were significant differences between the sample of this study in favor of the experimental group.

## **Introduction**

Autism is a neurodevelopment disorder defined by impairments in social and communication development, accompanied by stereotyped patterns of behavior and interest (Al Zyoudi, 2008). The focus of this paper is on the early development of social skills in autism and social skills intervention for impairments in social skills associated with this disorder. Social skills deficits in children with autism include: lack of orientation towards a social stimulus and inadequate use of eye contact, problems initiating social interaction, difficulty interpreting both verbal and non-verbal social cues, inappropriate emotional response and lack of empathy to others' distress (Zriqat & Amam, 2009; Bellini & Akullian, 2007; Hine & Wolery, 2006).

Several centers have developed social skill interventions to address the needs of children with autism, Among these methods are direct teaching, social reinforcement, feedback, cooperative learning, providing cues, opportunity teaching, shaping, modeling, behavioral rehearsal, peer tutoring, social stories, and video modeling (MacDonald, Sacramone, Mansfield, Wiltz & Ahern, 2009; Baker, 2007). The effective use of video modeling to help remediate the social skill deficits of children with autism is well documented. This strategy has been shown to help establish a variety of skills, including those related to play (e.g., MacDonald et al, 2009; Bellini & Akullian, 2007; D'Ateno, Mangiapanello, & Taylor, 2003), self help (e.g., Shipley-Benamou, Lutzker & Taubman, 2002), academic instruction (e.g., Kinney, Vedora, & Stromer, 2006), communication (Wert & Neisworth, 2003). Video modeling is a technique that involves demonstration of desired behaviors through active video presentation of the behavior. A video modeling intervention typically involved an individual watching a video demonstration and then imitating the behavior of the model. Video modeling is a specific application of video modeling that allows the individual to imitate targeted behaviors by observing herself/himself successfully performing a behavior (Wang, Cui & Parrial, 2011; Shukl-Mehta, & Callahan, 2010, Bellini & Akullian, 2007). Researchers have indicated that video modeling is potentially more effective than teaching through traditional method (Reichow & Volkmar, 2010; McCoy, & Hermansen, 2007), and can improve the effectiveness of instructional prompts (Cotugno, 2009). The use of videos to teach social skills has been examined in a recently expanding body of literature. The majority of

studies investigating social skills instruction via video models, however, focused on relatively simple behaviors. For example, Paterson & Arco (2007); Bidwell & Rehfeldt (2004) used video models and contingent praise to teach adults with severe disabilities to initiate an interaction by bringing a cup of coffee to an adult peer. Nikopoulos & Keenan (2007) demonstrated that video models alone were sufficient for teaching three children with autism to initiate an interaction by gesturing or vocally requesting an adult to join the child in play. A few studies investigated video-based training for more complex social skills. Using video models alone, Maione & Mirenda (2006) obtained increases in the frequency of social initiations and responses of a young boy with autism during two different play contexts. The participant watched videos of two adults engaging in appropriate verbalizations and playing with the target activities. With the implementation of video modeling, the frequency of the participant's use of both scripted and unscripted verbalizations (including initiations and responses) increased during these play sessions. However, reinforcement, video feedback, and prompting were needed to increase behavior in a third play context. The authors reported that some of the modeled statements were novel, while others already existed in the child's repertoire. Serra & Dorothea (2010) indicated that video models for teaching social skills for three children with autism increased these skills.

Several authors suggest that video modeling is effective because it reduces the amount of irrelevant stimuli in the learning environment, increasing the likelihood that the participant will focus on the most relevant cues (MacDonal et al, 2009; Hine & Wolery, 2006) If so, video formats that further reduce irrelevant stimuli may help promote learning. One format that may serve to reduce additional irrelevant stimuli in the learning environment is view modeling. In this type of modeling, the camera angle is presented at the participant's eye level and shows only what the participant might see within the context of the targeted activity, skill, or context (i.e., from his or her own viewpoint). Depending on the target skill, the participant might view a specific setting or a pair of hands completing a task.

Teaching with the video model may be performed in four ways: (i) modeling with video, (ii) feedback with video, (iii) cue with video, and (iv) computer-aided video teaching

(Scattone, 3008; Mechling, 2005). Modeling with video is the process where the individual watches the video recordings in which all sub-steps of a skill is displayed by a peer, adult, or herself/himself/ and then repeats these behaviors (Banda, Matuszny, & Turkan, 2007). In feedback with video, the individual watches her/his own performance in a non-edited videotape; may notice her/his appropriate and inappropriate behaviors; may discuss these behaviors with the practitioner; and make adjustments in future performance (Maione, & Mirenda, 2006). Video modeling which provides individuals with the opportunity to carry out the skill step immediately on the basis of the cue given by the video and which actively involves the individual in the process is called cue with video (Mechling, 2005), implementations in which texts, graphics, animations, sound, music, slides, films and movie recordings are presented within a single system are called computer aided video training (Shukl-Mehta, & Callahan, 2010).

There are a few review studies relating to the video modeling in the literature. These studies (i.e. Wang et al, 2011; Delano, 2008;McCoy, & Hermansen, 2007; Mechling, 2005) were examined according to video modeling types. The present study differs from other review studies due to some factors: First, this study analyzed video model practices used in social skills training in terms of details such as subjects, environment, research model, whether or not maintaining and generalization were targeted; in terms of fundamental categories such as social validity of the social skills selected for training; reasons for such selection; and the practice and its effectiveness. Secondly, it was based on studies conducted with individuals diagnosed with autism and other individuals with developmental disabilities. Finally, this study aimed to examine the benefits of using of video modeling intervention increasing the social skills of autistic children. The present study focused on social engagement in a natural setting. The present study also addressed a limitation of existing research by studying the effect of video modeling alone without the use of other intervention strategies.

## **Study hypotheses:**

The current study aims at investigating the following hypotheses:

1. There would not be significant changes between the experimental and control groups due to the video modeling program
2. There would not be significant changes among the experimental group due to the video modeling program.
3. There would not be significant changes among the experimental group on post-test and follow up due to the video modeling program.

## **Methods**

### *Participants*

Participants were 10 children diagnosed with autism by psychologist and classroom teacher. All participants were enrolled in a center-based program that provided behavioral intervention for autistic children. They were selected based on diagnosis and reports of their lack of appropriate social skills. Those children ranged in age from 5-7. They were randomly assigned to an experimental group (5) and control group (5). All sessions were conducted in a small room at the day treatment center.

### **Study design**

For the purpose of this study, a pretest-post test experimental design for an experimental and control groups was used to examine the effect of using video molding on improving social skills for autistic students .

### *Experimental group:*

Randomly selected- pretest- treatment program (video molding)- posttest- follow up test

**R**

**O1**

**X**

**O2**

**O3**



Each session was scheduled to last 3-5 minutes. During that time, the experimenter's behavior was similar to the behaviors which have been shown in the videotapes.

## Results

The present study focused on social engagement in a natural setting. The present study also addressed a limitation of existing research by studying the impact of using video modeling alone without the use of other intervention strategies.

To examine the first hypothesis of this study, Mann-Whitne (U) was used to calculate the scores of the experimental and control and the results of this analysis were summarized in table 1.

Table (1) Mann-Whitne (U) for differences between groups at pre-test.

groups	N	Mean	U	$\alpha$
Control	5	6.7	6.50	0.207
Experimental	5	4.3		

The results revealed that there was no significant difference between the control and experimental groups at post- test, which mean that these groups are equal.

The researchers also used Mann-Whitne (U) to calculate the differences between groups after the administrated the intervention program, the results of this analysis were summarized in table 2.

Table (2) Mann-Whitne (U) for differences between groups at post-test.

groups	N	Mean	U	$\alpha$
Control	5	3.2	1.00	0.016
Experimental	5	7.8		



The results revealed that there was a significant difference between the control and experimental groups at post- test.

To examine the second hypothesis of this study, the researchers calculated the scores for the experimental in the pre-post test. The results were summarized in table 3.

Table (3) scores for the experimental group on the pre-post tests

Test	Student (1)	Student (2)	Student (3)	Student (4)	Student (5)
Pre-	27	29	25	24	28
Post	38	40	37	35	39

The resulted indicted that the means post-test scores were significantly greater than the means of pre-test. Furthermore, Wilcoxon was carried out to compare mean differences in the two tests (pre-and-post). The results were summarized in table (4).

Table (4) Means and Standard divisions of pre-post test and (Z) score.

Test	Mean	SD	Z	$\alpha$
Pre-	26.60	1.92	-3.52	0.52
Post-	37.60	2.30		

The results of Wilcoxon revealed that (Z) was equal to (-3.52) which mean that the mean of post-test significantly ( $p < .05$ ) higher than the mean of pre-test.

To examine the third hypothesis of this study, the researchers calculated the scores for the experimental in the post-test and follow-up. The results were summarized in table 5.

Table (5) scores for the experimental group on the post-test and follow-up

Test	Student (1)	Student (2)	Student (3)	Student (4)	Student (5)
Post	38	40	37	35	39
Follow-up	37	39	39	37	38

The resulted indicted that the means post-tests and follow-up tests scores were slightly difference, In other words, there were no discernable differences. Furthermore, Wilcoxon was carried out to compare mean differences in the two tests (pre-and-post). The results were summarized in table (6).

Table (6) Means and Standard divisions of pre-post test and (Z) score.

Test	Mean	SD	Z	$\alpha$
Post	37.60	2.30	-0.272	0.785
Post-	38.00	1.30		

The results of Wilcoxon revealed that (Z) was equal to (-0.272) which mean that the mean of post-test was not significantly ( $p < .05$ ).

## Discussion

Literature has shown that autistic children usually have lack of social skills (e.g. Zrigat & Amam, 2009; Soliman, 2008), as it was the case of the participants of this study. In the present study, the main objective was to examine the impact of using video modeling on

improving social skills for autistic children. This objective was addressed successfully; the results of this study support the idea that an intervention by using video modeling was effective on improving and for teaching social skills for autistic children, which other researchers have found (e.g. Shukl-Mehta, & Callahan, 2010; MacDonald, et al., 2009; Cloak, 2007). The results of this study could be explained by the fact that video modeling incorporated a reinforcing activity during teaching them. Students often enjoy watching videos, if watching a video is a reinforcing activity, and then autistic students may be more motivated to attend to the video and more likely to learn to imitate the modeled activity. Furthermore, it has been well documented that autistic children may have enhanced abilities processing visual stimuli (e.g. Wang et al, 2011; Palechka et al, 2010; Macdonald et al, 2009; Akmanlog, 2008; Nikopoulos & Keenan, 2007).

This study was limited by a number of factors, including a small sample size and manageable; the lack a true of no treatment control group of autistic students, and lack of limited research on the social competencies and social cognitive processes which may influence social skill development.

In conclusion, the present study adds to the literature by demonstrating that social skills can be taught to autistic students by using video modeling. Further, based on the results of this study, teachers, psychologists, and social workers working with autistic students might consider using video modeling and reinforcement for teaching social skills for those students. Additionally, video modeling may be preferred for learners who tend to not learn effectively from traditional method. Future research should be conducted by using larger samples. In addition, future research should study the social validity of video modeling intervention that involves teachers, psychologists and social workers.

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