International Journal of psycho-educational sciences

Vocabulary Acquisition and Verbal Communication in Children with Autism: The Effects of a Video Modeling Intervention

Mahfouz Abdul Satar Abo El Fadl*

* Associate Prof of Mental Health, Dean College of Education , Hurghada , Egypt.

Abstract
This study explores whether or not Video modeling intervention has positive effects on vocabulary acquisition and verbal communication of children with autism. Participants were ten children between the ages of five and seven who attended a school for children with developmental disabilities (Tarbya Fekrya). A pre- post design was used to examine the effectiveness of the Video modeling intervention Strategy on vocabulary acquisition and verbal communication of the target children. Findings from this study indicated the effectiveness of the Video modeling intervention employed in teaching the target children vocabulary acquisition and verbal communication. On the basis of the findings, the study advocated for the effectiveness of the Video modeling intervention employed in teaching the target children vocabulary acquisition and verbal communication.

***Keywords*:** Video modeling intervention, vocabulary acquisition, verbal communication autism

Introduction

Children with autism do not acquire vocabulary like typically developing children (Smith, Mirenda & ,Zaidman-Zait, 2007).They have various communication difficulties(Sigman & McGovern, 2005)and a fundamental problem for many is lack of comprehension of what they hear (Charman, Drew, Baird & ,Baird, 2003). These children do not learn to communicate like typical children (Sundberg & Partington1998). Many speak by imitating words that they do not understand (Hetzroni &Tannous, 2004). Some who do not receive intensive instruction remain nonverbal (Schreibman, 2005). Though some may not talk, they may be able to read and comprehend text (Broun, 2004). Others learn to use written language more easily than spoken language (Boucher, 2003).

Autism is a developmental disability usually diagnosed in children within the first 3 years of life (Volkmar & Klin, 2005). There is no cure for autism (Schreibman, 2005). Symptoms are grouped into the three broad areas that include communication, social interaction, and restricted patterns of behavior (Tsatsanis, 2005). Treatment to remediate symptoms is frequently delivered as language instruction. Addressing lang- uage growth helps make a significant improvement in the quality of life (Adel Abdulla Mohammed & Mourad Ali Eissa, 2014).

Biemiller (2003) explains that typical children may suffer from poor language comprehension that stems from a limited vocabulary. He suggests that children should be provided with explicit instruction in order to learn new words. Children with learning disabilities do not use independent strategies to learn new words, therefore they should be deliberately taught the meaning of words (Bryant, Goodwin, Bryant & ,Higgins, 2003).Each child with autism requires specialized instruction designed to support his unique needs (Iovannone, Dunlap, Huber & ,Kincaid, 2003). However, resources to provide individualized instruction are limited and there is no universal treatment that can help all children with autism (Adel Abdulla Mohammed & Mourad Ali Eissa, 2014).

Albert Bandura first introduced the concept of modeling during the 1960s with the dramatic demonstration that young children reacted more aggressively toward a toy after an age-matched model demonstrated aggressive behavior toward that same toy (Bandura & Huston ,1961).

Later, Bandura went on to show that simply watching another individual receive reinforcement for a particular behavior would later increase the rates of that behavior in the onlooker as well as the model (Bandura, Ross,&Ross, 1961). Given the potentially powerful effects of modeling, the past 35 years have been replete with research documenting and extending Bandura's work (Bandura & Menlove, 1968; Barry & Overmann, 1977; Charlop , Schreibman, & Tyron, 1983; Charlop & Walsh, 1986; Egel, Richman, & Koegel, 1981).

Technological advances during the past two decades have allowed researchers to extend the concept of modeling to include the use of video. Video modeling may be an effective tool to teach children with autism for several reasons. Videos are adaptable to different developmental levels and can be individualized to teach a variety of communication and social skills and other new behaviors. In addition, some children with autism appear to have better visual skills than receptive language skills (Quill, 1997) .Poor receptive language skills may make it difficult to learn in a traditional environment where children are often expected to learn through teachers' oral instruction .Learners with stronger visual skills than receptive language skills may benefit from video modeling instruction (Kimball, Kinney, Taylor & ,Stromer, 2004; Sherer et al., 2001; Shipley-Benamou et al., 2002, Stahmer, Ingersoll & ,Carter, 2003). In addition instructional videos can be edited to remove distracting stimuli that are often found in traditional classrooms (Dowrick, 1999). Watching videos may also be enjoyable for children with autism who may be hard to motivate using more traditional techniques (Charlop-Christy, Le & ,Freeman, 2000; Stahmer et al., 2003). Video modeling may be particularly useful for children who are uncomfortable with social interaction (Stahmer et al., 2003).

Learning by watching a video does not involve interaction with another person, which some individuals with autism may find aversive. Videos can be individualized to incorporate stimuli that might motivate the child to attend. For example, some researchers have incorporated a short clip of a child's favorite TV program into tapes used in successful video modeling interventions (Whitlow & Buggey, 2003). Video modeling has been successfully used to increase social interactions (McDonald, Sacramore, Mansfield, Wiltz and Ahearn, 2009), language (Taylor, Levin & ,Jasper, 1999), independent play (Stahmer et al, 2003), self-help skills (Shipley-Benamou et al., 2002), and helping behaviors in children with autism (Sturmey, 2003) .

Several studies have been conducted to examine the effect VSM has on language skills in students with autism. Buggey, Toombs, Gardner, and Cervetti (1999) used VSM to train response-to-question behaviors with three middle school students who had moderate to severe autism. Students were taped over 2 weeks in play sessions within their homes and were asked frequent questions by the researchers. Any responses were extracted from the videos and edited into a VSM video-tape. Students were then allowed to watch themselves respond rapidly and often to the researchers' questions. One of the participants had only three responses in the 2 weeks. These were looped repetitively in the video to produce a tape 1 1⁄2 minutes long. The overall results indicated that the students doubled their responding after they began to watch their videos. Results for questions requiring one- or two-word responses concerning identification of items improved at a much more dramatic rate. Two of three parents reported marked gains by their children in responding to questions even though they were kept ignorant of the behaviors being addressed.

Yingling and Neisworth (2003) used VSM to train spontaneous requesting in four preschoolers with autism. The children were trained to request items via a discrete trial method; however, the resulting requests were rote and there was no generalization to spontaneous requesting—that is, the children requested only when prompted to do so. The prompted requests were included in the VSM tapes with the prompts and any negative behaviors edited out. Results for all four participants showed substantial gains. The gains in mean production of spontaneous requests ranged from 800% to 1,200%. As in other studies (e.g., Buggey, 1995; Creer & Miklich, 1970; Dowrick & Raeburn, 1995), the results were maintained following withdrawal of the videos.

In the only study comparing two methods (self- vs. peer-modeling), Sherer et al. (2001) found both modes of intervention effective. Five children with autism ages 4 to 11 years were shown videos wherein they or a peer were engaged in responding to conversation questions. Through a combination of multiple-baseline and alternating-treatments designs it was found that three of the five participants performed at levels of %100 accuracy at post treatment. No difference in rate of task acquisition was indicated between the two conditions.

Collectively, these studies showed that video modeling intervention can improve a wide range of behavior. The purpose of the present study was to examine the extent to which video modeling intervention can be used to enhance vocabulary acquisition and verbal communication in children with autism .The primary research question was, what effects will video modeling intervention have on vocabulary acquisition and verbal communication in children with autism?.

Method

Participants

Participants were ten children between the ages of five and seven who attended a school for children with developmental disabilities (Tarbya Fekrya).All children attended the same classroom within the school. Parental informed consent forms were sent home by the school director and school psychologist to parents of potential participants telling them about the study and requesting them to give permission for their children to participate. Through a previous comprehensive psychological evaluation each targeted child had received a primary diagnosis of Autistic Disorder. All children were also capable of communication using speech assessed through a combination of teacher report and observation. They were so-called high functioning.

Each child also had the following characteristics: (a) meet the full criteria for autism according to The Scale for Screening Autism Disorder(Mohammed, 2003) (b) functional verbal communication, (c) able to read and comprehend words, and (d) ability to follow directions.

Instruments

Pictured Vocabulary Test: A measurement instrument was specifically developed for the study to measure vocabulary ability in children with autism . The test consists of 22 pictures , presented to the child individually by the researchers . The child in return names the picture. The total scores for the test range from 0-22 .Correlation coefficient between the test and Verbal communication questionnaire was (0.85).

Verbal communication questionnaire: A 20-item teacher-report questionnaire. based on the Autism Diagnostic Scale (Adel Abdulla Mohammed, 2003). Respondents are asked to rate their level of agreement using a five point Likert response scale(3 = Always, 2 = Sometimes , 1 = Never). The Cronbach alpha value was high (0.89) indicating excellent internal consistency.

Procedure

Screening Participants were ten children between the ages of five and seven who attended a school for children with developmental disabilities. Each child also had the following characteristics: (a) meet the full criteria for autism according to The Scale for Screening Autism Disorder(Adel Abdulla Mohammed, 2003) (b) functional verbal communication, (c) able to read and comprehend words, and (d) ability to follow directions.

Pre-intervention testing Teachers were asked to rate child's Verbal communication skills on Verbal communication questionnaire. Vocabulary ability of children was measured using Pictured Vocabulary Test.

General Instructional Procedures: During the intervention phase, the video was shown in the classroom to each child in an individual setting, while the rest of the students were in a different location. The researcher did not interact with the child but only to give redirection if the child stopped watching the video. Scripts were provided for the redirection“ :watch the video ”or“ look at the screen ”while pointing to the screen. All participants had some sight-reading ability and, thus, cue cards were used to videotape the conversation. Children were shown the video, the target child was required to provide a response. Two methods were used to facilitate responding in target children: (a) reading from cue cards, and (b) repeating verbal prompts.

Results

Video modeling intervention and vocabulary acquisition

The first objective of the study was to determine if use of Video modeling intervention would be more effective for the treatment group compared to the control group .For this purpose, the post intervention scores of both treatment and control groups were analyzed. Table 1. shows Z Value result for the differences in post- test mean rank scores between experimental and control groups in vocabulary acquisition. The table shows that (Z) value was(-2.739).This value is significant at the level (0.01) in the favor of experimental group .

Table 1. *Z Values results for the differences in post- test mean rank scores between experimental and control groups in vocabulary acquisition*

Variables	Groups	N	Mean Ranks	Sum Ranks	Mann-whiteny	Z Value	Sig
Vocabulary Acquisition	Ex	5	8	40	Zero	-2.739	0.01
	Cont.	5	3	15			

The second objective of the study was to determine the effect of Video modeling intervention on the development of vocabulary acquisition in children with autism. The treatment consisted of vocabulary acquisition training through use of Video modeling intervention. The children’s performance on vocabulary acquisition was measured pre and post intervention. Table 2. shows Z Value result for the differences in pre and post test mean

rank scores for the experimental group in Pictured Vocabulary Test. The table shows that (Z) value was(-2.041). This value is significant at the level (0.01) .This indicates that use of Video modeling intervention had a positive effect on vocabulary acquisition in children with autism.

Table 2. *Z Values results for the comparison of mean rank scores of experimental group at pre- and post intervention in vocabulary acquisition*

Variables	**Negative Ranks**		**Positive Ranks**		**Z Value**	**Sig.**
	Mean	Sum	Mean	Sum		
Vocabulary acquisition	3	15	Zero	Zero	-2.041	0.01

Video modeling intervention and Verbal Communication

The third objective of the study was to determine if use of Video modeling intervention would be more effective for the treatment group compared to the control group .For this purpose, the post intervention scores of both treatment and control groups were analyzed. Table 3. shows Z Value result for the differences in post- test mean rank scores between experimental and control groups in verbal communication. The table shows that (Z) value was(-2.660).This value is significant at the level (0.01) in the favor of experimental group .

Table 3. *Z Values results for the differences in post- test mean rank scores between experimental and control groups in verbal communication*

Variables	**Groups**	**N**	**Mean Ranks**	**Sum Ranks**	**Mann-whiteny**	**Z Value**	**Sig**
Verbal communication	Ex	5	8	40	Zero	-2.660	0.01
	Cont.	5	3	15			

The forth objective of the study was to determine the effect of Video modeling intervention on the development of verbal communication in children with autism. The treatment consisted of verbal communication training through use of Video modeling intervention. The children's performance on verbal communication was measured pre and post intervention. Table 4. shows Z Value result for the differences in pre and post test mean rank scores for the experimental group in Verbal communication questionnaire. The table shows that (Z) value was(-2.032). This value is significant at the level (0.01) .This indicates that use of Video modeling intervention had a positive effect on verbal communication in children with autism.

Table 4. *Z Values results for the comparison of mean rank scores of experimental group at pre- and post intervention in verbal communication*

Variables	**Negative Ranks**		**Positive Ranks**		**Z Value**	**Sig.**
	Mean	Sum	Mean	Sum		
Verbal communication	3	15	Zero	Zero	-2.032	0.01

Discussion

The present study evaluated the effects of Video modeling intervention on vocabulary acquisition and verbal communication of children with autism. The study results showed that the Video modeling intervention was effective in increasing vocabulary acquisition and verbal communication of all children participated in this study.

The results of this study supported previous research that VM is an effective method of teaching vocabulary acquisition and verbal communication for the participants. Similar to past studies, the participants were male with regular attendance. The children had not received VM in the past, but showed basic potential in vocabulary acquisition and verbal communication. This study adds to the body of research supporting the efficacy of the VM intervention by increasing vocabulary acquisition and verbal communication. The VM method was easy to produce.

The implementation of a video modeling intervention seemed to be successful across the two variables; namely vocabulary acquisition and verbal communication and with all participants. These findings concerning change in behaviors and generalization support the results of many previous studies on VSM (e.g., Bray & Kehle, 1996; Buggey, 1995; Buggey et al., 1999; Charlop & Milstein, 1989; Dowrick & Raeburn, 1995; Yingling & Neisworth, 2003).

Children with autism are well known to excel in visual treatment approaches (e.g., MacDuff, Krantz, & McClannahan, 1993; Pierce & Schreibman, 1994). In addition, a small subset of children with autism possesses advanced letter recognition skills in which their memory for sight words or visual symbols exceeds age appropriate levels (e.g., Kistner, Robbins, & Haskett, 1988). Other suggestions of visual strengths in children with autism include the typical finding of higher IQ scores based on tests of visuospatial ability such as the Leiter International Performance Scale (Leiter, 1979) as compared to traditional IQ tests such as the Stanford-Binet Intelligence Scale (Thorndike et al., 1986). The literature is also replete with accounts of special savant skills in children with autism including memories for directions and special artistic abilities (e.g., O'Conner & Hermelin, 1990). Findings from the current work also suggest that some children with autism may have highly developed visual skills. Results from this study have provided support for the notion that some children with autism benefit, often quickly, from video treatments.

Implications

It seems logical that the use of VSM with persons with autism could be an initial step prior to moving on to more intrusive types of treatments, if necessary. With further validation and refinements of the procedure, VSM could prove to be an effective mainstream tool for working with individuals with autism.

Limitations and Suggestions for Future Research

One limitation of the current study was the limited number of children .This research should be replicated as designed but with additional children. 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).

Additionally, the lack of classroom observations prior to the start of the interventions limited the researcher in acquiring a complete understanding of the external variables that may have impacted the results of this investigation. Specifically, a direct observation of each classroom's language and reading instruction may have provided a deeper understanding of the participants' background knowledge and learning characteristics.

References

Adel Abdulla, M.& Mourad , A. Eissa (2014). *Contemporary Perspectives on autism Identification, assessment, problems, intervention, and instruction.* Arees University Press.

Bandura, A., & Huston, A. (1961). Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63,* 575-582.

Bandura, A., & Menlove, F. L. (1968). Factors determining vicarious extinction of avoidance behavior through symbolic modeling. *Journal of Personality and Social Psychology, 8,*99-108.

Bandura, A., Ross, D.,&Ross, S. (1961). Vicarious reinforcement and imitative learning. *Journalof Abnormal and Social Psychology, 67,* 601-607.

Barry, N. J., Jr., & Overmann, P. B. (1977). Comparison of the effectiveness of adult and peer models with EMR children. *American Journal of Mental Deficiency, 82,* 33-36.

Biemiller, A. (2003). Vocabulary: needed if more children are to read well. *Reading Psychology,* 2, 323-335.

Boucher, J. (2003). Language development in autism. *International Journal of Pediatric Otorhinolaryngology,* 67(1), 159-163.

Bray, *M.* A., & Kehle, T. J. (1996). Self-modeling as an intervention for stuttering. *School Psychology Review, 25,* 358-369.

Broun, L.T. (2004). Teaching students with autistic spectrum disorders to read: A visual approach. *Teaching Exceptional Children*, 36(4), 36-40.

Bryant, D.P., Goodwin, M., Bryant, B.R., & Higgins, K. (2003). Vocabulary instruction for students with learning disabilities: A review of the research. *Learning Disability Quarterly,* 26, 117-128.

Buggev, *T.* (1995). An examination of the effectiveness of videotaped self-modeling in teaching specific linguistic structures to preschoolers. *Topics in Early Childhood Special Education, 15,* 434-458.

Buggey, T., Toombs, K., Gardener, P., & Cervetti, M. (1999). Training responding behaviors in students with Autism: Using videotaped self-modeling. *Journal of Positive Behavior Interventions,* 4, 205-214.

Charlop, M. H., & Milstein, J. P. (1989). Teaching autistic children conversational speech using video modeling. *Journal of Applied BehaviorAnalysis, 22,* 275-285.

Charlop, M. H., Dennis, B. College, C.M., Carpenter, M. H, & Greenberg, A. L. (2010), Teaching socially expressive behaviors to children with autism through video modeling. *Education and Treatment of Children, 33(3),* 371-393.

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.

Charlop, M. H., Schreibman, L., & Tyron, A. S. (1983). Learning through observation: The effects of peer modeling on acquisition and generalization in autistic children. *Journal ofAbnormal Child Psychology, 11*, 355-366.

Charlop, M. H., & Walsh, M. E. (1986). Increasing autistic children's spontaneous verbalizations of affection: An assessment of time delay and peer modeling procedures. *Journal of Applied Behavior Analysis, 19*, 307-314.

Charman, T., Drew, A., Baird, C., & Baird, G. (2003). Measuring early language development in preschool children with autism spectrum disorder using the MacArthur communicative development inventory (Infant Form). *Journal of Child Language*, 30, 213-236.

Creer, T. L., & Miklich, D. R. (1970). The application of a self modeling procedure to modify inappropriate behavior: A preliminary report. *Behavior Research and Therapy, 8,* 91-92.

Dowrick. (1999). A review of self -modeling and related interventions. *Applied and Preventative Psychology*, 8, 23-39.

Dowrick, P. W., & Raeburn, J. M. (1995). Self-modeling: Rapid skill training for children with physical disabilities. *Journal of Developmental and Physical Disabilities, 7,* 25-36.

Egel, A. L., Richman, G. S.,&Koegel, R. L. (1981). Normal peer models and autistic children's learning. *Journal of Applied Behavior Analysis, 14*, 3-12.

Hetzroni, O.E., & Tannous, J. (2004). Effects of a computer-based intervention program on the communicative functions of children with autism. *Journal of Autism and Developmental Disorders*, 34(2), 95-113.

Kimball, J. W., Kinney, E. M., Taylor, B. A., & Stromer, R. (2004). Video-enhanced activity schedules for children with autism: A promising package for teaching social skills. *Education and Treatment of Children*, 27(3), 280-298.

Kistner, J., Robbins, F., & Haskett, M. (1988). Assessment and skill remediation of hyperlexic children. *Journal of Autism & Developmental Disorders, 18*, 191-205.

Leiter, R. G. (1979). Leiter International Performance Scale: Instruction manual. Chicago: Stoelting.

Iovannone, R., Dunlap, G., Huber, H., & Kincaid, D. (2003). Effective educational practices for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 18, 150-166.

MacDonald, R. Sacramone, S., Mansfield, R., Wiltz, K, & Ahearn, W. H. (2009). Using video modeling to teach reciprocal pretend play to children with autism. *Journal of Applied Behavior Analysis* ,42(1), 43-55.

MacDuff, G. S., Krantz, P. J., & McClannahan, L. E. (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis, 26*, 89-97.

O'Connor, N., & Hermelin, B. (1990). The recognition failure and graphic success of idiot savant artists. *Journal of Child Psychology and Psychiatry, 31*, 203-215.

Pierce, K.,&Schreibman, L. (1994). Teaching daily living skills to children with autism in unsupervised settings through pictorial self-management. *Journal of Applied Behavior Analysis, 27*, 471-481.

Quill, K. A. (1997). Instructional considerations for young children with autism: The rationale for visually cued instruction. *Journal of Autism and Developmental Disorders*, 27 (6),697-714

Schreibman, L. (2005). *The Science and Fiction of Autism*. Cambridge: Harvard University Press.

Sherer, M., Pierce, K., Paredes, S., Kisacky, K. L., Ingersoll, B., & Schreibman, L. (2001). Enhancing conversation skills in children with autism via video technology: Which is better, "self" or "other" as a model? *Behavioral Modification*, 25(1), 140-158.

Shipley-Benamou, R., Lutzker, J. R., & Taubman, M.(2002). Teaching daily living skills to children with autism through instructional video modeling. *Journal of Positive Behavior Intervention*, 4 (3), 165-175.

Sigman, M., & McGovern, C.W. (2005). Improvement in Cognitive and Language Skills from Preschool to Adolescence in Autism. *Journal of Autism and Developmental Disorders*, 35, 15-23.

Smith, V., Mirenda, P., Zaidman-Zait, A. (2007). Predictors of expressive vocabulary growth in children with autism. *Journal of Speech, Language and Hearing Research*, 50(1), 149-160.

Stahmer, A. C., Ingersoll, B., & Carter, C. (2003).Behavioral approaches to promoting play. Autism. *The International Journal of Research and Practice*, 7(4), 401-413.

Sturmey, P. (2003). Video technology and persons with autism and other developmental disabilities. *Journal of Positive Behavior Interventions*, 5(1), 3-4.

Sundberg, M. L., & Partington, J.W. (1998). *Teaching Language to Children with Autism or Other Developmental Disabilities*. Pleasant Hill, CA: Behavior Analysts, Inc.

Taylor, B. A., Levin, L., & Jasper, S. (1999). Increasing play-related statements in children with autism toward their siblings: Effects of video modeling. *Journal of Developmental and Physical Disabilities*, 11(3), 253-264.

Tsatsanis, K.D. (2005). Neuropsychological characteristics in autism and related conditions. In F.R. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.),*Handbook of Autism and Pervasive Developmental Disorders*, Vol 1. (pp 365-381). Hoboken, NJ: John Wiley & Sons, Inc.

Volkmar, F.R., & Klin, A. (2005). Issues in the classification of autism and related conditions. In F.R. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.), *Handbook of Autism and Pervasive Developmental Disorders*, Vol 1. (pp 5-41). Hoboken, NJ: John Wiley & Sons, Inc.

Whitlow, C. K., & Buggey, T. (2003). Video self-modeling: An effective intervention for a preschooler with language delays. *Journal of Research in Special Education Needs*, 3(1), 1-8.

Yingling, B. W., & Neisworth, J. T. (2003). Effects of video self modeling on spontaneous requesting in children with autism. Jour*nal of Positive Behavior Interventions, 5,* 300-305.