



META ANALYSIS OF VIDEO MODELING INTERVENTIONS ON THE SOCIAL SKILLS OF CHILDREN WITH AUTISM



Carol Sparber, M.Ed.
Special Education/Transition, Kent State University



Video Modeling Defined:

An intervention method that uses video recording to provide a visual model of target behaviors by reviewing the recording (Maione & Mirenda, 2006) and involves the participant watching a video that depicts someone performing a task targeted for acquisition (Marcus & Wilder, 2009).

Significance:

Video Modeling (VM) is a promising and effective practice for teaching social behaviors to students with autism (Marcus & Wilder, 2009; Apple, Billingsley & Schwartz, 2005; Nikopoulos and Keenan, 2004; Buggie, 2005)

- Incorporates visual and auditory features relevant to the learner (Maione & Mirenda, 2006; Hine & Wolery, 2006)
- Can be employed effectively to teach social skills to children with autism in a wide range of environments (Apple, Billingsley & Schwartz, 2005; Marcus & Wilder, 2009)
- Easy to implement, cost and time effective, provides prompt feedback (Reagan, Higbee, Endicott, 2006)
- Effective in generalizing and maintaining behaviors (Charlop-Christy, Loc Le, Freeman, 2000; Hine & Wolery, 2006)
- Single subject VM studies are usually interpreted by visually inspecting graphed data (Reynhout and Carter, 2006)
- There is a need for supporting evidence-based interventions with an “effect size” with more objective and reliable measures (Kazdin, 2008)

Search Strategies:

- An electronic search was conducted for studies from 2000 to 2010 using the Educational Resources Information Center (ERIC), Google Scholar and PsycINFO.
- Search terms included: ‘video modeling’, ‘autism’, ‘social skills’, social initiations and ‘single subject design’
- Ten studies that met the criteria were reviewed

Inclusion Criteria:

- Single case research with a multiple baseline design that demonstrated experimental control (Horner, et al., 2005)
- Participants had a diagnosis of autism according to DSM-IV
- Focus on improving social and communication skills
- The independent variable was a form of video modeling, with the video created by the instructor or researcher
- The study used a multiple baseline design

ANALYSIS OF VIDEO MODELING INTERVENTIONS: Is there a difference in the effectiveness in types of video modeling?

Citation	Type of Intervention	PND	PAND	PEM	Overall Strength of intervention (max points possible: 7)
Apple, Billingsley & Schwartz (2005)	Video Modeling	67% (1pt)	86% (1pt)	.75 (1pt)	3
	VM with feedback	100% (3pts)	100% (2pts)	1.00 (2pts)	7
Buggie (2005)	Video self modeling	94% (3pts)	91% (2pts)	.88 (1pt)	6
Charlop-Christy, Le, & Freeman (2000)	Video modeling	88% (2pts)	95% (2pts)	.85 (1pt)	5
	In-vivo modeling	70% (1pt)	89% (2pts)	.79 (1pt)	4
Hine & Wolery (2006)	Point- of- view video modeling	73% (2pts)	78% (1pt)	.64 (0pts)	3
Maione & Mirenda (2006)	Video modeling	79% (2pts)	74% (1pt)	.72 (1pt)	4
	VM with feedback	91% (3pts)	94% (2pts)	.98 (2pts)	7
Marcus & Wilder (2009)	Peer video modeling	82% (2pts)	83% (1pt)	.72 (1pt)	4
	self-video modeling	80% (2pts)	87% (1pt)	.78 (1pt)	4
Nikopoulos & Keenan (2007)	VM with feedback	96% (3pts)	98% (2pts)	.97 (2pts)	7
Nikopoulos & Keenan (2004)	Video modeling	98% (3pts)	89% (2pts)	.77 (1pt)	6
Reagon, Higbee & Endicott (2006)	Video modeling	80% (2pts)	94% (2pts)	.93 (2pts)	6
Tetreault & Lerman (2010)	Point of view video modeling	77% (2pts)	51% (0pts)	.63 (0pts)	2

Methods:

- Graphs for each study were calculated and analyzed for Percentage of Non-overlapping Data (PND), Percentage of All Non-Overlapping Data (PAND) as well as Percentage of Data Points Exceeding the Mean (PEM) resulting in 92 calculations across 10 studies with 29 participants.
- The basic data unit of analysis was the comparison between baseline and intervention
- Nonparametric data for each study was rated for effectiveness based on predetermined criteria (Parker, Vannest & Davis, 2011)
- Ratings were recorded and analyzed to determine the most effective form of VM intervention

Strength of Intervention:

Criterion Measures Defined: 6-7 pts. effective, 5 or less ineffective

Percentage of Non-overlapping Data (PND)

Calculation of non-overlap between baseline and successive intervention phases . (Scruggs, Mastropieri, & Casto, 1987)

PND > 90% highly effective (3pts)

PND >70% effective (2pts)

PND 50% - 70% questionable effectiveness (1pt)

PNE < 50% reflects unreliable treatment (0pts)

Percentage of All Non-Overlapping Data (PAND)

Calculation of total number of data points that do not overlap between baseline and intervention phases (Parker, Hagan-Burke,& Vannest, 2007)

PAND >88% effective (2pts)

PAND 79% to 88% questionable effectiveness (1pt)

PAND < 79% unreliable treatment (0pts)

Percentage of Data Points Exceeding the Mean (PEM)

Calculation of percentage of data points exceeding the median of baseline phase (Ma, 2006)

PEM .9 to 1, highly effective (2pts)

PEM .7 to .9 moderately effective (1pt)

PEM Less than .7 questionable or not effective (0pt)

Results:

- Graphical displays of all studies indicate positive effects across participants, behaviors and settings. An evaluation of PND, PAND and PEM across all studies show the strength of intervention was not equally strong.
- 43% of the studies were rated moderately to highly effective but 57% of the studies received ratings of unreliable or not effective
- Results indicate video modeling with feedback is the most effective form of intervention with average nonparametric ratings of 97%

Practical Implications & Future Studies:

- Effective implementation of Video Modeling should include the use of multiple methods of feedback such as: additional practice, social praise, prompting and role play.
- Future single subject design studies should report non-overlapping calculations to allow researchers and special educators to understand relative strength or effectiveness of the intervention method.
- Nonparametric measures should be used to examine the effectiveness of maintenance and generalization.
- Future studies should consider use of newer technology, such as apps for Ipad, Ipods and iPhones as a form of a video intervention.