



The Impact of Video Instruction: A Case Study of a Student with Asperger Syndrome

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Abstract

This case study of a preschool boy with Asperger's syndrome focuses on the use of video instruction for the purpose of teaching skills required for participation in classroom activities. After the classroom teacher identified four skill areas needing improvement (circle time, sharing, choosing centers, and singing), short video clips of instructions and role plays were created using a digital camera. The clips were viewed by the subject on a daily basis for eight weeks prior to selected activities. To document the effect of using the video instruction, observation notes were collected and a teacher survey was completed. Information gleaned from the observations and the survey revealed that the student responded positively to the video instruction, increasing the variety of activities he participated in.

Keywords

Autism, Asperger's, video instruction, skill development

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The use of video in the classroom as an instructional tool has been largely overlooked until more recently. With the advent of fast-paced computer instruction, video had previously been relegated to the use of watching movies rather than being employed creatively as an instructional tool (Peele, 1982). Using video as an instructional tool has been shown to be particularly appropriate for children who avoid interaction with others such as children diagnosed with Autism Spectrum Disorders (ASD) (Stahmer, Ingersoll, & Carter, 2003). Video Modeling has been shown to improve skills such as conversational speech, verbal responding, and helping behaviors (Stahmer et al., 2003), play skills (Charlop-Christy, Le, & Freeman, 2000; D'Ateno, Mangiapanello, & Taylor, 2003; Dauphin, Kinney, & Stromer, 2004; Hine & Wolery, 2006; MacDonald, Clark, Garrigan, & Vangala, 2005; Nikopoulous & Keenan, 2004; Reagon, Higbee, & Endicott, 2006), recognition and understanding of emotions (Bernad-Ripoll, 2007; Charlop-Christy & Daneshvar, 2003; LeBlanc et al., 2003), and social interactions (Lowy Apple, Billingsley, & Schwartz, 2005) in students diagnosed with ASD. Consistent with previous research, Charlop, Gilmore, & Chang (2008) used video modeling to successfully increase the variation in conversational speech between two boys, eight and nine years old. More recently studies have been conducted to explore the effects of video modeling when paired with other research-based strategies such as the use of social stories (Scattone, 2008) and auditory trainers (Baharav & Darling, 2008). Both studies were single-subject case studies. The results of Scattone's study showed improvement in two of the three conversation

skills, eye contact, and initiation, but not in smiling. Baharav and Darling's research resulted in positive gains for word production during communication and increased social orienting and eye contact behaviors. Another recent study by Cihak & Shrader (2008) compared video self-modeling and video adult-modeling with results that support previous research on the overall positive effect, but inconclusive on which might be better due to the individual nature of preferences. These research examples indicate that video modeling of daily tasks may well be a viable means of instruction for some students diagnosed with ASD.

Much has been written about the efficacy of *in vivo* modeling in the classroom. *In vivo* modeling employs peers as live models for appropriate behavior. However, for children who resist interpersonal interaction, video modeling may be more effective (Collins, 2003; Kimball, Kinney, Taylor, & Stromer, 2004; Neisworth, & Yingling, 2002; Simpson, Langone, Ayres, 2004). The advantages of video modeling over *in vivo* modeling are clear. First, videotaping can produce a variety of naturalistic settings that may be hard to reproduce spontaneously; second, the teacher has greater control over the modeling procedure; and third, the modeling can be viewed over and over, even when the model is not present (Charlop-Christy et al., 2000). Also, some children may be more naturally disposed to viewing a videotape than to watching and listening to another person directly. Charlop et al. also indicate that video modeling has led to faster acquisition of skills than *in vivo* modeling. Additionally, research done by Norman, Collins, and Schuster (2001) supports the use of video modeling for im-

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proved generalization of self-help skills and as Zihni and Zihni (2005) point out it takes advantage of the strong visual skills of children with ASD.

There is little research available concerning the use of video modeling with very young students, but it would seem reasonable to assume that it could be effective as early as the preschool years as children begin at that time to be interested in watching media such as videos. The purpose of this study was to examine the effect of using video modeling in the preschool classroom with a child diagnosed with Autism or Asperger's syndrome. Specifically, the researchers wanted to determine whether the child would be able to generalize certain social behaviors after viewing video instruction and modeling.

Theoretical Rationale

Social development theorist Lev Vygotsky postulated that young children develop and learn first through social interaction that then leads to consciousness and cognition (Vygotsky, 1978). He identified the *zone of proximal development* as the time when children first need the support of others for learning and development before they can function independently. Such participation in various social activities begins very early when parents and caregivers interact with infants and young children. Furthermore, Bandura's (1977) work contributing to social learning theory focused on learning through observation. In the school setting, children are expected to learn through social interaction and observation. These interactions with teachers who frequently model expectations and peers who actively participate support individual learning and development.

Many children with ASD have difficulty with social interaction, preferring to play alone and uninterrupted. These same

children quite often enjoy watching videos and appreciate the repetition of watching the same tapes. Considering this, video instruction on how to perform certain tasks can be made. Students with social interaction difficulties can then view the video for the purpose of learning to participate in classroom activities. For instance, the teacher could make a video detailing the behavior expected at circle time, lunch time, or recess, to name just a few. In other words, "Would the student listen to the teacher on tape more readily than face-to-face?" The principles of social learning theory support the use of video modeling for children with ASD (Aspy & Grossman, 2007).

Method

Participant

The participant and focus for this case study was a four-year-old preschool student diagnosed with Asperger's syndrome. For the purpose of this paper, we will refer to him as James. James was a student in a self-contained early childhood special education full day program along with nine other students. He was considered to be extremely bright as he was already reading independently. James lived with his mother who worked part-time as a store clerk. His mother reported that she had no difficulties during the pregnancy or delivery and that, overall, James was a very healthy child. Although James was considered to be very bright, he was experiencing social difficulties in school.

For this case study with James, an action research model was utilized. The process involved the following:

1. Social behaviors and target times were identified by the teacher for the purpose of improving class participation

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2. The teacher provided anecdotal information relative to the behavioral concerns
 3. Intervention was implemented utilizing video modeling
 4. Jottings and observation notes, journal entries from the researcher, and anecdotal information from the teacher and classroom aide were used for data collection
 5. Data were analyzed to determine outcomes and recommendations were made.

When challenged with new social rules and behaviors, James had difficulty adjusting. Often he would talk through the changes by muttering to himself about what he normally did and what he did not like about the change. During class, he would repeatedly point out to his teacher that the change was not what he was used to and that he did not like the change. He preferred no variance in his schedule and would cling to routine for security. When his routine was changed without warning he would often act out and cry. James generally claimed to be “too tired” to perform a task if it did not fit his idea of what he should be doing; preferring to lay inert on the rug and refusing to speak. Direct eye contact made him uncomfortable when receiving instruction. He would look toward a wall and rock repetitively. If the teacher would stop the instruction he would rejoin, but indicated that he would prefer to remain by himself on the rug as he shrugged his shoulders and scowled when re-entering the group.

Interactions with teachers who frequently model expectations and peers who actively participate support individual learning and development.

Intervention & Data Collection

After James was approved as the participant for the case study, the teacher was asked to choose three to five skills that she would like to target for the purpose of improving James’ level of participation in class activities. The teacher expressed concerns about James’s behaviors when requested to sit and behave at circle time, his tantrum and pouting behaviors when asked to share with others, and his dislike of music refusing to participate in anything having to do with music. The teacher chose the following skills and target times for the study:

1. Circle time behavior (i.e. Sitting in your spot, legs crossed, hands in lap)
2. Sharing toys and supplies at centers
3. Choosing a different center each day for playtime
4. Joining in with singing and hand motions during music.

Video clips addressing each skill area were then created using a digital camera equipped with the option for recording short videos. Each clip ranged in length from 10 – 30 seconds and was transferred to an individual compact disc so that it could be viewed on the classroom computer. Over a period of eight weeks the video clips were shown to the student for the purpose of providing instruction of the targeted skills. Data collected included jottings and observation notes, journal entries from observations, notes from teacher and classroom aide discussions, and a survey completed by the classroom teacher at the end of eight weeks (see Appendix: Teacher Survey).

Outcomes

Clip #1 – Circle Time Behavior

The first clip addressed circle time behavior and featured the teacher speaking directly to James explaining what behaviors were expected of him. The teacher asked James to sit on his spot on the floor with his hands in his lap and his legs crossed. James was excited to see that the teacher was speaking to him directly the first time that he watched it. He commented, “Hey, she’s talking to me!” The teacher stated that she noticed an improvement in his behavior at circle time on the first day after watching the video clip. James viewed the video every day for

two weeks prior to circle time. It was noticed by both the teacher and the researcher that he not only began to instruct other students in these skills, but began to follow the instructions himself. For example, the spot identifier for children at circle was a leaf and James instructed another child to, “Sit on the leaf and put your hands in your lap.” The next day James instructed the class in how to sit and did so himself. In the exit survey the teacher wrote, “James is now sitting much better at ‘Circle Time’ activities. He will tell other children to sit ‘criss-cross applesauce and hands in your lap.’”

Clip 1: Circle Time Behavior.



Please click VIDEOCLIP 1 in Associated Files on this article’s site to download video. After downloading, the video will open in a new window.

Note: The embedded video clips have been edited for confidentiality purposes. The manuscript video clips feature the classroom teacher and one of the participating students from the original clips.

Clip #2 - Sharing

The second video clip addressed the skill of sharing. The teacher and another child were featured doing a role playing exercise where they worked out an agreement to share a toy. The toy they used in the clip was James’ favorite toy, a Thomas the Tank Engine. Typically, James had a very difficult time sharing and usually cried and screamed if someone attempted to play with him during unstructured time. When he first viewed the new video, he commented, “That’s like me!” After only one day of viewing this clip the

teacher and the researcher noticed that James was making an effort to share and cooperate; something that he had never shown any interest in before. On one particular day, his teacher noted that he wanted to watch the “Sharing” video because he “wanted to share with Nicholas.” Both the teacher and classroom aide stated they, “noticed an improvement in his ability to share after watching the ‘Sharing’ video.”

Clip #3 – Choosing Centers

The third video clip addressed the idea of choosing a different center to play in every day. This clip again featured the teacher and another student role playing. In the role play the teacher is prompting James to choose a different center every day. Previously, James had always chosen to play in the block center. His teacher wanted to encourage him to experience all that the classroom had to offer by having him play in different centers. Any time she had suggested this he became very upset and agitated so she had not pushed the point. After watching this clip for the first time James commented, “I like blocks and I like to choose blocks every day.” During circle time he said over and over, “I can’t choose a center

today. I am too tired.” When the time came, his teacher told him he could rest instead of choosing a center, but he reluctantly chose to go to the computer center. After watching the “Choosing Centers” video four times in a row James then stated, “I can do that.” He then chose the water table instead of blocks, his preferred center. Although, he was uncomfortable choosing a new center and continued to try to go to blocks, he did each day choose something different to do from then on. He made it clear that this was not his preference, but he did comply. In the exit survey the teacher wrote, “He doesn’t get upset now when he picks a center to work in other than blocks.”

Clip 2: Sharing



Please click VIDEOCLIP 2 in Associated Files on this article’s site to download video. After downloading, the video will open in a new window.

Clip #4 - Singing

The fourth video clip featured two students speaking directly to James about how much they enjoyed singing during music time. They then proceeded to sing the “ABC” song and ended by saying, “Next time won’t you sing along with us James?” The teacher began to see him sing a little which was un-

usual because he did not like to sing and had not done so before. One day James seemed to really enjoy this clip and stated, “I will sing today,” which he did and also did the hand motions when singing the song. Another time during the same week James stated, “I will sing loud today.”

Clip 3: Choosing

Centers



Please click VIDEOCLIP 3 in Associated Files on this article's site to download video. After downloading, the video will open in a new window.

Survey Results

The teacher survey requested ratings from one to four with a one rating of strongly disagree and a four rating of strongly agree on five questions (see Appendix: Teacher Survey). Overall, the teacher was very positive

about using video modeling as an instructional tool and rated four of five questions with a four of strongly agree and one question with a three.. Her responses to individual questions are included in the Appendix.

Clip 4: Singing



Please click VIDEOCLIP 4 in Associated Files on this article's site to download video. After downloading, the video will open in a new window.

Conclusion

Over a course of eight weeks James watched at least one video clip each day. Often he chose the clip he would like to view

and sometimes he viewed more than one clip. On some occasions he would watch the same clip multiple times. He really enjoyed watching them, especially if he got to choose which

one. He would ask excitedly if he could pick a clip and then would proceed to watch it multiple times, commenting on the action between viewings. If the teacher or researcher noticed any slip in behavior in the targeted areas, a video clip was chosen for James that addressed that skill. He did not respond as positively when he was not making the choice. He would look anywhere but at the screen or refuse to put on his earphones. He would claim to be “tired” at times too. It would require much prompting to get him to attend to the video.

Both the teacher and researcher saw improvements in behaviors and skills over the eight weeks in the targeted areas with the exception of one week when James was not interested in watching the videos or implementing any new behavior. The teacher noted that he was not feeling well at this time and was on medication. Aside from that one time, the researcher noted that James seemed to enjoy the videos that featured other children more than those that featured only the teacher. He often stated, “Hey, they are like me,” or “They like to sing,” or “They have centers too.” Overall, the teacher noted that James talked about the instruction on the videos frequently and was more prepared to act on these skills after viewing the video clips. She specifically stated that he was interested in watching the clips, that his behavior improved, and that he especially liked hearing his name mentioned. He would say, “I am James!”

Future Implications

Given the success of this case study and recent research findings, video instruction in the classroom ought not to be a thing of the past, but rather, a consideration for the future. It is easy to do, inexpensive, and simple to implement using a classroom computer. All

the students could easily have taken part and benefited from the instruction. Any student could benefit from this sort of systematic instruction, particularly those that are unable or unwilling to engage in social interaction. This is a way for the teacher to get a message across in a non-threatening and enjoyable way.

For future research, some changes are recommended. It would have been advantageous to include some reward videos among those giving instruction. James quickly caught on to the idea that a new clip would be asking him to perform outside of his comfort zone. Although he generally enjoyed watching the clips, they could be made into more of a game. For example, there could be clips where the teacher states, “Today you may play in the blocks.” If some of the clips were rewards for a job well done, it might bring a little more excitement to the process; sometimes the student could be asked to do a particular task and other times more of a reward. Mixing things up would bring the element of surprise and anticipation into the process. Research supports the idea of intermittent reinforcement being more successful than constant or continuous reinforcement (Worsdell, Iwata, Hanley, Thompson, & Kahng, 2000). Participants in the Worsdell et al. study responded positively as reinforcement became more intermittent. The implementation of this type of reinforcement makes a great deal of sense here. If James felt that he might be rewarded at any given time he would have been more likely to respond positively to watching the videos on a regular basis.

Another consideration would be for the teacher to maintain a library of video clips to be used as needed with any student. For instance, if a student has difficulty mastering a skill, then they could watch a clip during computer time that addresses that skill. Also,

clips could be made for any purpose, not just social skills. For example, the teacher could give instruction in cutting, gluing, and making a straight line. The possibilities are endless.

Also, James is a fairly high-functioning student in the area of social skills. It is suggested that further studies be conducted with children who are less social and less able to interact with other people. This case study with James was limited to using video in the classroom setting. Other studies could easily be extended to additional naturalistic settings as mentioned by Charlop-Christy et al. (2000). Other settings could include the playground, lunchroom, library, gym, or school bus, to name a few. Older children could benefit from videos depicting conversational skills, meeting and greeting people, phone ordering, responding to emergency situations, and many others.

As stated previously, this type of instruction has been underutilized in the classroom. There are many applications for video modeling in both special education and general education classrooms. This process is easy to do, inexpensive, and time-efficient; a teacher's wish-list for a new instructional method. It can be tailored to fit any need or situation. The strategy is flexible and can be utilized for whole class instruction or for individual instruction. This method of instruction can support students with poor social skills, but it will also provide more independence for students who need to hear instructions more than once to complete a task. This instructional idea is limited only by the imagination of the teacher utilizing it.

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Appendix: Teacher Survey

TEACHER EXIT SURVEY

Please read the following statements and rate on a scale of one to four; one meaning that you strongly disagree and four that you strongly agree with the statement. Please make comments as needed after each statement. (1 = strongly disagree; 4 = strongly agree)

1. I feel that the project was a good idea. 1 2 3 4
Why or why not?

This idea was good because it's keeping up with the technology that the children are being exposed to everyday.

2. I feel that it was set up in a way that made sense and was manageable. 1 2 3 4
Please elaborate.

The instructions were short and sweet. They were given to student during circle time [just prior] which allowed the student to be focused during circle time and prepared to pick a center.

3. I feel that the student enjoyed the time spent watching video clips. 1 2 3 4
Did this affect the outcome?

This student enjoys playing on the computer. He didn't have any difficulties watching the video clips. He especially enjoyed hearing his name mentioned.

4. Overall, I saw some change in the student's behavior due to the project. 1 2 3 4
Please elaborate with examples.

James is now sitting much better in "CircleTime" activities. He will tell other children to sit "criss-cross applesauce hands in your lap." He doesn't get upset now when he picks a center to work in other than blocks.

5. I would be interested in providing video instruction in my classroom. 1 2 3 4
Given the opportunity, would you use this instructional method?
Why or why not?

I feel that if the video instruction was given in short segments the children would enjoy hearing their instructions. They would enjoy seeing, hearing the teacher on the television/computer.