2007-07-12

The Impact of Video Self-modeling on Conversational Skills with Adolescent Students with Severe Disabilities

Megan Elizabeth Sangster
Brigham Young University - Provo

THE IMPACT OF VIDEO SELF-MODELING VS. VIDEO-MODELING ON CONVERSATIONAL SKILLS WITH ADOLESCENT STUDENTS WITH SEVERE DISABILITIES

by

Megan E. Santini

A thesis submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirements for the degree of

Master of Science

Department of Counseling Psychology and Special Education

Brigham Young University

August 2007

BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

Megan Santini

This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

Date	Mary Anne Prater, Chair
Date	Ellie Young
Date	Lynn K. Wilder

BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the thesis of Megan Santini in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

Date

Mary Anne Prater
Chair, Graduate Committee

Accepted for the Department

Tina T. Dyches
Graduate Coordinator

Accepted for the College

Barbara Culatta
Associate Dean, McKay School of Education

ABSTRACT

THE IMPACT OF VIDEO SELF-MODELING VS. VIDEO-MODELING ON CONVERSATIONAL SKILLS WITH ADOLESCENT STUDENTS WITH SEVERE DISABILITIES

Megan E. Santini

Department of Counseling Psychology and Special Education

Master of Science in Special Education

Video self-modeling has been found to be effective in increasing appropriate behaviors, increasing task fluency, and decreasing inappropriate behaviors. During video self-modeling, a student is filmed completing a task and then mistakes, prompts, and negative behaviors are edited from the video. When the edited video is viewed by the subject student, the student views a perfect model of him or herself successfully completing the given task. Video self-modeling has been used predominately with participants with autism spectrum disorder. This study is a replication of a previous study in which the effectiveness of video self-modeling and video peer modeling was compared (Sherer, Paredes, Kisacky, Ingersoll, & Schreiman, 2001). Sherer et al. evaluated these procedures with high functioning students with autism using a combined multiple baseline across participants and alternating treatment design. This study differs from Sherer et al.'s study in its use of participants who have multiple disabilities and low

cognitive functioning. The results show that video self-modeling is effective for some participants while video peer modeling is effective for others. The individual student's preference for one form of video modeling over another form may indicate the method that is best for a particular participant. Implications for further research are included.

ACKNOWLEDGMENTS

I'd like to thank my committee Dr. Mary Anne Prater, Dr. Ellie Young, and Dr. Lynn K. Wilder for their work in helping me to prepare my thesis and to improve my writing, analysis, and professional skills. I'd also like to thank my husband James D. Santini, for his support, love, and encouragement throughout this process and for helping me to believe I could accomplish the seemingly impossible. He kept me fed, validated my hard work, and his encouragement became small rewards along the way that helped me to hold out for the bigger reward of completing my thesis. I love you!

Finally, I would like to thank my parents Gregory A. Sangster and SherriAnn R. Sangster for their lifelong support and love, and for instilling in me a desire to improve myself. Thanks Mom, for helping me through the times of panic and the feelings that I couldn't do it. You have always been there when I needed it. Dad, this accomplishment is because of you. You've taught me never to leave unfinished business.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Modeling has been known to be a strong instructional tool for many years. In more recent times researchers have used technology to enhance the effectiveness of modeling. For example, Charlop-Christy, Le, and Freeman (2000) compared live modeling to video modeling to determine which form of modeling was more effective. Researchers filmed adult models demonstrating social verbal skills, such as using greetings. The participants, young children with autism, viewed the video model and the live model. Charlop-Christy et al. determined that the video modeling was more effective in improving social skills for the participants.

Video self-modeling (VSM) is one of the most prominent and successful applications of modeling. VSM is defined as the filming of a student completing a task that he or she is unable to complete without prompting. Then mistakes, prompts, and negative behaviors are edited from the video. When the edited video is viewed, the student sees a perfect model of him or herself successfully completing the given task. Video self-modeling has been shown to be effective with a wide variety of behaviors and participants. For example, researchers have demonstrated improved academic skills (Buggey, 2005; Greenburg, Buggey, & Bond, 2002), improved social skills (Bellini, Akullian, & Hopf, 2007), decreased negative behaviors (Buggey, 2005; Clare, Jenson, Kehle, & Bray, 2000), and increased functional skills (Lasater & Brady, 1995). VSM has been effective with students with mild disabilities (Hitchcock, Prater, & Dowrick, 2004), autism (Bellini et al., 2007), and other disabilities (Lasater et al., 1995). Finally, VSM has been effective with preschool children (Bellini, et al., 2007), elementary-aged children (Dowrick, Kim-Rupnow, & Power, 2006), adolescents (Lasater et al., 1995), and adults

(Dowrick & Ward, 1997).

In one study, VSM was determined to be effective but not more effective than other kinds of modeling (Sherer, Paredes, Kisacky, Ingersoll, & Schreiman, 2001). Researchers compared VSM with video modeling using peers as the models. The participants were five elementary-aged high functioning males with autism who were verbally delayed. The researchers created a set of 20 conversational questions from the assessment instruments. Eight questions were modeled through VSM and eight were modeled through video peer modeling. Participants repeatedly viewed the models and were tested on the 20 questions. The results indicated that VSM was effective in increasing correct responses to the conversational questions, but VSM was not more effective than video peer modeling.

There remain unanswered questions when studying different kinds of modeling. For example, does the severity of the disability or type of disability influence which type of modeling would be more beneficial? Does the skill that is chosen affect which kind of modeling is better? What aspect of Sherer et al.'s (2001) study produced different results than most other studies? Before these questions can be addressed, it is essential to learn which aspects of VSM are most effective. Most VSM research study participants (a) with autism or who are included in the autism spectrum, (b) who are elementary aged, and/or (c) who have an IQ that classifies them as mildly to moderately delayed. Lasater et al. (1995) suggested that more research needs to be conducted using participants with severe disabilities.

Statement of the Problem

No research has been conducted examining the effectiveness of VSM and video peer modeling for students with severe disabilities. Sherer et al. (2001) conducted such a study, but with high functioning elementary-aged students with autism. Sherer et al.'s study is the only study in which video peer modeling was compared to VSM. (Bellini, & Akullian, 2007). This study will replicate Sherer et al.'s study, but with low functioning adolescents with multiple severe disabilities.

Research Question

The purpose of this study was to determine the effectiveness of VSM when compared with video peer modeling. In particular, the research question was *Is VSM or peer video modeling more effective for increasing conversational skills in adolescent students with severe disabilities?*

REVIEW OF LITERATURE

The literature indicates that modeling has been an instructional strategy with much scientific support. The study of the effectiveness of modeling developed out of the work of Albert Bandura (Sherer et al., 2001) and has expanded to include exploring and comparing different kinds of modeling. Video self-modeling (VSM) has been shown to increase academic, social and functional skills, as well as decrease behavior problems. However, additional research is needed, especially to determine how effective VSM is for teaching adolescents with severe disabilities.

Modeling

The study of modeling by peers or adults began with the work of Albert Bandura (Sherer et al., 2001). In the 1960s, Bandura conducted several studies which showed that children who are presented with a model of aggressive toy playing behavior will often imitate that behavior by using some of the same aggressive behavior patterns and aggressive language as that which was modeled (Bandura & Hudson, 1961; Bandura, Ross, & Ross, 1961). In one of Bandura's studies, preschool children watched a video of a model aggressing toward a large blow up doll using behaviors that were distinctive and easy to track as imitative behavior (Bandura et al., 1961). For example, the model used a rubber mallet to hit the doll's head, kicked the doll around the room, sat on the doll and punched it in the nose, and used aggressive phrases such as "sock him in the nose," "hit him down," "kick him," and "pow." The study showed that those who were presented with the model of aggressive toy playing behavior showed an increased aggression toward the blow up doll and often imitated the modeled aggressive acts and language.

Bandura's work was important for the field of education and psychology because at the time research and instructional practices focused on reinforcement of the correct response. Bandura stated that if a target behavior is not produced by the student, then the student cannot be reinforced and therefore she or he will not learn the target skill (Bandura et al., 1961). He showed that modeling is a form of teaching that can be used to modify the behavior of a student who does not show a given target behavior. Other studies, such as one conducted by Dowrick and Hood (1981), support Bandura's conclusions.

Additionally, Bandura demonstrated that modeling has a strong influence and impact on behavior (Bellini et al., 2007). He showed that children learn many skills through modeling and that they sometimes perform the modeled behavior without reinforcement. Bandura also determined that the most effective models are those that are the most similar to the child in race, age, abilities, gender, and so forth. Through Bandura's work, modeling has become a practiced and integrated educational tool. As the use of modeling has been studied and implemented by professionals, its use has been expanded and other kinds of modeling have been addressed.

Video Self-modeling

Video self-modeling (VSM) is one form of modeling that was introduced to the field of education in the 1970s by Creer and Miklich (Creer & Miklich, 1970). Since then there have been approximately 300 applications described in print (Dowrick et al., 2006). When using VSM, researchers videotape students performing a target behavior and because VSM is being used to teach a skill the student has yet to master, the student may be prompted as needed. The tape is then edited so that when viewed, the student sees

himself or herself performing the task correctly as a perfect self-model. For example, if a student is learning to use the community bus system, the teacher videotapes the student going through the process of purchasing a token at a local grocery store, going to the correct stop, entering the bus, depositing the token in the correct slot, and behaving appropriately while riding the bus. All prompts and mistakes are edited out of the tape and the student then views a perfect model of him or herself successfully riding the bus. When viewed repeatedly, usually at a particular predetermined time during the day, the student is able to master the skills required to successfully use the bus. Another example of the use of VSM might be a student who is learning to brush his or her teeth fluently. The teacher tapes the student brushing his or her teeth, then edits out all prompts, mistakes, or long pauses of time. The student then repeatedly watches the perfect self-model and his or her teeth brushing fluency increases.

Video self-modeling has been used to (a) teach new behaviors such as spontaneous requesting, on-task behavior, the asking and answering of questions (Charlop & Milstein, 1989; Wert & Neisworth, 2003); (b) decrease problem behaviors such as tantrums, aggressions, and other disruptive behaviors (Buggey, 2005; Clare et al., 2000; Lonnecker, Brady, McPherson, & Hawkins, 1994; McCurdy et al., 1988); and (c) increase fluency of newly learned behaviors such as reading fluency, functional skills, and social interactions (Hitchcock et al., 2004; Lasater et al., 1995). Through repeated viewing of the video, many studies show that the targeted behavior improves. Video self-modeling expands Bandura's work because Bandura found that the model that is most attended to is the model that is the most similar to the viewer. VSM is the most similar model to the viewer because the subject student is both the model and the observer.

Improving academic skills. Video self-modeling can be used to improve behaviors associated with the increase or acquisition of academic skills (Buggey, 2005; Charlop & Milstein, 1989; Greenburg et al., 2002; Hepting & Goldstein, 1996; Hitchcock et al., 2004; McGraw-Hunter, Faw, & Davis, 2005; Wert et al., 2003). For example, Hitchcock et al. (2004) used VSM combined with tutoring to increase reading fluency and comprehension skills of four first graders with reading difficulties. Three of the four participants' skills improved dramatically.

Another example demonstrating the effective use of VSM to increase academic skills is the study completed by Greenburg et al. (2002). Three third grade participants who struggled in reading and were at least one grade level below average were chosen for the study. These students viewed themselves fluently reading passages that were above each of their respective current reading levels. To create the video, students received prompts as needed, which were then edited from the final video tape. The students watched their VSM tapes daily, and the study showed an increase in oral fluency. Two of the participants increased their oral fluency a full grade level and the third participant increased from the 25th percentile to the 75th percentile of his current grade level.

Another study conducted by Dowrick et al. (2006) demonstrated that VSM could increase reading fluency. Participants included ten first grade students selected by their classroom teacher as having the most difficulty reading. On average, they increased reading fluency from 7.2 words per minute to 21.2 words per minute. The students were tutored in passage reading, comprehension, vocabulary, sight words, and phonics. Videos were created with participants reading difficult passages and sight word flashcards. The

videos were edited to show students a fluent self-model of themselves reading. All participants reached criterion in one to three months.

Improving social skills and appropriate behaviors. Bellini et al. (2007) used VSM to increase *social engagement* behaviors of two preschool aged children with autism spectrum disorder. The participants were filmed playing with peers while being encouraged by their teachers. Social engagement was defined as the sharing of toys, turn taking while playing with play dough, or engaging in an activity with another child such as when one participant pulls the other in a wagon. The prompts and encouragement were edited from the tape and the participants viewed their tapes repeatedly. After viewing the tapes, the first participant's mean percentage of social engagement increased from 3% to 43%. The second participant's mean percentage improved from 6% to 24%. Bellini et al. concluded that VSM was effective in increasing social engagement behaviors in preschool children with autism spectrum disorder. In another study, on-task behavior improved after VSM was used by three elementary-aged students with learning and emotional disabilities (Clare et al., 2000). Their on-task behavior averaged 33% and rose to 86% during the VSM intervention. Comparing baseline and intervention, the data indicated that there were no overlapping data points, which means that there was a great improvement of on-task behaviors.

Decreasing behaviors. While VSM has been shown to increase desirable behaviors, VSM has also been used to decrease behaviors that disrupt learning such as tantrums, aggression and off-task behaviors (Buggey, 2005; Clare et al., 2000; Lonnecker et al., 1994; McCurdy et al., 1988). For example, Buggey (2005) demonstrated that VSM helped to decrease tantrums in two elementary-aged boys with autism. In this study, a

script was written to present situations that usually resulted in tantrums. The boys were prompted to react appropriately during the filming. The video was edited and viewed and the tantrum duration decreased. Progress was maintained when the video viewing frequency decreased. Another participant in Buggey's study was chosen to see if VSM would decrease aggressive behaviors. This participant engaged in pushing behaviors that were reduced using VSM. During the intervention, only once did the participant push another child; the results were maintained after the video viewing was faded. The participant completed the maintenance phase in March of the year of the study and the pushing behavior did not occur for the remainder of the school year.

Another study that used VSM to decrease negative behaviors was conducted by Dowrick et al. (1997). The participant was a man in his late 20s with an intellectual disability, conduct disorder, and pedophilia. The researchers used VSM to help him develop adaptive coping behaviors when children were in his presence. A VSM tape was created demonstrating two scenarios. The first showed the participant carrying laundry to the laundry mat and choosing another route when he saw that children were present in his path. A second video showed the participant hearing children playing outside of his window, at which point the participant was taped walking over to the stereo and turning up his music. The participant viewed the laundry video repeatedly and on his third viewing of the tape, he generalized the skill by choosing a different route when he noticed children on his path to take out the garbage. The second video was then shown in place of the first and within a week, when the participant heard children playing outside his window, he turned up his stereo and did not go to the door.

Increasing functional skills. In addition to its usefulness as a tool to increase desirable behaviors and to decrease undesirable behaviors, VSM has been shown to increase fluency of functional skills. Lasater et al. (1995) investigated the effect of VSM on task fluency. Two teenaged boys with problems completing functional tasks, such as shaving, fixing lunch and washing clothes, were shown a video of themselves completing these functional tasks fluently. In baseline the boys completed from 11% to 16% of the steps of each task. After the VSM intervention, the percentage of steps accurately completed increased to 96% and 100%.

Although the number of VSM studies is limited, those that exist clearly indicate that VSM is an effective intervention in many areas, such as improving academic skills (e.g., reading fluency), improving social skills and appropriate behavior (e.g., social engagement) decreasing inappropriate behavior (e.g., off-task behaviors), and increasing functional skills (e.g., functional task fluency).

Comparing video self-modeling with other forms of modeling. Researchers are not only interested in studying the effectiveness of VSM with different behaviors, but also in comparing the effectiveness of VSM to other forms of modeling. The search for the most beneficial type of modeling presentation is essential because, as Bandura wrote and other researchers agreed, students learn effectively through modeling (Charlop-Christy et al., 2000). If modeling is beneficial for students, then finding the best form of modeling will increase learning and positive behavior. Two research studies were located that compared different types of modeling and each reached different conclusions. Charlop-Christy et al. studied whether video modeling by familiar adults was as effective in modifying behaviors as live modeling by familiar adults. Five 7 to 11-year-olds with autism

participated in an after-school behavior therapy program. All of the participants struggled with verbal skills. Researchers chose four functional skills per participant and modeled two skills using video adult modeling and two skills using live modeling for each participant. For example, one participant, Jeff, was to independently greet the researcher when he walked in the door. This task was modeled through video adult modeling. The second task required of Jeff was to say goodbye when he left the room. This task was modeled through vivo, or live modeling. The results indicated that it took two presentations of the vivo model for Jeff to meet criterion by saying goodbye, and two presentations of the video adult modeling to meet the greeting criterion; however, the video adult modeling task of greeting generalized while the task of saying goodbye modeled through vivo modeling did not. The researchers concluded that video modeling was less expensive, took less time, and promoted generalization. In addition, students developed skills quicker with video modeling than with live modeling. For example, one of the functional skills chosen for one participant was to demonstrate the difference between emotions. It took six live modeling presentations to learn the difference between happy and sad and only four video modeling presentations to learn the difference between tired and afraid. This difference was found in six of the eight tasks. They concluded that video modeling was more effective than live modeling.

Another study comparing modeling techniques was a study by Sherer et al. (2001). They compared the use of VSM and video peer modeling while working with five elementary-aged males with autism. The mean language age of the subjects was three years, three months and their mean cognitive age was four years, two months.

According to the assessments, the children who participated in this study were about three to four years delayed.

The researchers created a set of 20 questions from the assessment instruments to which the participants did not respond during baseline. Eight questions were modeled through VSM and eight were modeled through video peer modeling. The four remaining questions were used as a test to see if the intervention results had been generalized by asking the participants these questions in another setting or having another person ask the questions. Participants viewed the models and were tested on the 20 questions. The study showed that while modeling was effective in increasing correct answers to conversational questions, one form of modeling was not better than the other. The results showed that one of the participants increased appropriate responses more dramatically using VSM than peer modeling. Another participant increased responses more dramatically through peer modeling. The remaining three participants showed no preference.

Sherer et al. (2001) concluded that VSM was not preferred over video peer modeling. Sherer et al. suggested that there are advantages and disadvantages to either kind of modeling. VSM takes more time and effort to create compared to the taping of a typical peer or adult. However the study also indicated that students enjoy seeing themselves on television and may attend to the video and process the information better. The researchers raise an important question as to whether VSM is a cost effective teaching tool.

Further Research

Given that few studies have compared the effectiveness of VSM to other forms of modeling, additional research is needed in this area. Of particular concern is the lack of

research with adolescents with multiple severe disabilities. This study will, therefore, replicate the Sherer et al. (2001) study to determine whether VSM is more effective than video peer modeling in increasing conversational skills including responding appropriately to questions and turn taking in a conversation.

METHODS

Participants

Participants selected for participation in this study were students with severe disabilities who were served in a self-contained high school classroom. Three students were chosen according to the following criteria:

1. Verbally able to answer questions with prompting
2. Unable to answer questions without prompting
3. Had received parental permission

All participants were given a pseudonym.

Table 1

Demographics of Participants

Student	Age	Disability	IQ	Verbal Age Equivalency
Paige	17	Down Syndrome	44	3.8
Allen	18	Down Syndrome	40	8
Jaime	19	Intellectual Disabilities and Hard of Hearing	26	4

The first participant, Paige, was a 17-year-old female Tongan student with Down Syndrome. Her most current psychological evaluation using the Stanford-Binet Intelligence Test: Fourth Edition, indicated an IQ of 44 with a verbal age equivalency of

3.8. At the time of this study, Paige attended two general education classes and one vocational class for students with severe disabilities. She spent the rest of her school day in the life skills self-contained class. She was able to identify colors, the numbers 0-3, her name and some letters but struggled with identifying coins and telling time. Paige enjoyed socializing and spending time with other students, although she sometimes engaged in defiant attention seeking behaviors. She was working on functional sight words, basic living skills, vocabulary, antonyms, and articulation.

Allen, an 18-year-old male Caucasian student with Down Syndrome, was the second participant. At the time of this study, Allen had an IQ of 40 with a verbal age equivalency of age 8 according to the Wechsler Intelligence Scale for Children-Third Edition (Wechler, 1991). Allen attended two general education classes and during two periods he worked at the district's vocational skills training program. He spent the remaining school time in the life skills self-contained class. Allen could identify letters and numbers, his name, and some basic sight words. In addition, he was able to stay on task in a work situation. He was working on basic functional skills such as comparing two prices of a given item, counting money, telling time, and reading functional sight words. He was learning to use public transportation. Allen was also very social and quite charming to those that associated with him. He loved to kiss the hands of his female peers and was often found on one knee proposing to a girl or giving out high fives to his male peers. His language goals included providing antonyms and synonyms, identifying the meaning of words, and using social judgment.

The third participant, Jaime, was a 19-year-old Chilean male student with intellectual disabilities including a severe hearing loss, which limited his ability to hear

many spoken sounds. He had hearing aids, but rarely wore them to school. Jaime also came from a home where Spanish was the primary language. At the time of this study, Jaime had an IQ of 26 with a verbal equivalency age of 4 according to Slosson Intelligence Test (Algozzine, Eaves, Mann, & Vance, 1993). Jaime attended the high school half of the day and then attended a vocational school the other half. During his time at the high school, he attended one general education class. Jaime was also working on basic functional skills. He was able to count up to 15 using manipulatives as well as identify coins. He was learning functional English phrases, basic money, and using public transportation. He was also working on being on-task for a specified time because he was easily distracted. His language goals were served through the ESL (English as a Second Language) program and not special education. He participated in this study to help him learn English conversational phrases so that he could communicate with his peers at school.

Setting

This study was conducted in a high school located in a suburban area with 1430 students enrolled. Most of the students came from middle-class families although there were also students from upper and lower class families. Twenty-nine percent (29%) of the student body received free and reduced price lunch. Eighty-five percent (85%) of the students were Caucasian, 11% were Hispanic, 2% were Asian, and the remaining 2% were American Indian, African-American or Pacific Islander. Twenty-two students attending who had severe disabilities and were served in a life skills self-contained class and one student who was served in her home. Fifteen of the 23 students with severe

disabilities were Caucasian, four were Hispanic, two were African-American, one was Pacific Islander, and one was Asian-American.

There were two paraeducators and one classroom teacher who worked with the students. The classroom teacher was the primary researcher in this study. She was a 25-year-old Caucasian female who, at the time of this study, had been teaching for over three years in the same classroom. Both paraeducators were Caucasian. One was a 23-year-old male who was in his second year working in the classroom and the other was in her early thirties and it was her first year working in the classroom.

Dependent Variable

The dependent variable was defined as appropriate verbal response to functional and social questions. Appropriate was defined as answering the questions within 10 seconds, having an answer that fit with the topic, answering completely and correctly, and asking the same question of the observer which was one of two paraeducators in the classroom. The participant had to start his or her answer within 10 seconds and could consider *um* or *uh* as the start of the answer as long as it was not followed by silence. Having an appropriate answer was an answer that had something to do with the question. For example, if the question was *What is your address?,* the participant could get credit for saying *12345* or *I don't know* but could not get credit for saying *Go Spiderman!*. Answering the question completely and correctly required the participant to give all parts of the answer. Finally, asking the same question of the paraeducator required the participant to ask the appropriate question to the paraeducator, which was the same question that the paraeducator asked of the participant. Ten questions were used for each participant. Five basic information questions such as *What is your address?* or *What is*

your phone number? were used as well as five conversation questions, such as *What is your favorite movie?* or *What do you like to eat?*. All questions were selected because the participants did not respond correctly to them while gathering baseline data. Below are examples of correct and incorrect responses.

1. Example of a Correct Response

Paraeducator: “Who is your favorite singer?”

Student: (starts within 10 seconds) “Hillary Duff. Who is your favorite singer?”

Paraeducator: “I like Il Divo.”

2. Example of an Incorrect Response

Paraeducator: “Who is your favorite singer?”

Students: “I want cookies!”

Paraeducator: “I like Il Divo.”

The five conversational questions were selected such that the answer was constant. For example the question, *What did you do over the weekend?* was not chosen because the answer changes from week to week. Prior to data collection, the students answered a questionnaire consisting of 10 questions. The teacher assisted students in completing the questionnaire by placing pictorial choices in front of the students. The teacher verbally asked the participant a question and then showed three picture icons representing some choices for answers. Once the participant chose an answer, the teacher rearranged the icons so that they were in a different order and had the participant choose again. The teacher determined that the correct answer was the answer that was chosen most from the three picture icons presented to the participant. After the participants answered the questions by making pictorial choices indicating their answers, a member of

the participants' family that knows him or her well verified the correctness of the answers. The classroom teacher called or emailed the parent or sibling and asked her or him the questions on the questionnaire. If there was a discrepancy between the participant's answers and the family member's answers, the family member's answer was chosen.

Data Collection

Once the questions were chosen and verified by the participants' parents, they were assigned to one of the two interventions. This was done by writing all of the questions on strips of paper and drawing them randomly out of a bowl. The questions were either assigned to the video peer modeling intervention or the VSM intervention. The informational questions and the conversational questions were evenly distributed between the two interventions so that 50% of the questions in each intervention were informational questions and 50% were conversational questions. The data sheet was then created.

The data were collected by interviewing the participants and recording the information onto the data sheet. Students were asked the question and given 10 seconds to respond. If the student failed to respond appropriately, the paraeducator then answered the question for him or herself as if the student asked the same question of the paraeducator. Here is an example:

Paraeducator: "What do you like to do on Saturdays?"

Student: no response

Paraeducator: (wait 10 seconds) "I like to go to a movie."

Data were collected through event recording by the paraeducator. The paraeducator had a data sheet listing all questions with boxes next to each question labeled “starts within 10 seconds,” “answers appropriately,” “complete and correct answer,” and “asks same question.” The boxes were marked with a + for correct and a – for incorrect for each part of the criteria. The date was recorded next to the column of boxes. The data sheet may be found in Appendix A. After the study had commenced, two changes were made. First the paraeducators were instructed to record the answer the participant gave when the participant answered incorrectly because it gave more insight into the participant’s thinking. Second, the method for graphing the data from counting as correct only the questions that included all four criteria correct changed to counting partial correct answers as discussed in this section.

During baseline, all 10 questions were asked. During intervention, only the questions that were assigned to the video peer modeling intervention or the VSM intervention were asked after the respective intervention had taken place. Thus, the assigned intervention questions alternated between video peer modeling and VSM each day. For example, on Monday, Wednesday, and Friday, the video peer modeling questions were asked and on Tuesday and Thursday the VSM questions were asked. The percentage correct was recorded on the graph.

Independent Variable

Four of the 10 questions were modeled through VSM. The VSM tapes were created by filming an entire session of a student answering questions with prompting (e.g. “Say pizza.”). The prompting was edited out to make it appear that the student answered the questions without prompting. An additional four questions were modeled by video

peer modeling. Peer tutors from general education classrooms with which the students had a good rapport were the models in the video modeled pieces. The remaining two questions were to be used as *generalization probes* (Sherer, et al., 2001) with one question assigned to each intervention. These questions were asked by another person or in another setting to see if the interventions would generalize to other people and settings. Each student watched his or her own video three times before going home each afternoon. They alternated watching the VSM and the video peer modeling. The classroom teacher, who was the primary researcher in this study, implemented the intervention. The following scripted lesson plan was used each session:

> Teacher: "It's time to watch our movie about how to answer questions. Come over to the computer and sit down."
>
> Student comes to the computer and sits down. Reinforce sitting behavior. If the student resists, use precision commands.
>
> Teacher: "Remember to keep your eyes on the computer. We are watching this movie so you can learn to answer important questions and these questions will help you to make new friends."

Verbal praise was given for appropriate viewing behaviors such as eyes on the monitor, sitting in seat, and hands and feet still. Either the teacher or the paraeducator in the classroom observed the student to make sure the student watched the monitor and would give prompts when necessary.

Interobserver Agreement and Treatment Fidelity

Interobserver agreement was determined by the teacher recording correct and incorrect responses in addition to the paraeducator. Before checking for interobserver

agreement, the teacher verbally defined the target behavior and described how the data form was to be used. Then the paraeducator defined the target behavior and described the data form so that the teacher knew the paraeducator understood what the target behavior was and how to fill out the data sheet. The paraeducator then asked any questions. Once all questions were answered, the paraeducator described the data sheet again to be certain s/he understood how to use it and how to interpret results. Interobserver agreement was considered achieved when both the teacher and the paraeducator reached a minimum of 80% accuracy when practicing with a participant. Until interobserver agreement was achieved, the interviews were not included in baseline. For 22% of the intervention days, one intervention was recorded through video recording and viewed by the second paraeducator to check that the treatment was consistent and accurate.

Design

The study used a combined multiple baseline across participants and alternating treatment design. Treatment was administered to individual participants on alternating days. Baseline was taken by the paraeducator asking all 10 questions. Baseline lasted three days for Paige, one week for Allen, and three and a half weeks for Jaime. The videos were created, and then baseline was taken again to account for possible skill acquisition during the video making process. The second baseline lasted three days for each participant. Generalization probes were taken during both baseline and treatment sections. Treatment lasted about five weeks for Paige, almost four weeks for Allen, and almost two weeks for Jaime.

Social Validity

Social validity data were collected. Social validity determines if information gained through this study is useful and worthwhile to parents with adolescents with disabilities and those adolescents with disabilities. Parents of all participants and the parents of three children with disabilities whose children did not participate in the study were asked the following questions:

1. Do you ever show your son or daughter how to do something by having them watch you do it first?
2. If you were asked to show video peer modeling or VSM at home, would you? Why or why not?
3. Do you feel that your child's learning benefits from modeling? How?
4. Do you feel that teaching functional and conversational questioning and answering is appropriate and important for your child? Why?

Additionally, the participants were asked the following questions:

1. Did you like watching your movies?
2. Which movie did you like the best?
3. Do you think your movies helped you learn?

These questions helped the teacher conducting this research to determine if the use of VSM, the use of video peer modeling, the benefits of improving conversational skills, and the concept of modeling were not only important to study to further expand the research, but also important to study because it was deemed worthwhile and applicable to the participants and their parents.

RESULTS

The results of this study varied from participant to participant. Overall, all participants increased their conversational skills in both the video peer modeling intervention and the VSM intervention. Paige and Jaime's percentage of correct criteria for answering conversational questions improved through video peer modeling more than VSM. Allen's performance improved through VSM more than video peer modeling.

Participant Results

Paige. Baseline data were collected for three days prior to the VSM tape being made. Paige's mean correct score was 27%. After making the VSM tape, baseline was taken again to account for possible acquisition through the video making process. Her percentage increased to 32%. When the intervention was introduced, Paige's percentage increased to an average of 33% correct of the questions assigned to VSM and 39% correct criteria of the questions assigned to video peer modeling (See Table 2 and Figure 1).

The generalization probes were analyzed separately. During baseline Paige scored on the average 25% correct on the generalization probes. Generalization probes were questions asked in a different location or asked by a different person to see if the skills gained through watching the videos generalized to different people and settings. After the intervention was introduced, her VSM generalization probes percentage decreased to 23% and her video peer modeling generalization probes percentage increased to 63% (See Table 3 and Figure 2). Throughout the video treatment, Paige's scores were sporadic and improvement did not maintain through consecutive sessions.

Table 2

Percent of Mean Correct Responses with Ranges

Student	Baseline	Difference Between Baseline and VSM	Video Self-modeling	Difference Between Baseline and Video Peer Modeling	Video Peer Modeling
Paige	27 (16-34)	+6	33 (13-50)	+12	39 (38-50)
Allen	45 (44-47)	+11	56 (50-63)	-6	39 (38-50)
Jaime	23 (6-44)	+7	40 (25-50)	+30	53 (50-56)

Table 3

Percent of Mean Correct Responses with Ranges on Generalization Probes

Student	Baseline	Difference Between Baseline and VSM	Video Self-modeling	Difference Between Baseline and Video Peer Modeling	Video Peer Modeling
Paige	25 (13-13)	-2	23 (0-50)	+38	63 (25-75)
Allen	45 (13-63)	-3	42 (25-50)	+10	55 (25-75)
Jaime	23 (0-50)	+27	50 (50-50)	+7	30 (25-50)

Allen. Allen's questions were all informational questions because he was able to answer conversational questions without needing modeling. Allen began his baseline at 45%. Baseline was taken after his VSM was created, and his percentage did not increase. Once Allen entered the video treatment phase of this study, his VSM score increased instantly. Initially, his video peer modeling percentage decreased lower than any point in baseline. His correct percentage increased to an average of 56% and 39% during the VSM and video peer modeling interventions, respectively (See Table 2 and Figure 1).

In analyzing Allen's generalization probe data, he averaged 45% correct on the generalization probes. His average performance decreased to 42% with VSM and increased to 55% with video peer modeling. Allen's percentage increased and maintained through consecutive sessions throughout the study except for sporadic and variant scores of his percentage for generalization with video peer modeling (See Table 3 and Figure 2).

Jaime. Jaime's data show that in baseline, his percentage of correct responses was 23%. After his self-modeling videotape was made, his baseline percentage increased to 41%. When the video treatment was implemented, his average percentage decreased to 40% with the VSM treatment and increased to 53% during video peer modeling (See Table 2 and Figure 1).

Jaime's percentage of correct criteria for the generalization questions was 23%. When the video treatment was implemented, his percentage for VSM increased to 50% and his percentage for video peer modeling increased to 30%. His VSM percentages maintained through consecutive sessions (See Table 3 and Figure 2).

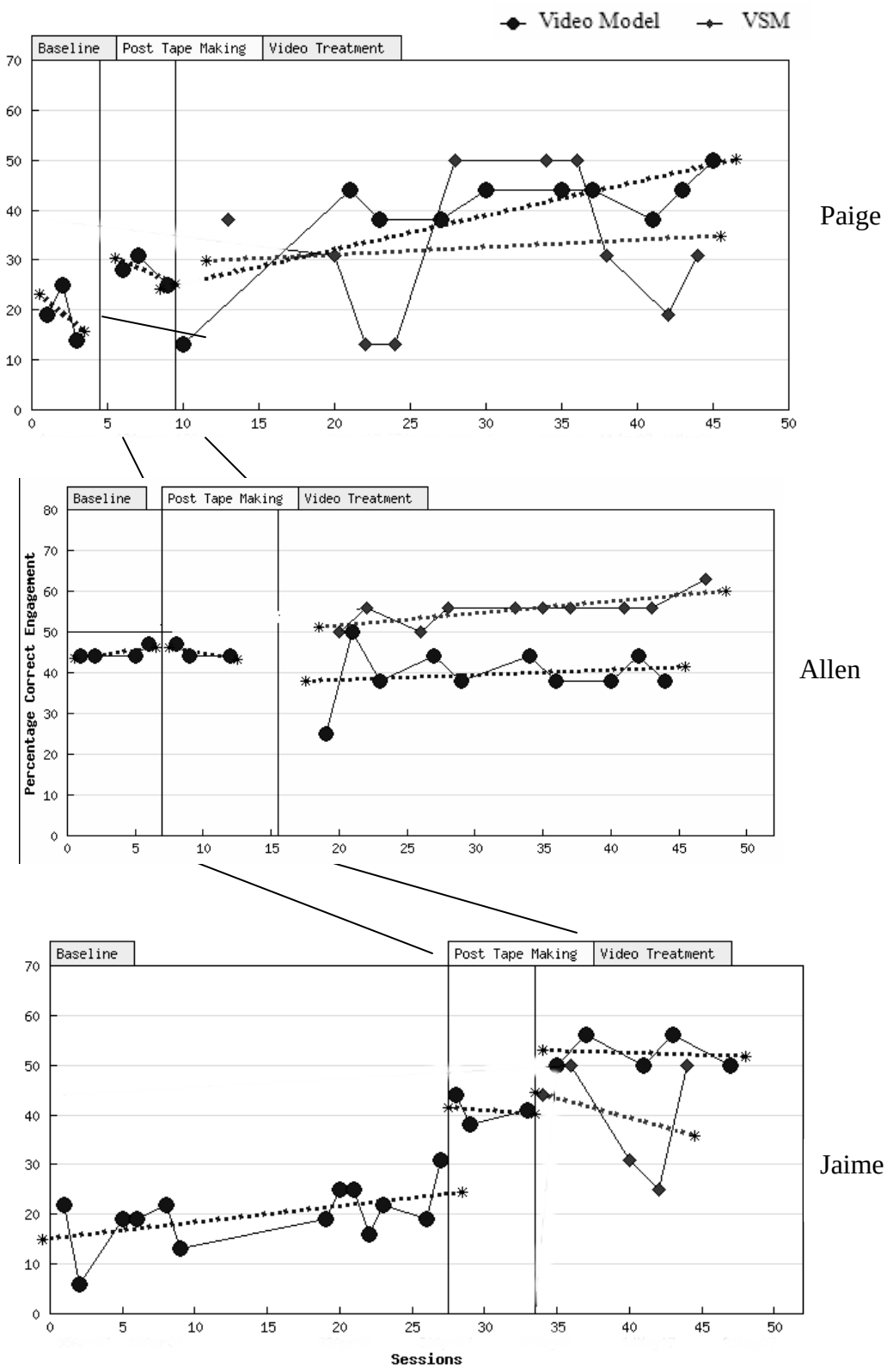

Figure 1. Average percentage correct criteria for conversation engagement.

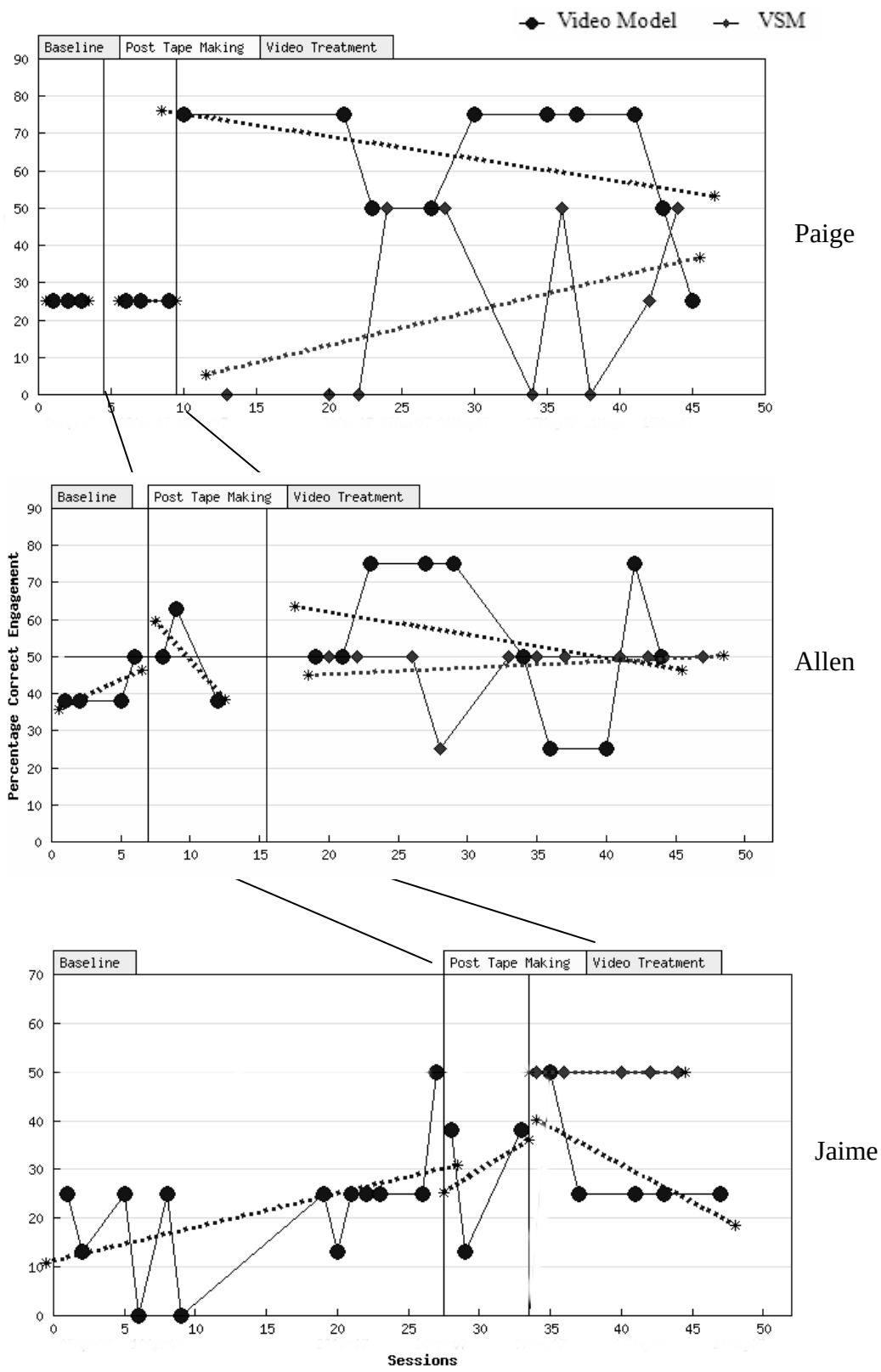

Figure 2. Average percentage correct criteria for generalization probes.

Interobserver Agreement and Treatment Fidelity

To determine treatment fidelity, 22% of the sessions during the intervention phase were filmed. Those intervention sessions were viewed by the person who recorded the intervention and later watched by another paraeducator. The person who recorded the intervention confirmed that all treatments were consistent and completed correctly. The other paraeducator noted that part of one of the recorded interventions was cut off and the dialogue did not get taped, but the rest of the recorded interventions were consistent.

Social Validity

Social validity was determined by interviewing parents and students about their opinions regarding the perceived merits of teaching by modeling. They were also asked their opinions regarding the relevance of the task of learning functional and conversational skills. All parents, including parents of participants in this study and parents whose sons or daughters did not participate in the study, indicated that modeling is important and that they use modeling when teaching their son or daughter at home. One parent said that her daughter mimics everything and that modeling is how she teaches her daughter new skills. Another parent stated that his son is a very visual learner and does best when he is able to watch someone else demonstrate a new skill. All parents agreed that they would show a VSM video in their home if they were asked to do so. Five of the six parents said they believe that learning functional and conversational skills are important for their child's development. The only parent who disagreed said that she would always work toward her daughter gaining those conversational skills but feels that because of the disability her daughter has, it may be a futile attempt.

Social validity was further determined by interviewing the participants. All three of the participants indicated they liked watching their movies. When asked which video intervention they preferred, all three consistently selected the same intervention, which happened to be the most effective intervention for them. All three responded that if they thought that the videos helped them learn, although it was difficult to tell if Jaime understood the question. All who were involved in determining social validity agreed that modeling is an important learning tool and that it is important for students with disabilities to acquire conversational skills.

DISCUSSION

This study examined the comparison of VSM and video peer modeling on conversational skills for adolescent participants with severe disabilities and with low cognitive functioning. Ten questions were chosen with 50% being assigned to VSM and the other 50% to the peer video modeling. The specific research question was whether VSM increased adolescent students with severe disabilities' ability to answer conversational questions more effectively than video peer modeling. Data showed that the effectiveness of the intervention varied by participant. These findings align with Sherer et al.'s (2001) findings that VSM is not more effective than video peer modeling. Sherer et al. determined that there are advantages and disadvantages for either modeling intervention. It takes more time, money and specific skills to use VSM. However, participants seemed to enjoy watching themselves on film. This study also finds that it takes more time and resources to use VSM, but VSM is not necessarily more enjoyable than video peer modeling. Both Paige and Jaime indicated that the video peer modeling was their favorite video to watch, while Allen determined that he enjoyed the VSM video.

General Observations

Paige. In general, Paige did not enjoy repeating a task over and over again. For example, when working on a task that required a lot of repetition such as identifying coins, Paige would often roll her eyes, stomp her feet, or say "Do I have to?". Paige's general dislike of repetition caused some resistance to data collection. However, it was surprising to find that she had no problems watching her video every day. Many times she was in her seat at the computer before the teacher was able to finish giving directions

for her to go to her seat. She particularly enjoyed the video peer modeling. The peer that was chosen for her video peer modeling video was an adolescent male that she admired. Many times when she viewed the video model video, she would smile and laugh when she saw him on the screen. Also, because the video was viewed three times in a row, it was structured with a title and a voice reading of the title between each repetition. The purpose of the title and the voice recording was to entice the attention of the viewer so that she or he would stay focused. As part of Paige's video the title flashed the words *Do you think he's cute?* between two of the segments. She would laugh and smile almost every time she heard the voice over. When asked at different times during the study which video she liked the best, she always said the video peer modeling video.

Allen. Allen's general disposition of not wanting to repeat the same task over and over was even more extreme than Paige's. Whenever asked to complete any repetitious task, he would often get mad and swear at the teacher, try to tattle on the teacher giving the direction, or pretend to be sick or in pain. There were behavior problems when he was asked to be interviewed to collect data, but never when asked to watch the video. The script that was used as an introduction of the video each day was written with him in mind because the teacher knew his behavior problems from the beginning of the study. Allen loved watching his video. He especially loved watching himself. At one point while filming his VSM tape, he made a face sticking his tongue out. This could not be edited out because the dialogue that was being spoken at the same time was necessary. Allen laughed almost every time he viewed himself sticking out his tongue and it brought his attention back into the video if he started to get distracted. He understood he was not to stick out his tongue when being interviewed and thus it did not generalize to the

interviewing process. When asked on a couple of occasions at different points during the study which video he preferred, he always said the one with himself in it. The video peer modeling peer was a peer he chose, but did not know very well. He did not demonstrate the same interest in the video peer modeling video as he did in the VSM.

Jaime. An important part of Jaime's video watching was wearing headphones. Because of his hearing loss and the fact that he never wore his hearing aides to school, the volume was turned very high on the sound system. Although the teacher still was not sure that Jaime could hear the video sound. However, Jaime independently started to repeat the answers as he watched the videotapes indicating that he could hear them.

After data collection had begun, Jaime's parents indicated that they had moved and may be transferring their son to a new school. Thus data collection ceased. Ten days later, the classroom teacher was informed that Jaime would continue at his present school and data collection began again. Also, his questions changed after the study began because one of the questions that Jaime was learning to answer was *What is your address?*. Jaime's move changed his address. Additionally, with his dad's input, the classroom teacher discovered that the school records had the wrong birthday. Finally, it was decided that there were better questions for Jaime to learn. For example, originally Jaime was asked to identify his favorite fruit. His father indicated that Jaime didn't like fruit so the question was changed to *What is your favorite food?*. Regardless of the disruptions, Jaime loved watching his videos. He thrived on repetition in all areas of his academics. He particularly loved his video peer modeling videotape. The peer that was chosen for his video was a peer tutor that worked with him for a couple of semesters. Jaime would almost attack this peer in the hallway at school because he loved the peer

tutor and wanted to talk to him. The peer tutor would stop by the classroom to visit Jaime every once in a while outside of his regularly scheduled tutoring time. When asked on a number of occasions throughout the study, Jaime always said he liked his video peer modeling video the best.

Video Self-modeling versus Video Peer Modeling

Paige. Data reveal that Paige increased her correct responses to conversational questions more through video peer modeling than VSM. Although her data were sporadic, she increased her percentage of correct criteria from 27% to 39%. Her generalization probes showed an increase from 25% to 63% using video peer modeling. With VSM, Paige increased her percentage from 27% to 33% and the percentage correct criteria decreased from 25% in baseline to 23% with VSM. However, VSM did show an immediate increase that did not maintain throughout the study. During this study Paige did not improve in answering completely and correctly, but did improve with answering appropriately. After the first viewing of her VSM video, she was able to answer appropriately for one additional question not answered appropriately for in baseline. It took Paige 10 times viewing the video peer modeling video to increase her answering appropriately from baseline with questions assigned to video peer modeling.

Although the VSM intervention yielded an instant improvement, the data did not maintain a positive trend. At some points, the data surpassed the video peer modeling intervention data but at other points, it dipped lower than baseline. This shows a possibility that Paige was not gaining conversational skills but did a lot of guessing. However, with video peer modeling, the data started lower than baseline, but steadily increased. The video peer modeling data trend was positive and was not sporadic. In

addition it never dropped below baseline after the first datum point. This suggests that Paige was improving her conversational skills and was not guessing the right answer to these questions.

Allen. The results indicate that Allen improved his correct responses to a greater degree with VSM than video peer modeling. Allen scored 45% at baseline which increased to 56% with VSM versus 39% with video peer modeling. Allen's correct responses with the VSM intervention increased after one review of the video and maintained. After watching the VSM intervention twice, Allen was able to answer correctly one additional question that he did not answer correctly during baseline. It took nine times viewing the video peer modeling video to answer correctly an additional question that he had not answered correctly in baseline.

With the generalization questions, Allen's baseline was 45% which decreased to 42% with the VSM questions and increased to 55% with the video peer modeling. The trend of the data for the VSM generalization was constant except for one datum point, while the trend of the video peer modeling generalization decreased and varied greatly. This shows that neither intervention was effective in increasing percentage of criteria correct because the VSM percentage was lower than baseline and the video peer modeling percentage in generalization varied greatly with a decreasing trend overall.

Documentation of responses to questions shows an increase in acquisition of conversational skills and information that the graphs and data may not have shown as precisely as it could have. For example, at the beginning of the study, Allen said to the interviewer, "You forgot to ask my mom's phone number." This shows that he was starting to understand and memorize the information presented on the video. However,

there is the possibility that the video confused Allen because when asked what his address was, he gave the city and state of the interviewer. It appears that Allen didn't know whose answer to give, the peer modeling Allen's answers or the interviewer's answer.

Jaime. Jaime's percentage increased the most using video peer modeling. Jaime scored 23% during baseline, which increased to 40% with the VSM questions and to 53% with the video peer modeling questions. His improvement with the video peer modeling questions was instant. With the generalization questions, Jaime was 23% correct during baseline, which increased to 50% for VSM questions and 30% for video peer modeling questions. Jaime instantly improved his VSM percentage. After viewing his video peer modeling video two times, he was able to answer correctly one additional question that he did not answer correctly during baseline. It took five times watching the VSM video to answer an additional question not answered in baseline.

Due to the multiple baseline design, Jaime spent much of the study in baseline as the last participant. He began to memorize the interviewer's answers. For example, he said "You like to go to Chili's" when he was asked to name his favorite restaurant. In baseline, the trend of percentage correct increases because of the time spent in baseline. Probing baseline by taking data every five days would have been more effective than taking baseline every day.

Study Implications

The most important implication gained through this study is that the students' preference was the best indication of which form of modeling would increase percentage of correct criteria the most. Paige said a couple of times during the study that she liked

the video model better than the VSM. The video peer modeling intervention was the most effective intervention for her. Allen indicated that he liked the VSM video better and he performed to higher levels after watching the VSM video. Finally, Jaime said that he preferred the video peer modeling video more than the VSM. His percentage increased more with the video model than with the VSM. Further research would be helpful to know if preference truly indicates which form of modeling would be the best form for individual students.

Another study implication is that most VSM research demonstrates dramatic results (Buggey, 2005; Clare et al., 2000; Dowrick et al., 1997; Dowrick et al., 2006; Greenburg et al., 2002; Hitchcock et al., 2004; Lasater et al., 1995). However, this study does not demonstrate students increasing conversational skills with dramatic results. Participants' low cognitive functioning and the difficult questions participants were learning to answer most likely contributed to a smaller percentage of skill acquisition.

Limitations

There were several limitations to this study. Many of the questions that were chosen were too difficult for the participants because they were informational questions such as *What is your phone number?* or *What is your address?* which required the participant to memorize several parts to the answer. Since the questions were difficult, the participants did not increase their conversational skills because they were so focused on getting the answers right that they did not ask the interviewer the same questions to promote conversational exchange. Also, the questions varied in difficulty so that the VSM and video peer modeling difficulty levels were not even. For example, Paige's video peer modeling questions were more difficult than her VSM questions. Because the

questions were chosen randomly, there was no control for the difficulty levels of the questions being evenly distributed between the two interventions. Additionally, the titles and voice recordings between repetitions may have affected the outcomes because the video peer modeling videos had the titles in between repetitions while the VSM videos did not.

Another limitation to the study was that Jaime was interviewed in baseline for so long that he began memorizing the interviewer's answers. It would have been a better design to have interviewed him four or five times through baseline probes instead of every day. This would have been helpful because it would have given a better indication of whether or not he was gaining conversational skills rather than memorizing the interviewer's answers.

Another limitation of the study was that the documentation and data collection process was changed after the study began. This was done to generate more precise information and to better indicate participant performance. At first, the data collection did not reflect the progress being made by the participants. Once the process was revised, the data reflected performance better than the first method had, but it still did not show the acquisition of the conversational skills as precisely as it could have.

Finally, the study was not conducted as precisely as it could have been. Since the researcher in this study was also the classroom teacher, other professional duties and obligations sometimes interfered with the researcher's ability to give her undivided attention to the participants during implementation of the interventions. For example, during the particular months this study was conducted, the daily schedule varied greatly due to typical end-of-the-school year activities. The researcher was also required to

attend meetings outside of the classroom, and there were behavior problems from the other students in the classroom at times. As a result of these and other routine disturbances throughout the course of the school day, the teacher sometimes missed an intervention or missed directing the paraeducators to collect data for the day.

Implications for Future Research

Many research questions about VSM and video peer modeling remain unanswered. To further extend the research and understanding of VSM versus video peer modeling, it is important to replicate this study, changing parts of the design. Researchers could reduce the difficulty of the questions that are chosen and ensure that the questions' difficulty level are distributed evenly between the interventions. Also, it would produce a more effective study if the researcher and the observers were not the teacher and or paraeducator who had other duties in the classroom. This would allow the classroom teacher and staff to attend to the needs of the class and the outside researchers to have more control of the study. Additionally, it would be important to determine if the titles and voice recordings between repetitions affected the outcomes of the study. Finally, an important design change would be to create a more precise data collection procedure that would reflect progress more clearly. For example, researchers could determine the percentage correct for each question rather than the entire interview as a whole. This would distribute the weight of the questions that are easier to answer versus the questions that are more difficult to answer, giving a clearer picture of participant progress.

There are some areas related to video peer modeling that are important areas for further research. It would be important to determine how the relationship of the peer and the participant affects the process of skill acquisition. Through studying peer and

participant relationships, researchers could determine if the choice of peer would make the intervention more effective. It would also be important to research the possibility that video peer modeling is more effective because the peer is able to model the skill without prompting. VSM videos are often disjointed because of the editing required. Thus the video peer modeling shows a smooth, easy-to-view model while the VSM model often shows disjointed footage that can sometimes be hard to understand or follow.

There are some other areas related to VSM that are important for researchers to study. For example, it is important to determine if participants increase newly acquired skills because of repetition and practice or because of the VSM intervention. This additional research is important because such research would bring understanding of the role VSM plays in skill acquisition. Finally, further research is needed to determine if student preference is the best way to determine which modeling intervention works best for each student. Student preference is important to determine because it gives practitioners a simple and easy way to apply methods for choosing how to model skills for their students.

Implications for Practitioners

The results of this study imply that both VSM and video peer modeling are effective strategies in increasing conversational skills for adolescents with severe disabilities and low cognitive functioning. The results also indicate that there may be a connection between participant preference and the best form of modeling. Practitioners can apply these principles as they determine how to best model skills for their students. It is suggested that practitioners use a variety of ways to model skills for their students, and through observation and simple data collection determine which modeling style will be

the best style to use with each individual student. Best practice deems it necessary that practitioners use teaching strategies that students like and attend to because practitioners will be able to decrease the amount of behavior problems in their classroom. VSM and video peer modeling have been shown in this study to be strategies which adolescents with severe disabilities and low cognitive functioning attend to and enjoy.

Another factor that the results of this study imply is that the practitioner needs filming, editing, and computer skills to create the videos. These skills are essential to creating VSM and video peer modeling because the process includes using a video camera to film the student, transporting the film to a computer, editing the film using an editing program such as Windows Movie Maker or iMovie, and burning the video on a DVD. According to Bellini et al. (2007) video modeling in either form has become an evidence-based practice. So it may be necessary for districts to provide training and equipment so that practitioners can have access to using video modeling with their students. Another solution may be that curriculum and product developers could create a service that would involve a practitioner filming a student and paying a company to edit the tape for them.

REFERENCES

Algozzine, B., Eaves, R. C., Mann, L., & Vance, H. R. (1993). The Slosson Full-Range Intelligence Test. New York: Slosson Educational Publications, Inc.

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

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

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorder. *Exceptional Children, 73,* 264-287.

Bellini, S., Akullian, J., & Hopf, A. (2007). Increasing social engagement in young children with autism spectrum disorders using video self-modeling. *School Psychology Review, 36,* 80-90.

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,* 52-63.

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

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

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,* 537-552.

Clare, S. K., Jenson, W. R., Kehle, T. J., & Bray, M. A. (2000). Self-modeling as a treatment for increasing on-task behavior. *Psychology in the Schools, 37,* 51-522.

Dowrick, P. W., & Hood, M. (1981). Comparison of self-modeling and small cash incentives in a sheltered workshop. *Journal of Applied Psychology, 66,* 394-397.

Dowrick, P. W., Kim-Rupnow, W. S., & Power, T. J. (2006). Video feedforward for reading. *The Journal of Special Education, 39,* 194-207.

Dowrick, P. W., & Ward K. M. (1997). Video feedforward in the support of a man with intellectual disability and inappropriate sexual behavior. *Journal of Intellectual and Developmental Disability, 22,* 147- 160.

Greenberg, D., Buggey, T., & Bond, C. L. (2002). *Video Self-Modeling as a Tool for Improving Oral Reading Fluency and Self-Confidence.* (Department of Instruction and Curriculum Leadership). Memphis, TN: University of Memphis.

Hepting, N. H., & Goldstein, H. (1996). Requesting by preschoolers with developmental disabilities: videotaped self-modeling and learning of new linguistic structures. *Topics in Early Childhood Special Education, 16,* 407-427.

Hitchcock, C. H., Prater, M. A., & Dowrick, P. W. (2004). Reading comprehension and fluency: Examining the effects of tutoring and video self-modeling on first-grade students with reading difficulties. *Learning Disability Quarterly, 27,* 89-103.

Lasater, M. W., & Brady M. P. (1995). Effects of video-self and feedback on task fluency: A home-based intervention. *Education and Treatment of Children, 18,* 389-408.

Lonnecker, C., Brady, M. P., McPherson, R., & Hawkins, J. (1994). Video self-modeling and cooperative classroom behavior in children with learning and behavior problems: Training and generalization effects. *Behavioral Disorders, 20,* 24-34.

McCurdy, B. L., & Shapiro, E. S. (1988). Self-observation and the reduction of inappropriate classroom behavior. *Journal of School Psychology, 26*, 371-378.

McGraw-Hunter, M., Faw, G. D., & Davis, P. K. (2005). The use of video self-modeling and feedback to teach cooking skills to individuals with traumatic brain injury: a pilot study. *Brain Injury, 20,* 1061-1068.

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

Thorndike, R., Hagen, E., & Sattler, J. (1986). *Technical Manual for the Stanford-Binet Intelligence Scale* (4th ed.). Chicago: Riverside.

Wechsler, D. (1991). *Wechsler Intelligence Scale for Children—Third Edition.* San Antonio, TX: Psychological Corporation.

Wert, B. Y., & Neisworth, J. T. (2003). Effects of video self-modeling on spontaneous requesting in children with autism. *Journal of Positive Behavior Interventions, 5,* 30-34.

APPENDIX A

Sample Data Sheet
Paige

Date	Questions	Answers	Answer with in 10 sec	Appro. answer	Complete correct	Asks same ?
VSM 5/11	What is your phone number?	222-2222				
	What do you do on Saturdays?	Laundry				
	What city do you live in?	Happyville				
	What is your first period class?	Ceramics				
	What is your zip code?	22222				
VM 5/12	What food is your favorite?	Tacos				
	What do you like to watch on TV?	Hannah Montana				
	Where do you go to school?	Smartville High School				
VSM	What is your address?	333 N 333 E Happyville, UT				
VM	What is your favorite class at school?	Life Skills				

Key: + means correct, - means incorrect

Shaded boxes are generalization probes

APPENDIX B

Raw Data from Paige, Allen, and Jaime

Paige

Date	Baseline Score	VSM Score	Video Peer Modeling Score
4/4	7/32		
4/5	10/32		
4/6	5/32		
4/9	10/32		
4/10	11/32		
4/12	9/32		
4/13			2/16
4/16		6/16	
4/23		5/16	
4/24			7/16
4/25		2/16	
4/26			6/16
4/27		2/16	
4/30			2/4
5/1		8/16	
5/3			7/16
5/7		8/16	
5/8			7/16
5/9		8/16	
5/10			7/16
5/11		5/16	
5/14			6/16
5/15		3/16	
5/16			7/16
5/17		5/16	
5/18			8/16

Note. Scores are recorded as amount correct of total amount. 10/32 is 10 criteria components correct of 32 total criteria components.

Paige: Generalization Probes

Date	Baseline Score	VSM Score	Video Peer Modeling Score
4/4	2/8		
4/5	2/8		
4/6	2/8		
4/9	2/8		
4/10	2/8		
4/12	2/8		
4/13			3/4
4/16		0/4	
4/23		0/4	
4/24			3/4
4/25		0/4	
4/26			2/4
4/27		2/4	
4/30			2/4
5/1		2/4	
5/3			3/4
5/7		0/4	
5/8			3/4
5/9		2/4	
5/10			3/4
5/11		0/4	
5/14			1/4
5/15		3/4	
5/16			2/4
5/17		2/4	
5/18			1/4

Note. Scores are recorded as amount correct of total amount. 10/32 is 10 criteria components correct of 32 total criteria components.

Allen

Date	Baseline Score	VSM Score	Video Peer Modeling Score
4/5	14/32		
4/6	14/32		
4/9	14/32		
4/10	15/32		
4/12	15/32		
4/13	14/32		
4/16	14/32		
4/23			4/16
4/24		8/16	
4/25			8/16
4/26		9/16	
4/27			6/16
4/30		8/16	
5/1			7/16
5/2		9/16	
5/3			6/16
5/7		9/16	
5/8			7/16
5/9		9/16	
5/10			6/16
5/11		9/16	
5/14			6/16
5/15		9/16	
5/16			7/16
5/17		9/16	
5/18			6/16
5/21		10/16	

Note. Scores are recorded as amount correct of total amount. 10/32 is 10 criteria components correct of 32 total criteria components.

Allen: Generalization Probes

Date	Baseline Score	VSM Score	Video Peer Modeling Score
4/5	3/8		
4/6	3/8		
4/9	3/8		
4/10	4/8		
4/12	4/8		
4/13	5/8		
4/16	3/8		
4/23			2/4
4/24		2/4	
4/25			2/4
4/26		2/4	
4/27			3/4
4/30		2/4	
5/1			3/4
5/2		1/4	
5/3			3/4
5/7		2/4	
5/8			2/4
5/9		2/4	
5/10			1/4
5/11		2/4	
5/14			1/4
5/15		2/4	
5/16			3/4
5/17		2/4	
5/18			2/4
5/21		2/4	

Note. Scores are recorded as amount correct of total amount. 10/32 is 10 criteria components correct of 32 total criteria components.

Jaime

Date	Baseline Score	VSM Score	Video Peer Modeling Score
4/5	7/32		
4/6	2/32		
4/9	6/32		
4/10	6/32		
4/12	7/32		
4/13	4/32		
4/23	6/32		
4/24	8/32		
4/25	8/32		
4/26	5/32		
4/27	7/32		
4/30	6/32		
5/1	10/32		
5/2	14/32		
5/3	12/32		
5/7	13/32		
5/8		7/16	
5/9			8/16
5/10		8/16	
5/11			9/16
5/14		5/16	
5/15			8/16
5/16		4/16	
5/17			9/16
5/18		8/16	
5/21			8/16

Note. Scores are recorded as amount correct of total amount. 10/32 is 10 criteria components correct of 32 total criteria components.

Jaime: Generalization Probes

Date	Baseline Score	VSM Score	Video Peer Modeling Score
4/5	2/8		
4/6	1/8		
4/9	2/8		
4/10	0/8		
4/12	2/8		
4/13	0/8		
4/23	2/8		
4/24	1/8		
4/25	2/8		
4/26	2/8		
4/27	2/8		
4/30	2/8		
5/1	4/8		
5/2	3/8		
5/3	1/8		
5/7	3/8		
5/8		2/4	
5/9			2/4
5/10		2/4	
5/11			1/4
5/14		2/4	
5/15			1/4
5/16		2/4	
5/17			1/4
5/18		2/4	
5/21			1/4

Note. Scores are recorded as amount correct of total amount. 10/32 is 10 criteria components correct of 32 total criteria components.