Using Group Video Self-Modeling in the Classroom to Improve Transition Speeds with Elementary Students

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Using Group Video Self-Modeling in the Classroom to Improve Transition Speeds with Elementary Students

by

Matthew T. McNiff

A DISSERTATION

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Using Group Video Self-Modeling in the Classroom to Improve Transition Speeds with Elementary Students

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Video self-modeling has been proven to be an effective intervention for individuals with a variety of disabilities and behavioral issues. Very few studies have addressed the impact of video modeling on behaviors that are displayed by groups of students and no studies have tackled the issue of group behaviors with video self-modeling as an intervention. This study focused on analyzing the effects of video self-modeling on students in an elementary classroom in order to increase the speed at which the students lined up and transitioned. Further, the study addressed the question of whether the intervention had a differential impact on students who exhibited varying speeds of transitioning, by grouping them into fast, medium or slow groups determined during baseline. The study employed a single-subject research design but employed groups, rather than individuals as the subjects. The results revealed that the entire class showed immediate and significant gains in the speed at which they lined up and transitioned. The results also showed that both the medium and slow groups gained enough speed by using this intervention that the groups transitioned and lined up with similar speeds as the fast group. Implications of this study showed that group video self-modeling may be an intervention that can be used to positively influence global behavior change in the regular education classroom. This intervention may be a valuable asset for
educators to improve classroom management by efficiently improving student behavior, and may assist them to increase the fidelity of student responses when teaching positive classroom behaviors to students.
To my Brenda.

When I count my blessings, I count you twice. – Irish Blessing
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Chapter 1

Introduction

For a teacher to become an effective classroom manager, a mastery of a range of variables must be taken into account. Jones and Jones (1995) discussed six specific themes in the continuum of classroom management strategies. They believe that classroom management strategies can be narrowed down to interpersonal relationships, classroom organization and management, curriculum and instruction, problem solving, behavior management and schoolwide discipline. In developing these six themes, the researchers discussed a need to directly instruct students on the expectations and procedures in the classroom. A host of other researchers agree with the need for explicit instruction of behavioral strategies (Maag, 2004; Marzano, Marzano, & Pickering, 2003; Otten & Tuttle, 2011; Sugai & Lewis, 1996). Creating a useful and meaningful experience in the instruction of these behavior procedures and expectations relies on the teacher’s ability to teach the skills as needed with fidelity and consistency. Lack of instruction on behavior or practice in the maintenance of routines can lead to a disorganized and chaotic classroom that reduces learning time for the students, teaching time for the instructor and increased behavior management issues that hamper the educational process (Codding & Smyth, 2008; Lane, Kalberg, & Menzies, 2009). Teaching the same skill or procedure to a classroom of students over several days or weeks and maintaining the same consistent expectations of the students is a difficult demand for teachers. This consistency in teaching, especially through time, is called fidelity of teaching.
One way that teachers have found to address the issue of fidelity in regards to teaching behavioral skills to individual students is video modeling. Video modeling is a technique in which an appropriate behavior is video recorded and shown to the individual over several sessions. The literature shows a rapid improvement in skill acquisition once the individual observes the model performing the desired behavior (Baker, Lang, & O’Reilly, 2009; Buggey, 2005; Dowrick, 1999; Hitchcock, Dowrick, & Prater, 2003; Kehle, Owen, & Cressy, 1990).

**Problem Statement**

Classroom and behavior management is one of the most common anxieties that plague new teachers entering the field of education (Oral, 2012). Teachers who enter the field worried about their ability to manage a classroom are more likely to leave their educational career early (Fontaine, Kane, Duquette, & Savoie-Zajc, 2011). New teachers are not the only ones who find classroom management taxing. Experienced teachers have expressed becoming overwhelmed when having classroom management and discipline issues (Gardill & DuPaul, 1996). Classroom instructors often feel poorly equipped to handle behavior and classroom management concerns as they arise. Furthermore, as the behaviors in the classroom begin to be more concerning to the teachers, they become more reliant on punitive and ineffective behavioral strategies (Martin, Linfoot, & Stephenson, 1999). The lack of positive behavioral strategies being used by teachers has given rise to school-wide positive behavior support systems (PBIS).

Since the inception of the PBIS movement, one issue that continues to impede the process of PBIS implementation in schools is the poor fidelity that comes with training
students. Fidelity has been shown to be a highly rated component for sustaining school-wide positive behavioral supports, but inconsistent implementation of the behavioral expectations has been identified as a top three barrier to the execution of a school-wide behavioral program (Kincaid, Childs, Blase, & Wallace, 2007; McIntosh et al., 2013). In PBIS systems that fail, teachers often site that they do not feel that the process is worth the effort and feel burdened with the extra time that is required to teach the behavioral expectations required for implementation (Lohrmann, Martin, & Patil, 2012). Creating a positive strategy that is implemented day in and day out with fidelity and continuity is a difficult task to undertake for teachers who are already time constrained. Since time is even more of a concern with an ever increasing workload for teachers, interventions that are easy to implement that contain positive and consistent language and expectations are of ever more importance.

**Purpose Statement**

When explicitly teaching skills to students, the use of modeling can be a powerful tool in the teacher’s repertoire. Based on Bandura’s theory of observational learning (1977, 1997), modeling is the imitation of an observed behavior. Modeling may include the use of role play, peer modeling, adult modeling, or video modeling to teach a skill.

Video modeling has been used as a strategy for decades to improve behaviors of individuals for a variety of behaviors. When the technique was first established in the 1970’s, technology was expensive and difficult to use (Dowrick, 1999). As technology advanced, more and more studies were able to be conducted because it was easier to video record, edit and show a video with a relatively short turnaround time. However, to
this point, almost all of the studies that have been conducted have focused on one student’s behavior. Few studies have been done on the effectiveness of using this tool with groups and no research has been done that focuses specifically on video self-modeling as an intervention for groups of students. This is justifiable since the strategy was developed with individuals in mind.

Several researchers have shown that video self-modeling is a positive and effective strategy for teaching individuals to improve a variety of behaviors (Baker et al., 2009; Bellini & Akullian, 2007; Buggey, 2007; Dowrick, 1999; Kern et al., 1995). With more schools moving toward a more positive approach to managing behavior, schools are finding that recording videos of students performing appropriate behaviors can be a useful teaching aid (Kennedy & Swain-Bradway, 2012). This approach mimics video modeling in the way that students are recorded performing a positive behavior and this behavior is shown to other students.

Two concerns with this approach have become apparent through a review of the literature. First, there is little research into whether the strategy of using video to instruct groups of students has a direct effect on the behavior of the students. Secondly, the videos have been created by other student or adult models and there has been a noticeable gap in the research into whether the students can act as models themselves to improve their own behaviors as a group. As a result there is the need to examine what, if any, effect video self-modeling has on group behaviors.
The purpose of this study is to determine whether a video self-modeling strategy can affect the outcome of group behaviors to improve common classroom expectations for transitioning from one activity to another.

**Research Questions**

The following three research questions were explored for this study:

1. Does video self-modeling (VSM) with a group of students increase the speed at which students complete appropriate classroom behaviors of lining up and transitioning between activities?

2. Does VSM affect the average speed at which groups of students line up or transition between activities when students’ data has been divided into slow, moderate and fast groups?

3. If VSM has an effect on the average speed at which students line up and transition, will the slower students make larger improvements than the faster students?

**Research Design**

The research design that was used for this study was a multiple baseline design across behaviors. The multiple baseline design was chosen for two reasons. The first is that a multiple baseline design is the standard for research into the effectiveness of video modeling. The second reason to use a multiple baseline designs is that it demonstrates that the intervention is the cause of the behavior (Kazdin, 2011). The pattern of the data provides the researcher with a good chance that the behavior has not been influenced by outside variable(s).
Procedure

An elementary school in southeast Nebraska was chosen for the study with the permission of the school superintendent, principal and classroom teacher. A multiple baseline design across behaviors was the primary design for this study. The target behaviors for this study were lining up and transitioning from one activity to another.

Baseline data was recorded and charted into four categories. The first category was a latency recording of every student completing the behavior averaged together. The second, third, and fourth categories were three groups of six students split based on speed into fast, medium, and slow groups. This data will help to determine if the intervention has a greater impact with certain groups of students.

Once the baseline data was gathered through a latency recording, a video self-model was recorded with the students on the proper way to line up. The recorded video was edited to remove any behaviors that did not align with the scripted standard. The edited video was shown to the class each morning and data was collected on how long it took each of the targeted groups to line up.

The baseline for the transition behavior continued until the behavior of lining up was stabilized. Once the behavior of lining up had stabilized, a second video was recorded of students transitioning effectively. The video was edited and shown to the students along with the lining up video each morning. Latency data was collected each day on the transitions. Once the transition behavior data had stabilized, the intervention was concluded.
Two weeks after the conclusion of the data collection, three days of data were taken to determine the longevity of the intervention and to see if there had been any continued effect from the strategy.

**Definition of Terms**

In order to set the stage for the information presented in this dissertation, the following terminology was identified to develop a clearer picture of the study.

*Video modeling*—Video modeling is a strategy in which a person is shown a video of a model performing a desired behavior or completing a task. Once the video is viewed, the person is given the opportunity to perform the behavior or task that was modeled. This process is performed several times until the level of proficiency is high (Sigafoos, O’Reilly, & De la Cruz, 2007).

*Video self-modeling*—Video self-modeling (VSM) is a video modeling intervention in which the model is the person whose behavior is being targeted. The procedures for VSM are followed exactly the same as video modeling with the exception that the model in the video is performing the desired behavior.

*Group video self-modeling*—Group video self-modeling (GVSM) is an intervention in which the model is the group of individuals whose behavior is being targeted. The procedures for GVSM are similar to video modeling with the exception that the model in the video is the group of individuals that the intervention is targeting instead of a single student, peer or adult playing the role of a model. Group video self-modeling combines the benefits of a peer video modeling procedure with a VSM as the students observe both their peers and himself or herself completing the activity.
**Transition**—Transitioning from one activity to another involved a variety of activities but usually meant getting ready for the next lesson by putting away materials from the previous subject/activity/lesson and getting out materials for the next subject/activity/lesson within the classroom. This behavior will not include lining up or walking to different classrooms. The movement cycle began when the teacher initiated the transition with a verbal response, such as, “Put away your materials and get out __________ . . .” and ended when the student had his or her materials for that subject on his or her desk or was in the location that was required for the lesson to begin. This did not include a transition to free time or study hall as the multitude of different possible activities in which students could participate in varied depending on the student.

**Lining up**—Lining up is operationally defined as the entire group of participants in the classroom, excluding the teacher, arranging themselves standing in a row behind each other with the first person standing by the exit door and all others parallel to the wall adjacent to the door. The movement cycle begins when the teacher tells the students to “line up” or “get in line” and ended when the student was standing in the row.

**Data cluster**—A data cluster for this study included all of the daily behavioral events (transition or lining up) averaged together to create one graphed point. The “data cluster” is identified as one point in order to be able to observe patterns easier and to reduce the massive scale of the graph because of the immense amount of data that will be collected.
Limitations

Although GVSM is always culturally relevant because the models come from the group as a whole (Dowrick, 1999; 2011), generalization across cultures, ethnicities, age range and populations cannot be assumed. As the target population of this study was elementary students, the question of the study’s effectiveness with younger or older students was not determined and will require further research.

Another limitation of the study is that only two behaviors were addressed. Since both behaviors focused on a transition from one activity to another, assumptions cannot be made that this intervention will be beneficial for other classroom behaviors.

Limitations into the design of the study relating to fluctuation in the data due to instability with results regarding transitioning between activities will be addressed in more detail in the discussion portion of the study results.

Significance

The data revealed that group video self-modeling is an effective treatment for helping students increase their speed in transitioning from one activity to another and lining up. Upon visual analysis of the data, students saw a significant improvement in their transition speeds. Data for students in different groups (fast, medium, slow) all showed signs of converging to a similar time by the end of the study. A two week removal of the intervention showed that students did not show any significant signs of regression and maintained levels of speed shown at the end of the intervention.

Further significance can be found in the weaving of two powerful video modeling interventions into one. By using GVSM to help improve behaviors, participants were
exposed to both peer video modeling and VSM as they were able to watch both the other students show a positive behavior and observe their own successful behaviors. This can create new avenues for researchers to investigate the benefits of using a combination of video modeling procedures in order to improve student behaviors.

More implications of this study are described in more detail in the discussion chapter. Included in the final chapter is a discussion concerning the benefit of taking a previously used single person intervention and applying it to many students, the parallels between GVSM and VSM and the promise of using previously researched protocols to make GVSM an easy intervention to implement for practitioners.
Chapter 2

Literature Review

This chapter will describe the literature that points to an evidence base for video self-modeling. Video self-modeling has a deep research base and has focused on changing a variety of behaviors in individuals with and without disabilities. This chapter will discuss the theory that guides the video modeling strategy. A synopsis of the video modeling intervention will be given along with research to support the various methods of video modeling including adult and peer video modeling, point-of-view modeling and video self-modeling. Few studies have examined the effect of video self-modeling as a group behavior strategy. The potential benefits for improving student behavior will be highlighted.

Although the primary emphasis of this study is on the method of video self-modeling, it was hypothesized that this technique might be useful in improving a variety of individual and group student behaviors. For this study the target group behaviors of “lining up” and “transitions” will also be addressed. This chapter will start with brief discussion of these target behaviors, and then address the research and theory behind video self-modeling. The conclusion of this chapter will identify the research questions for this study.

Introduction to the Target Behavior

The benefits of a well managed and organized classroom are numerous including increased attention to task, increased academic improvement and reduced teacher and student anxiety. Teachers entering the field show concern over handling even minor
behavior management issues. When students come to school, teachers tend to be more concerned with the children’s classroom readiness skills and social and emotional skills than they are with the students’ cognitive abilities (Whitted, 2010). For this reason, it is important that teachers have available strategies to help with the instruction of appropriate classroom behavior.

There are a multitude of empirically-supported behavior management practices that teachers can and should use to reduce inappropriate behaviors in the classroom. A study by Simonson, Fairbanks, Briesch, Myers, and Sugai (2008) reviewed 20 empirically supported behavior management strategies. These practices were further narrowed into 5 categories: (a) maximize structure; (b) post, teach, review monitor and reinforce expectations; (c) actively engage students in observable ways; (d) Use a continuum of strategies for responding to appropriate behaviors; and (e) use a continuum of strategies to respond to inappropriate behaviors (Simonson et al., 2008, p. 353). Although these tools for behavior management must work in concert with each other in order to establish a sound classroom behavior approach, constant examination and research of each of these categories becomes important to improve the research base.

A variety of classroom management strategies have shown to be effective with students. Jones and Jones (2010) discuss using modeling, developing positive relationships, group reinforcement, individual reinforcement, routine building, direct instruction, student engagement, and creating classroom standards as just a few ways of developing a global classroom management strategy. One way that the authors
approached the issues of creating a solid group of standard classroom behaviors was for the classroom teacher to create a way for students to transition successfully.

**Classroom Transitions**

Part of creating any effective classroom management plan is to develop a proper way to transition between activities. Any time that students move from one activity to another, they are completing a transition (Maag, 2004). Beginning teachers are encouraged, for a well-managed classroom, to have as little wasted time as possible (Wong & Wong, 1998). This includes reducing the amount of time that transitions take up in the day to day operations of the classroom. Transitions are an important part of the classroom schedule and having smooth transitions helps to decrease wasted time.

Rosenshine (1980) showed that as much as 35 minutes a day or 15% of the classroom time is taken up with transitional activities. Some researchers suggest that the percentage of daily time taken for transition activities for elementary and preschool children may be as high at 25% (Schmit, Alper, Raschke, & Ryndak, 2000). Teachers who reduced wasted time showed an increase in engaged time (Rosenshine, 1980). With the increase on the value of high stakes testing by public officials, every second counts in the classroom.

Transitions are often a trouble spot for teachers in the classroom because, when managed poorly, transitions can be consumer of instructional time and potentially increase student misbehavior (Sprick, Garrison, & Howard, 1998). Aside from the important time removed from teaching, children, particularly those with disabilities, may lack the basic skills to transition effectively or efficiently.
One type of transition that has been discussed in the literature is the aspect of “lining up.” Lining up is the process of transitioning as a group from one area of the school to another. Very little research has been done on the subject of lining up specifically. Only one article was found in a review of the literature and the study addressed the social norms that surround lining up (Moessinger, 1977). This study showed that most children understand the social norm of lining up from front to back and going to the end of the line in order to get into their place. The research also showed that most students feel like it is acceptable to get back in the same spot in line if they leave, but only if they ask to get their original spot back in line. Although there is little in the way of specific research for lining up, many research articles mention lining up as a transitional activity or routine (Yinger, 1979; Rule, Fiechtl, & Innocenti, 1990; Rao & Gagie, 2006; McIntosh, Herman, Sanford, McGraw, & Florence, 2004).

Teachers are challenged almost constantly during the transitional periods throughout the day because they must account for everything from directing students to supervision to transitioning their own materials for the next lesson (Buck, 1999). Suitable transition skills are sometimes difficult for teachers because it is a skill that takes practice. The ability for a teacher to have the proper pacing, momentum and smoothness when orchestrating a transition is fraught with unscripted behaviors and everyday distractions (Kounin, 1977). Furthermore, these transitions may be difficult for students due to the unpredictable nature of transitions and the ending of a preferred activity (Kern & Vorndran, 2000). To make matters worse, classrooms have a great amount of hidden transition routines that teachers expect students to know, often without training.
Children who successfully transition often times pick up on clues by watching others. Many children often learn by making routine mistakes and then being reprimanded. Transitions between rooms present further challenges because the transition to new locations bring with it new and subtle hidden rules for each location that students must learn (McIntosh et al., 2004).

Because of the issues that surround the skills associated with transitions, researchers have encouraged teaching behavioral skills directly to the students (Sprick et al., 1998). When transitions have been thoroughly thought out and addressed directly through teaching, the likelihood of having smooth transitions increase (McIntosh et al., 2004). Other techniques have shown to be effective in reducing transition time such as performance feedback (Codding & Smyth, 2008), visual supports (Sterling-Turner & Jordan, 2007), cuing (Buck, 1999), video modeling (Cihak, Fahrenkrog, Ayres, & Smith, 2010) and behavioral modeling (McIntosh et al., 2004). The focus of the next section will primarily be on the aspect of using modeling as a tool for teaching a variety of skills to students in the classroom.

**Modeling**

When examining the teaching of appropriate student behavior, behavior modeling is an approach that is available to teachers. Modeling is instruction through observational learning or imitation of the observed behavior (Bandura, 1977; Ledford & Wolery, 2013; McGinnis & Goldstein, 1997).

An example of modeling is role playing and the technique has been used extensively in social skills curriculums to enhance expertise and improve practice skills.
in a variety of behaviors (Baker, 2003; Goldstein, 1999; Goldstein, Sprafkin, Gershaw, & Klein, 1980). Role playing is used when the person is asked to act out a social skill or skill set in the correct order (Baker, 2003). This is used as both a practice time for learning new skills in a highly structured and safe setting and as an evaluation tool for the adult so that corrections can be made if needed.

Another illustration of modeling that has appeared in the literature is peer modeling. Peer modeling is based on Bandura’s theory of observational learning in which individuals learn by watching others behaviors and this serves as “guides for appropriate performance” (Bandura, 1977, p. 24). This modeling by peers helps the individual learn by having others perform an appropriate version of the behavior. Peer modeling has shown to be effective during small group instruction for improving both academic and social behaviors in children with disabilities for improvement in acquisition and generalization of skills (Ledford & Wolery, 2013).

A related strategy which employs video technology that has shown to be effective with certain populations of students is the strategy of video modeling (Bellini & Akullian, 2007). Video modeling is a strategy in which an individual watches a video recording of a person completing an appropriate behavior. The video is watched and the individual is offered the opportunity to replicate the behavior that was observed (Sigafoos et al., 2007). Advantages and limitations to video modeling will be discussed in greater detail as the intervention is discussed in detail in the forthcoming sections.
**Video Modeling Theory**

Video modeling and video self-modeling (VSM) are based on Albert Bandura’s social learning theory which states that humans can learn skills by watching others perform a behavior or task (Bandura, 1977, 1997). In 1982, Bandura researched children’s ability to acquire a variety of new skills by observing others perform a given task (Bandura, 1982). When people watch successful models of a behavior through video, a clear understanding of what goes into a task is shown.

Through VSM, when a person watches themselves complete an activity, it reinforces the idea that the behavior can be accomplished successfully (Dowrick, 1999). This builds self-efficacy in individuals. Bandura proposed that observing an image of oneself completing a behavior, produces a different reaction from observing someone else completing the same exact behavior (Bandura, 1997). A person pays more attention to a self image and increases the belief that the behavior can be overcome. Images of someone else completing a behavior provides less attention to the viewer and thus is weaker when it comes to increasing one’s self-efficacy. Because the goal is to have a strategy that has the most value for the time available, the implication from Bandura is that VSM would have greater weight when it comes to affecting change as opposed to other forms of modeling.

Dowrick (1991) coined the term “positive self-review” to enhance the idea that positive images of the individual work with Bandura’s ideas of self-efficacy to provide an improved rate of response when the behavior is shown to the individual. The goal is to
show individuals at their most successful so that they might be able enhance their ideas of success (Dowrick, 1999).

**Video Modeling Strategy**

Video modeling is a strategy in which a person is shown a video of a model performing a desired behavior or completing a task. Once the video is viewed, the person is given the opportunity to perform the behavior or task that was modeled. This process is performed several times until the level of proficiency is high (Sigafoos et al., 2007).

In the past, creating the video was viewed as a painstaking procedure by researchers. Because of the amount of time that it took to create and edit the video, professionals were usually the only ones in charge of the process (Buggey, 2007). Since the technology often meant staging with large equipment and hours in the video editing process, Buggey believes that the technology itself has reduced the adoption of this strategy amongst professionals in the field.

Just a little over 20 years ago, Peter Dowrick described the minimal system for a video modeling procedure to include: a color monitor, a camcorder with replay capability, a zoom lens and handset, a video cassette recorder, videotapes and cables. This minimal system in 1991 cost $3050. An extended version with a tripod, microphone, editing recorder, editing controller and copying recorder expanded the price by $2600 (Dowrick, 1991, pp. 8-10). This cost made it almost impossible for an average teacher to produce high quality products for their students. Even as early as 5 years ago, Buggey described the necessary equipment for a video modeling session and it included a camcorder, connector cables, DVD or videocassette tapes, a piece of equipment to play
the DVD or videocassette and a computer on which to edit the video (Buggey, 2009, pp. 40-41).

With advances in technology, this process can literally be done with a few swipes of the fingers and all in one piece of equipment. An iPod Touch or iPad Mini can be purchased for as little as $225 (Amazon, n.d.) and can be used to record the video, display the video and edit the video with a $4.99 iMovie app. The procedure can take minutes and require limited equipment. Video modeling has been shown to outperform live modeling strategies like peer modeling and role playing. Video modeling also shows quicker rates of acquisition when compared to live modeling and has demonstrated higher rates of generalization (Charlop-Christy, Le, & Freeman, 2000). Additionally, the time that it takes to train these behaviors is less and is more cost efficient when compared to live modeling procedures (Charlop-Christy et al., 2000; Graetz, Matropieri, & Scruggs, 2006). Video modeling is often less labor intensive than direct instruction because there is no longer a need for a trainer because the lesson is all encompassed within the permanent product of the video recording (Sigafoos et al., 2007). Because of these benefits, video modeling is a procedure that should be seriously considered when working to decrease inappropriate behaviors.

**Video Modeling Procedures**

Established procedures have been identified by researchers when using video modeling as a strategy. Sigafoos et al. (2007) developed ten steps to follow when using video modeling. These procedures are meant to be used to develop a systematic approach that can help researchers take full advantage of video modeling. An
implementation checklist based on Sigafoos et al. (2007) and LaCava’s (2013) interpretation of that work has been developed by the National Professional Development Center on Autism Spectrum Disorders (NPDC) and can be used as a scoring guide and as a fidelity check to further increase the probability of a sound video project (“Implementation Checklist,” 2011).

1. **Select the Target Behavior(s).** The first step in developing a video model is to identify and operationally define the target behavior.

2. **Get the Right Equipment.** It is important to make sure that the equipment is compatible and easy to use. Recent advances in technology have made this process easier, as many devices (laptop computers, tablets, smart phones) allow the video modeling creator to generate an edited, high-resolution video in a matter of minutes. For more advanced video models, using microphones and more powerful editing equipment may supply the architect of the video model a more sophisticated video.

3. **Plan the Video Recording.** During this phase of video modeling development, a script and task analysis is developed to map out what images and wording need to be displayed in the video. This planning becomes the storyboard and outline for the behaviors that are being addressed in the video.

4. **Collect Baseline Data.** The baseline data is collected on the target behavior that is described in step 1. The baseline data collection phase is important in this process to indicate whether the video modeling is having a direct effect on the target behavior.

5. **Make the Video.** Making the video involves filming and editing the target behavior so that the behavior is shown in the most correct possible way. The creator of
the video must focus the filming attention on the type of video modeling that he/she would be most appropriate for the learner (e.g., video modeling, self-modeling, or point of view). When filming the scenes, it is important to follow the storyboard and task analysis that has been laid out previously. After rehearsing with the model, the film is recorded at the highest quality possible, keeping in mind lighting and sound issues. Once the video is recorded, the process of editing the information must be completed. The editor will remove any errors or prompts and include any voice-overs, graphics or text that will enhance the video.

6. **Arrange the Environment for Video Viewing.** The goal for this step is to make sure that there is an appropriate environment in which to watch the video and train the behavior. The natural environment is the most logical place to show the video. Sigafoos et al. (2007) stress in this step that training and watching the video in the environment in which the behavior is to increase, may facilitate generalization and maintenance because of the realistic nature of the video.

7. **Show the Video.** During this phase, providing a space free from distractions is key to increasing the attention that the person(s) pay to the video. Several showings of the video may be necessary to make sure that the information is obtained and understood.

8. **Monitor Progress.** Continuous data should be collected in the same manner as was collected during the baseline phase. This will allow for a comparison between the video modeling procedure and the baseline data and to determine if the intervention is working.
9. **Troubleshooting.** If the appropriate behavior is not showing a large enough increase or is not happening rapidly, troubleshooting may be used to spur this process along. Adjustments to the intervention may be used, but it should be determined if there is a problem with the intervention itself. For instance, the complexity of the video, not enough viewing opportunities for the video or a poor task analysis of the behavior could explain issues or deficiencies with the intervention. If this is the case, it is important to make the appropriate adjustments and work with the video. Buggey (2005) showed an example of the need for adjustments when a student with autism showed few signs of increasing unprompted utterances. After reviewing the video, Buggey hypothesized that the video was too busy for the student and reduced the complexity of the video. He reduced the questions that were being asked of the student and the student showed an immediate increase in the amount of responses to questions and unsolicited verbalizations.

Using an implementation checklist can be useful when implementing so that problematic issues with the video model are decreased. A checklist can allow the researcher to pinpoint trouble spots so that adjustment to the video is easy ("Implementation Checklist," 2011). It is important to have constant contact with the data so that the intervention can be adjusted as soon as possible.

10. **Fade the Video Model.** This final step is used to encourage the maintenance and independent use of the skill. Sigafoos et al. (2007) points out that withdrawing the video can lead to a decrease in the performance of the skill (p. 24). For this reason, it is important to phase the programming gradually.
Forms of Video Modeling

Video modeling comes in several forms but the most common types are adult and peer video models, point-of-view models, and video self-modeling (VSM).

**Adult and peer video models.** The use of adult and peer models is a common method of training through the use of video. Using Bandura’s ideas concerning the suggestion that individuals learn by watching others (Bandura, 1977), video modeling is a natural extension of an in-person training and modeling session. A few of the benefits of video modeling as opposed to a traditional in-person model is that the video can show a consistent and ideal form of the behavior, it can be viewed many times and it saves time for educators and skill trainers (Baker et al., 2009).

In an adult or peer model demonstration of video modeling, a person other than the targeted individual is shown performing the desired skill. The behavior is shown in its most ideal form by either an adult or peer. The benefit of having an adult model over a peer model is that the adult usually has the required skill set in order to demonstrate the technique to perfection. The peer video model is used for the age appropriate children or adults but, as opposed to the adult model, the peer model allows the target individual to observe a person in their age range, gender, race or other identifying trait completing a task.

**Point-of-view modeling.** Point-of-view modeling provides an example of a behavior from the perspective of the individual whose behavior is in need of change (McCoy & Hermansen, 2007). In order to achieve this effect, the film is created from a first person perspective to show what an appropriate behavior would be through the eyes
of that target individual. A model other than the target individual is used to create the video.

Point-of-view video modeling is a relatively new addition to the video modeling family. Although the term “point-of-view” modeling was not used, the procedure itself was first developed by Schreibman, Whalen, and Stahmer in 2000 as a priming tool for children with autism. In that study, a group of researchers used this technique to prepare three individuals with autism who had disruptive behaviors to transition to different activities and areas with great success (Schreibman et al., 2000). Since the time of this first study, others have used this method to demonstrate play skills (Hine & Wolery, 2006), self help skills (Norman, Collins, & Schuster, 2001; Shrestha, Anderson, & Moore, 2013; Sigafoos et al., 2005), functional living skills (Shipley-Benamou, Lutzker, & Taubman, 2002), and social skills (Tetreault & Lerman, 2010). At this time, this type of video modeling is the least researched due to its relatively new nature. Only a handful of studies have been done on the subject and all but one of them was used to research a limited population of children with autism. At the time of this writing, the only study that did not fit into the category of research limited to children with autism was done by Sigafoos et al. (2005) in which three adults with mental retardation learned to microwave popcorn. For this reason, the point-of-view modeling technique holds promise but needs more studies to determine its effectiveness for children without autism.

Video self-modeling. Video self-modeling (VSM) is a technique that uses the idea of the adult and peer video modeling but with the added benefit that the model is the person whose behavior is being changed (Dowrick, 1999). VSM uses two approaches to
attain the goals of increasing the appropriate behavior: feedforward and positive self-review.

Video feedforward is an approach that was developed by Peter Dowrick in the 1970s. The feedforward strategy pieces together, via video edits, prompted behaviors or already learned smaller behaviors to create a larger and more complex behavior. By using this method of chaining the smaller and applicable behaviors together and editing out prompts and missteps, the video can show an individual completing a behavior that they have not yet learned, mastered or completed with any level of success (Dowrick, 1991). In short, the person is learning a new behavior by watching a version of themselves being successful at said behavior.

Sigafoos et al. (2007) describe a similar method to feedforward called video prompting. In video prompting though, there are breaks in the video recording to allow individuals to piece together all of the components in a chain and practice each step along with the video. In addition to the difference of time between steps, video prompting also is used with adult or peer video modeling and point-of-view modeling.

Positive self-review (PSR) is a process where an individual observes an ideal version of their own behavior on a video. This approach is used when the individual has the skills but they are either behaviors that are new in the person’s repertoire or they are behaviors that no longer reach the desired level of effectiveness. The repetitive review of these behaviors generally increases the frequency and consistency of their incidence (Dowrick, 1991).
Evidence for Video Self-Modeling

Video self-modeling (VSM) is a relatively new concept in the field of behavior as the first reported example of its use was not seen until 1963 with military instructors who were critiquing their own performance (Watts, 1973). This form of self evaluation was the beginning of video self-modeling, although at the time, it looked very different to later uses of VSM because it was used as a critical self-review instead of the positive self-review that would be established as the norm. As research into this method continued, Thomas Creer and Donald Miklich used the idea behind Bandura’s social learning theory and recorded a role play of a child who had social deficits. The case study showed that the role play itself had little impact on the child’s behavior but the viewing of the video of the role play did. This also became the first article to use the term “self-modeling” (Creer & Miklich, 1970).

Since the time of those first experiments, VSM has proven to be an effective treatment in a range of behaviors with a variety of ages and abilities (Buggey, 2005). VSM has shown to be an effective strategy for teaching academic skills like reading (Dowrick, Kim-Rupnow, & Power, 2006; Hitchcock, Prater, & Dowrick, 2004; Rao, Hitchcock, Boisvert, Kilpatrick, & Corbiell, 2012) and math (Schunk & Hanson, 1989), social initiations (Buggey, 2005; Buggey, Hoomes, Sherberger, & Williams, 2011), social engagement (Bellini, Akullian, & Hopf, 2007), and self help skills (Norman et al., 2001; Sigafoos et al., 2005).

Additionally, VSM has shown to be successful with a wide variety of disabilities and specific problems. These include emotional and behavioral disorders (O’Reilly et al.,
mental retardation (Sigafoos et al., 2005), Down’s Syndrome (Norman et al., 2001), communication disorders like selective mutism (Kehle, Bray, Byer-Alcorace, Theodore, & Kovac, 2012; Kehle, Madaus, Baratta, & Bray, 1998; Pigott & Gonzales, 1987) and stuttering (Bray & Kehle, 1996, 2001), learning disabilities (Hitchcock et al., 2004; Prater, Carter, Hitchcock, & Dowrick, 2012; Rao et al., 2012; Schunk & Hanson, 1989), physical disabilities and rehabilitation (Dowrick & Raeburn, 1995), depression, (Kahn, Kehle, Jenson, & Clark, 1990) and attention deficit and hyperactivity disorders (Woltersdorf, 1992). Within the past 10 to 15 years, researchers have discovered that this technique is particularly effective with children with autism (Bellini & Akullian, 2007; Buggey, 2005; Buggey et al., 2011; Luiselli, Russo, Christian, & Wilczynski, 2008; McCoy & Hermansen, 2007; Nikopoulous & Keenan, 2006; Plavnick, Sam, Hume, & Odom, 2013).

Buggey (2005) demonstrated how VSM could be used across behaviors for children with autism. The study looked at three single-subject, multiple baseline designs across behaviors. The first design involved increasing social initiations in two elementary children who had high functioning autism. Initially, the first student had zero social initiations during lunch, recess and free time over 8 school days where the second student had only two interactions over 12 school days. After a 3 minute VSM video was introduced that showed the appropriate behavior, the average of student 1 showed an average of 4.0 initiations and maintained at 4.4 initiations per day on average. Student 2 showed an increase to an average of 3.8 social initiations per day during the intervention and during maintenance showed 4.25 social initiations per day.
The second design showed VSM used to reduce tantrumming behavior in two elementary children with autism. Duration data was collected for this experiment. During the baseline phase of the experiment, student 1 showed a duration average of 16.25 minutes over 10 days of observation. During the intervention, student 1 showed a reduction of tantrum duration to 1.6 minutes on average and 2.8 minutes during maintenance. Student 2 showed a mean duration of 19.3 minutes per tantrum during baseline over 13 days. During the intervention phase, student 2 reduced tantrum duration to 4 minutes and 2.3 minutes during the maintenance phase.

The third design had one child with autism and two behaviors. The two behaviors were significantly different than each other. The first behavior of pushing began with a baseline of 2.2 pushes per day over 5 days. The results were dramatic in that the child had only one occurrence of the behavior through the intervention and maintenance phases which encompassed 14 days. The second behavior of language production was not as successful initially. The data that was collected during baseline were responses to question and unsolicited verbalizations. Baseline showed 2 responses to questions over 10 days for a mean of .2 and zero unsolicited verbalizations. Although the data showed a slight increase in response to questions, there were still zero unsolicited verbalizations. After 5 days of no unsolicited responses, Buggey reviewed the video and decided that it was “too busy.” The tape was re-edited and showed the student using more language. With the newly edited tape, the results increased from a mean of 1.8 responses to questions to 3.67 during the intervention phase and 4.67 during maintenance. Unsolicited verbalizations increased from a mean of zero to 3.16 during the intervention and 5.0 in
the maintenance phase. Later reports from the teacher and parent showed that the student increased his vocabulary and responsiveness to others.

Although the evidence is overwhelming that VSM addresses a great variety of behaviors and in a great number of settings, it is almost exclusively used with one child at a time. In order to reach maximum efficiency when helping students, expanding this model to more students would create a more resourceful delivery model in which to enhance programming for children.

**Why use video self-modeling?** A variety of benefits, for both the teachers and students, come from using VSM. In a review of the literature by Baker et al. (2009), the researchers concluded that VSM was a less intrusive strategy in the classroom environment than other strategies. It was further postulated that classroom routines were disturbed less often as opposed to traditional behavior correction strategies because the intervention frequently takes place outside of the target environment.

As described earlier, VSM used to be a cumbersome task in that the equipment and video editing created a great deal of work for the implementer. Technological advances have made the process easier to implement with students. The video recording and editing for a video model can all be done on the same device, such as a camcorder or an iPad or iPhone. This ability to film and edit quickly allows the individual recording the information to be able to process and show the video to a student with very little turnaround time.

Aside from the benefits of being a less intrusive strategy, VSM has been shown to be a relatively quick intervention (Dowrick, 1999). Videos are typically less than 3
30 minutes in length which allows for a quick review period and then a transition into the targeted environment (Buggey, 2007; Dowrick, 1999). Apart from the video length, implementation of the strategy is also relatively short. A student can be instructed through the VSM in 5-20 minutes (Baker et al., 2009). When considering the amount of time that it could take to train a classroom of students on expected behaviors in the classroom, time is always of the essence.

The act of reviewing one’s own behavior also has the benefit of being a reinforcing activity (Kern et al., 1995). Because self-observation increases the likelihood of a future occurrence of that behavior, VSM fits the very definition of reinforcement. In addition to being a reinforcing strategy, it has the valuable component of being a positive strategy that focuses on pre-teaching and preventative actions rather than punitive measures (Baker et al., 2009; Dowrick, 1999). Because of the video editing involved in the process, no negative behaviors are shown to the target individual (Buggey, 2007). This positive viewing of the video has a benefit of showing only the positive behavior and leaving out any conscious or unconscious misunderstanding of what should be done and/or any undesirable behaviors that may linger. Video self-modeling has the added benefit of not only giving a direct training during the initial filming of the video, but the constant observation of the appropriate behavior reinforces the behavior that was the focus of the intervention.

Study after study has shown that VSM creates a rapid and spontaneous improvement in the individuals’ behaviors (Baker et al., 2009; Buggey, 2005; Dowrick, 1999; Hitchcock et al., 2003; Kehle et al., 1990). An example of how quickly VSM can
take effect was shown in a case study with a child who was selectively mute in school (Kehle et al., 1990). During his first year of school, the child had barely said anything more than a soft whisper. The following two years showed the young man not speaking at all, even when his mother was prompting him. The mother reported that he spoke frequently at home. Within five 5-minute sessions that showed an edited video of a teacher asking questions and the child answering them, the student began speaking liberally with the experimenters, teachers, students and principal. This was the first time in three years, after many attempts to remediate the behavior, that child spoke in school. Seven months after the experiment, the student maintained skills and participated with the class in group discussions. The obvious advantage of having strategies that quickly improves a behavior is that there are benefits for both the teacher and the student in that the less time needed to implement and show improvement, the more time that is available for practice and mastery of the behavior.

Buggey discussed that even if VSM does not create the spontaneous improvement that is being sought, it has little downside because it only focuses on the positive behavior that the person should be doing (2007). The video editing procedure ensures that only positive behaviors are displayed and any excess stimuli that interferes with the skill acquisition is removed so that only the behavior that is ideal is displayed (Bellini & Akullian, 2007). Furthermore, fidelity to the behavior can be maintained because the editing of the video ensures the consistency of the appropriate behavior as opposed to a live model that may have issues with showing the ideal behavior consistently over time.
Video self-modeling has the advantage of being culturally indifferent (Dowrick, 2011). Dowrick (1999) points out that it is important that videos include the appearance of an individual of one’s own culture doing the behavior. As opposed to traditional video modeling where models of a different culture may be the only option, VSM provides an instant cultural match.

Finally, VSM has shown to be a valuable tool in the self-evaluation of a behavior. This self-evaluation increases the student’s ability to accept responsibility for their own actions (Baker et al., 2009; Booth & Fairbank, 1984). Additionally, VSM is also highly motivating to the individual while increasing self esteem and confidence, thus creating the necessary components of self-efficacy (Bandura, 1997; Buggey, 2007)

**Video self-modeling in the schools.** Video self-modeling has shown to be an effective intervention for children in the school system. Hitchcock et al. (2003), in a review of video self-modeling interventions, showed that VSM has moderate to strong outcomes for children in school-based settings. The researchers concluded that VSM can be used effectively to help support students’ functional, academic, behavioral and communication needs in the classroom setting. The literature review added that VSM was effective with school children of all ages from preschool to high school. Moreover, children maintain the benefits over time and generalize their skills across settings.

Sometimes, behaviors specific to the classroom setting are targeted. One study used VSM on cooperative classroom behaviors (Lonneker, Brady, McPherson, & Hawkins, 1994). The cooperative classroom behaviors included engaging with the material, following teacher directives and using an indoor voice. The study showed that
multiple classroom behaviors could be focused on at the same time and across multiple classroom settings. The students involved showed an increased consistency in the cooperative behaviors and a reduction in inappropriate behaviors. Furthermore, the behavioral changes were immediate and sustained during the fading procedures.

**Group models.** Few studies have specifically examined the use of video modeling for groups of students. The inherent idea of “self” has restricted the use of VSM to be used with groups in schools. Once self-modeling videotapes have been used, the videotape has little value outside of the target student (Richards, Heathfield, & Jensen, 2010). Most times, groups of students watch videos in order to enhance current behavioral programming but it has not been an indicator of actual change (Kennedy & Swain-Bradway, 2012).

Schwan and Holzworth (2003) showed the effect that VSM can have with individuals as part of a group. In their study, students with a diagnosis of emotional and behavior disorders (EBD) were split into a control group and a group that received an intervention that included VSM. Each student received an individual VSM intervention that was targeted to their specific behaviors. All of the students who participated in the VSM group showed some decrease in inappropriate behavior between their pre and post assessment. The behaviors of inappropriate movement, inattention and noncompliance showed a statistically significant decrease in their behaviors although it was not determined that VSM had a direct effect on noncompliance as some students in the control group also showed a decrease in the noncompliance behaviors. It was determined
by the researchers that the VSM procedure was effective in reducing the inappropriate classroom behavior.

Peer video modeling was used for a study in 2010 to address on-task behavior with children in a charter school (Richards et al., 2010). A multiple baseline, repeated-measures design was used to increase on-task behavior in three classrooms of elementary students ranging in grade levels from third grade to sixth grade. The students attended a charter school in the western part of the United States. The researchers developed a videotape of students varying from third through sixth grade and included both girls and boys with varying characteristics including height, weight and hair color amongst others. The goal of the variety of students was to increase the probability of identifying and mimicking the model. In this study, none of the peer models attended the charter school. A variety of videos were used to show a student displaying an on-task behavior. Each video segment was approximately 4 minutes long and showed a different peer model in each video segment.

The study showed that a peer video modeling strategy can be effective with a group when improving on-task behavior in students. The researchers included a coaching component with the students to focus on the behaviors that were being addressed. The coaching component and variety of peers were attributed to the success of this study.

One issue with the study was that on-task rates during follow-up did decrease in two of the three classes. Additional baseline data was also required because of variability in the baseline phase and a failure to establish a stable baseline.
A recent study by Plavnick et al. (2013) showed four children between the ages of 13 and 16 (2 male, 2 female), each diagnosed with an autism spectrum disorder (ASD), using video modeling to learn social skills as a group. The video based intervention included a model that was not one of the target students. Each of the students showed rapid improvement, in a very short amount of time (between 3 – 5 data points) and in the behaviors of complex initiations, social awareness and social reciprocity. During the fading procedures, behaviors stayed consistent through the conclusion of the study. Although this study did not use VSM, it was the first of its kind in terms of using video modeling as a way of teaching social skills to a group of students with ASD.

Although VSM has been used in a variety of ways, there is no research currently that shows that it is effective in increasing positive behavioral interactions with groups of students. Additionally, most of the current literature surrounds the benefits of children with disabilities, specifically children with autism. In light of this, research has lagged behind in the effectiveness of this strategy in relation to classrooms that use inclusion measures to help both children with and without disabilities.

**Positive behavior interventions and supports and video modeling.** Although there is not yet empirical evidence specific to positive behavior interventions and supports (PBIS) as it relates to the use of video modeling, recent attempts to use “homegrown” videos to help teach students proper behavioral strategies has been gaining traction (Kennedy & Swain-Bradway, 2012). The Association for Positive Behavioral Supports (APBS) has hosted an annual contest to collect videos from school districts in order to show how schools are using videos to enhance their school-wide PBIS efforts.
These videos are used to teach the expectations for classroom and school behavior. The successful videos in this contest seem remarkably similar to those one would use for video modeling. There is positive language throughout the video, the expectations are taught in the locations that the behavior occurs, models and film makers are to avoid negative words like, “don’t” and “no,” and use language that is appropriate for the audience. Although video modeling is not specifically stated, it seems that this contest for SWPBIS is video modeling.

Currently, there is no data to support that the videos are the changing factor in the classroom and school-wide behavioral change. The videos that are used in the schools are used only to support existing models and interventions that are already in place. Since the data does not reflect that the videos are the determining factor in helping to change the environment and behavior in the classroom, the value of these videos cannot be determined. To better establish what effect these videos have on a classroom environment, producing research that demonstrates what impact the videos have on groups on groups of students’ behaviors would be valuable to fill in gaps in current literature.

Conclusion

Video self-modeling has been around for a long time and has certainly become more popular with certain populations of children, specifically those children with autism, and with advances in technology which have made video production and use easy to accomplish and less costly. It has become a useful instructional tool to address behavioral needs of individual students. However, these efforts are lacking when looking
at literature as it pertains to groups of children. Research does not currently exist for understanding whether VSM can be utilized with groups of students to increase positive classroom behavior. The possible benefits for using this method have been identified through schools implementing PBIS but has been used only as a supplementary tool and not a specific strategy for addressing behaviors. For this reason, research into this strategy should be addressed to fill in gaps in the literature.

**Purpose of the Study**

The available research has shown that VSM is a positive and effective strategy for teaching individuals to improve a variety of behaviors. The purpose of this study is to determine whether VSM can improve the common classroom expectations of lining up and transitioning when it is used with groups of students.

**Research Questions**

The research questions that are the focus of this study are:

1. Does video self-modeling (VSM) with a group of students increase the speed at which students complete appropriate classroom behaviors of lining up and transitioning between activities?

2. Does VSM affect the average speed at which groups of students line up or transition between activities when students’ data has been divided into slow, moderate and fast groups?

3. If VSM has an effect on the average speed at which students line up and transition, will the slower students make larger improvements than the faster students?
Chapter 3

Methods

This study used a multiple baseline design across behaviors to examine the effect of video self-modeling (VSM) on the speed with which one group of students in an elementary classroom line up and transition from one activity to another when directed to do so by a teacher.

The following research questions were explored for this study:

1. Does video self-modeling (VSM) with a group of students increase the speed at which students complete appropriate classroom behaviors of lining up and transitioning between activities?

2. Does VSM affect the average speed at which groups of students line up or transition between activities when students’ data has been divided into slow, moderate and fast groups?

3. If VSM has an effect on the average speed at which students line up and transition, will the slower students make larger improvements than the faster students?

It was hypothesized that VSM would increase the speed with which a group of students in a general education classroom line up and transition from one activity to another. It was also hypothesized that these increases in speed would be more substantial behaviors for students who were slower in performing the behaviors of lining up and transitioning than for students who were faster in these behaviors.
Participants

Participants for this study were elementary students in the third grade at a rural school in southeast Nebraska. The rationale for using this grade is that the participants are still young enough to have to line up and make transitions frequently during the day as compared to older students in middle school and high school. Furthermore, third grade students have at least three to four years of training in the behaviors of lining up and transitioning so these behaviors were already in their repertoires.

One classroom of students was chosen for this study based on convenience and willingness to participate. The grade level and classroom chosen for this study was based on permission responses by parents, teacher willingness and administrative agreement. The teacher for the class was a first year teacher. Both the superintendent and elementary principal suggested her classroom as a good classroom to conduct the study. The teacher was approached to participate in the study, and she agreed that her class could use some help in transitioning between activities and lining up. All parents of the children in the study consented to their child’s participation in the study.

The classroom for the study had 18 students. Of those students, 10 were boys and 8 were girls. Three students received free or reduced lunch. Seventeen students were white with one student of Hispanic heritage. Four students were identified as having a disability. Of the students identified with a disability, three students had a primary disability of speech and language while one student was identified with other health impaired (OHI) for Attention Deficit Hyperactivity Disorder (ADHD).
Setting

The third grade classroom was set up in four rows with five desks per row facing west toward the front of the classroom. The teacher had a desk in the northwest corner of the classroom and the main instructional area was on the west wall but math meeting lessons would take place on the south side of the classroom each morning. The students’ supplies and wipe boards were located in half cabinets on the east wall. There were two entrances to the classroom. The entrances were on the east end of the classroom. The main entrance/exit was located at the southeast area of the classroom and exited to the hallway. The other exit was on the northeast end of the classroom and exited into another classroom and the hallway. Students lined up facing the southeast exit for a majority of their movements.

Dependent Measures (Target Behaviors)

Two behaviors were targeted and operationally defined as the dependent measures for this study: (a) the time with which participants line up to leave the classroom, and (b) the time with which participants transition from one activity to another.

Lining up was operationally defined for the class as the entire group of participants in the classroom, excluding the teacher, arranging themselves in a row standing behind each other with the first person standing by the exit door and all others parallel to the wall adjacent to the door. For individual students, lining up followed the operational definition for the entire class with the exception that their time ended when the individual student stood in line. The movement cycle for lining up began when the teacher told the students to “line up” or “get in line” and ended when the student was
standing in the row. Lining up was sometimes initiated, not by teacher command, but by traditional times such as library or moving to another class. In this case, the movement cycle for the group began when the first student moved toward the line and stayed there throughout the exercise.

Transitioning from one activity to another was operationally defined as putting away materials from the previous subject/activity/lesson and getting out materials or getting to the location for the next subject/activity/lesson within the classroom. Transitioning was not defined to include lining up or walking to different classrooms. The movement cycle for transitioning began when the teacher initiated the transition with a verbal command, such as, “Put away your materials and get out __________. . .” and ended when the last student had his or her materials for that subject on his or her desk or was in the location that was required for the lesson to begin. The operational definition for individual students was the same as the group definition with the exception that the participant’s time was completed when they finished the transition requirement. This did not include a transition to free time or study hall as the multitude of different possible activities in which students could participate in varied depending on the student.

**Ceiling rule.** A ceiling rule was used during the transition behavior so that any one group’s score could not be skewed by the time of one student during one transition period. A “score” indicated the value of time in minutes and seconds. The ceiling rule was used when a student or students failed to transition. This might mean not beginning an assignment or getting a wipe board from the back of the classroom. Individual scores for transitioning had a ceiling of the day’s highest scores in each transition opportunity
averaged together. The ceiling rule was only used if the student failed to transition. Out of the 1,404 transition data points, 19 data points reached the criteria to meet the ceiling rule. Nine (9) out of the 18 students met the criteria for the ceiling rule by not transitioning at one point during the study. No ceiling was used for lining up.

**Recording Technique**

Latency recording was used to measure the speed with which participants lined up or transitioned from one activity to another based on the previous operational definitions. Each student received a latency time for how long it took them to line up or transition. The scores for all students were averaged together per episode in order to create a mean time that it took students to line up. The individual latency recording was documented for each individual student so that they could be divided into three groups (slow, moderate, fast) based on their average latency during baseline. Once the groups were identified from baseline data, the students were retained in that group for the remainder of the study and the students’ times were averaged together within their slow, medium or fast group to produce a mean score.

**Independent Variable: Video Self-modeling (VSM)**

The independent variable was video self-modeling (VSM). This strategy consisted of the 10 steps which were described in Chapter 2: (a) Select the target behavior(s); (b) get the right equipment; (c) plan the video recording; (d) collect baseline data; (e) make the video; (f) arrange the environment for video viewing; (g) show the video; (h) monitor progress; (i) troubleshoot; and (j) fade the video model.
These steps represent the systematic approach developed by Sigafoos et al. (2007) that were followed in order to develop a video product based on best practice. Fading the video was not used in order to maintain the structure of the research design. In lieu of fading the video, the intervention was immediately withdrawn and maintenance behavior data was collected two weeks after the experiment ended with three data cluster points gathered.

**Fidelity**

An implementation checklist based on Sigafoos et al. (2007) and LaCava’s interpretation of that work (LaCava, 2013) was developed by the National Professional Development Center on Autism Spectrum Disorders (NPDC) and was used as a scoring guide as a fidelity check to further increase the probability of a sound video project ("Implementation Checklist," 2011).

A fidelity check was completed at each stage of the video development and was completed a total of five times by the researcher (see Appendix B). In each case, the findings showed that the intervention was being implemented with the maximum fidelity with the exception of step 10. Step 10 refers to fading the video modeling intervention. The design of this study used an immediate withdrawal of the intervention in order to gauge how the intervention maintained over time.

**Design**

The data was gathered and charted by using a multiple baseline across behaviors design. A multiple baseline design was chosen for this study for two main reasons. The first reason is that the multiple baseline design makes the case for the intervention being
responsible for the change in behavior (Kazdin, 2011). The pattern of data with multiple baselines provides the researcher with a reasonable chance that the behavior change was not influenced by outside variables. The second reason for using the multiple baseline design is that it is the most common methodology for conducting research in video modeling based on the idea that once the video model was seen, it cannot be unseen. With the exception of literature reviews and meta-analysis, all of the research that was reviewed for this study used a multiple baseline design to establish control and analysis for the intervention. Since the standard for evaluating video self-modeling in the literature is a multiple baseline design, it was important to have a similar approach in order to assess whether this strategy had a similar outcome to other research in the field.

**Pilot Study**

A pilot study was conducted over three days from February 2\textsuperscript{nd} to February 4\textsuperscript{th} of 2015. The pilot study was conducted at a school district similar in size to the district chosen for the final study. A fourth grade classroom was used based on teacher interest. The teacher stated that they did not have any issues or concerns with lining up or transitioning with her class. It was determined that the classroom would be a good place for the pilot study as the behaviors could be fine tuned because of the positive behaviors displayed by the students and it would allow for the focus to be on getting the equipment to function properly. Signed permission was obtained by the administration to have access to the classroom.

The pilot study was used to meet a variety of objectives. First, the pilot study allowed for a thorough testing of the equipment that was to be used by the subsequent
study. During the testing with the equipment, it was necessary to view the room from
different heights and angles for optimal viewing. The second purpose of the pilot study
was to test and become comfortable with the video conferencing software and video
editing software. It was discovered during this time that the recording option that came
with the video conferencing software was going to be inadequate because the individuals
were too small to recognize in the final recording. Instead, a video editing and screen
recording software named Camtasia™ was used. This software allowed for a full screen
recording of the classroom and solved the problem of how to record the time consistently
and with fidelity. By downloading a stopwatch application to the computer desktop, I
was able to record the full screen with the students and have the stopwatch in the corner
of the recorded screenshot. The Camtasia™ software had a video editing tool built in so
this allowed for quick access to the times of day that students were transitioning and
lining up. The final purpose of the pilot study was to practice timing the behaviors that
would be the focus of the final study. This allowed for changes to be made to the task
analysis and operational definition of lining up and transitioning for the final study.

Procedures

As described earlier, the researcher identified a third grade classroom in an
elementary school in southeast Nebraska where the study took place. The classroom was
chosen based on a variety of factors including district and administrative approval,
teacher consent, parental consent, location of school district in regards to the researcher,
classroom student population and transition routines.
**District approval.** Five different school district administrators gave verbal approval to the researcher to complete the study in their district. The superintendent from each school district was contacted by the lead researcher in order to identify which schools in the local area would allow access to the research project. One school district was chosen for the implementation of the study because of its close proximity to the researcher, administrative engagement, class size, grade level, and transition routines. Both the superintendent and elementary principal signed consent forms to allow their school district to be the host site for this study.

**Consent.** The University of Nebraska – Lincoln internal review board (IRB) granted approval on February 6th of 2015. Initial written consent was obtained from the school district administration and classroom teachers in writing.

A letter was developed to obtain parental consent outlining the procedures and objectives for the experiment. This letter served as notification. If the parent or guardian chose to remove their child from this experiment at any time, they were able to do so up to the point of data collection. The letter provided three days in which to notify the investigator, classroom teacher or school district representative of their intentions if they chose to not have their child participate. No parent or guardian chose to remove their child from the study.

**Student assent.** Before each group video self-modeling (GVSM) video was recorded, the researcher read an assent script explaining the procedures for the recording. The students were allowed the choice to participate in the making of the video or not be included in the making of the video. If they chose to not participate, they would be
allowed to work independently in a separate location on a different activity. Two
students, B2 and B3, chose to not to participate in the lining up video. All other students
participated in the video making process for lining up. During the second video for
transitions, all students in the class participated.

Video recording. The classroom was viewed and recorded by using a Logitech
C920 hd camera in the classroom connected to the teacher’s computer. The video was
transferred via internet to a laptop computer where the data file was saved. The video
conferencing software that was used to connect the two locations was the Lifesize
ClearSea video conferencing software. The video was recorded through a screen capture
by using the Camtasia™ video editing and screen capture software. The daily recordings
were transferred and stored on a password protected external hard drive and backed up to
a second external hard drive. Daily recordings of the entire classroom were used to
reduce the likelihood for error and increase inter-observer reliability.

Equipment was set up in the classroom and tested for recording. The teacher was
trained in how to connect the two locations through the video conferencing software.
Training for the teacher was given on how to instruct the students to line up and transition
by giving the same or similar commands and not starting instruction or the next activity
until the behaviors have been completed. This allowed for consistency in cuing the
students.

Graphing procedures. Each direction for lining up or transitioning was timed
and the time was recorded on a spreadsheet. When all of the line ups and transitions
occurred for the day, all of the times were averaged together and identified as a “data
cluster.” For graphing purposes, these “clusters” of events averaged together are identified as one point on a graph. The “data cluster” is identified as one point in order to be able to observe patterns easier and to reduce the massive scale of the graph. Twenty five individual data points would have increased the difficulty of interpretation and graphing. Data was gathered for the baselines on both of the behaviors of lining up and transitioning. The daily means were calculated for each student, then averaged to form one score and graphed. This allowed for a more complete picture of the intervention. Since the behaviors of transition and lining up happened with a great amount of frequency in the classroom, the baseline data, intervention and completion of the study could all happen in a few days without a clear picture of whether or not the intervention actually had a lasting effect. By using the daily average of the behaviors as a data cluster, it showed a more consistent image of the behavior and the effect that the independent variable has over time. Maag and Anderson (2006, 2007) used the mean of nine timings to determine a ceiling for latency time. This method allows a more comprehensive picture of how successful the intervention is with the slow, medium and fast student groups as compared to each other and the group as a whole.

**Timing rules.** When timing the latency for each student, it was necessary to establish rules for consistency. The following rules were established so that data could be constant across students and behaviors.

1. All times began at the same point regardless on the movement of the student. Most times, the timing began when the teacher prompted the students to line up or transition.
2. When students were not prompted by the teacher to start the behavior cycle, the timing began when the first student moved toward the line or transition and completed the behavior cycle in full. For instance, if the students were lining up without the teacher prompting them because it was a traditional time to line up, such as for library, the time started when the first student began moving toward the line and remained in the line until the line transitioned to the next activity.

3. The ending time that was recorded was based on the second the behavior finished. For instance, if the student got in line at 30.21 seconds and another student got in line at 30.75 seconds, both students received the timed score of 30 seconds.

4. When calculating the mean student scores for clustering, the data was based on rounding the half second. An example of this would be if a student received a mean score of 56.1 seconds the student’s score would stay at 56 seconds. If a second student received a mean score of 56.78 seconds, the student would receive a score of 57 seconds.

5. If students were absent or out of the room in another location during the transition or line-up, data was not collected on that student for that time and that score was not included in the data.

6. If students did not line up because they were expected to stay in the room, their time was not included in the data. For instance, if they were expected to
stay in from recess to finish an assignment, since they did not line-up, no
timing would be included in the data.

**Baseline.** Baseline data was taken for five days and the scores were recorded and
the means were calculated and graphed daily. After the baseline data was complete, the
student data was split into four categories.

The first category was based on the total mean latency for the entire group. The
latency was measured from the time of the teacher’s direction to the time of each student
performing the desired behavior. The daily mean score was based on all students’
latency times averaged together. This occurred for both lining up and transitioning.

For the next three categories, the students’ data were separated into three distinct
groups based on the speed of their baseline data. Once each student’s daily means were
calculated, all five days of means were averaged together for one baseline score. The
mean scores were organized fastest to slowest and were categorized into one of three
groups. The six fastest student times were placed into the first group, or fast group. The
next six fastest students were positioned into the moderate group while the slowest six
students were put into the slow group. The times of each student in the group were then
averaged together to obtain one mean score for each of the three groups.

**Record and edit video.** After the baseline data was gathered, a video was taken
of the students lining up appropriately. The video for transitioning was taken once the
data for lining up had stabilized. A task analysis of both lining up and transition can be
found in Appendix A. The task analysis served as both a teaching aid and script for the
video model. Before the video was recorded, the student assent script was read aloud.
Two students chose not to take part in the making of the lining up video and were moved to an adjoining classroom to work independently with the supervision of a teacher’s aide. All students participated in the video for transitioning.

For each of the videos, the class was addressed on the expectations of how to line up and transition between activities. On February 24, 2015, the video for lining up was recorded in the classroom as this is the natural setting that students were expected to complete the behaviors. The transition video was recorded on March 11th, 2015. Before the recording of the videos took place, the students practiced the expectations until they were perfect within the guidelines of the behavioral definition and the scripted instructions. Once the class achieved the appropriate behavior, several video recordings were taken of the students lining up so that there was enough sufficient video to splice together for the final product. Students were recorded from different angles to make the video more appealing. The teacher was also recorded giving the prompt. Finally, for both of the videos, the principal was recorded telling the class that they did a nice job of lining up and transitioning.

When editing the video, all behaviors that were not positive or did not show movement toward the goal of lining up properly were removed from the video. Voice-overs, text and music were added to both videos.

Implementation of independent variable. The students were shown the edited video on March 2, 2015, and latency data was recorded. On the first day of video observation, the students were shown the video twice. The first viewing was for novelty purposes so that they could see themselves in the video. The first viewing happened 10
minutes before the lining up for the first time with the second showing happening minutes later. The second viewing was for the students to focus on the message on how to line up. The same sequence happened when the transition video was first shown on March 12, 2015. By showing the video the second time, the goal is to have the student focus on the behavior and not as much on the student’s observation of themselves on video. After the first day, the video was shown daily at a consistent time, roughly 5-10 minutes before the first line up or transition of the day.

Each video was shown daily, in the morning, until the study was complete. Baseline data for the transition behavior was gathered simultaneously until data from lining up stabilized. Data showed a stable pattern by day seven of the intervention. A video of the transition behavior was recorded in a similar manner as the lining up behavior. The video was edited and shown daily to the students prior to the first transition. The first transition of the day was generally moving from the pledge of allegiance to the math meeting. The transition data was collected for seven days while also continuing to collect data for lining up. After the seven days of the transition data, the independent variable was removed.

**Maintenance.** Maintenance behavior data was collected two weeks after the experiment had ended with three data cluster points gathered. The data was collected without the use of the recorded video self-model to determine if the intervention had a lasting effect on the group once the video had been removed.
Data Analysis

Recorded data was analyzed after each day to help address any need for change in procedures due to error. The data was viewed on a computer with the movie editing program Camtasia™. This allowed for a relatively quickly elimination of non pertinent recording time (time in which transitions or lining up were not occurring). Based on the data, the researcher did not feel that there was a need to adjust any of the procedures throughout the study.

The latency time for each student was recorded and entered into an Excel spreadsheet. This allowed for a quick daily analysis and documentation of the data. The data was graphed daily to watch for any issues with fidelity.

Social Validity

To determine social validity for the intervention, the Intervention Rating Profile - 15 (IRP-15) was completed by the classroom teacher and follow up questions were asked by the researcher (Martens, Witt, Elliot, & Darveaux, 1985). The IRP-15 is a scaled down version of the Intervention Rating Profile (IRP) (Witt, Martens, & Elliott, 1984). The IRP-15 is highly correlated with the ratings on both the Evaluative subscale on the Semantic Differential and the Treatment Evaluation Inventory (Martens et al., 1985). A higher score on the IRP-15 indicates greater acceptability.

Inter-observer Agreement

The researcher reviewed all recorded material, timed the information and recorded the data in a spreadsheet. Three people agreed to be trained for the purposes of reliability checks and completed the required IRB human subjects training module. The
method for determining the percentage of inter-observer reliability was determined by subtracting the difference in seconds, dividing that number by the total number of seconds and then multiplying by 100 (Bellini et al., 2007; Morgan & Morgan, 2008).

Practice sessions were held with the researcher and observer until there was an agreement that reached 90% or above on 10 consecutive recordings. During the first training session in which we trained for observations on lining up, the researcher and observer got a 70% inter-observer agreement. A follow up training session was completed and an agreement of 98% was found. During the training for observing transition, the practice wielded a 99.5% inter-observer agreement so training was ended.

While using a random number generator application, 20% (5) of the days were chosen to sample for both lining up and transitioning. Since no days were chosen from the baseline for the behavior of lining up, a sixth day was randomly generated from the baseline. From those days, 20% of the times were chosen at random by using the random number generator. The rationale behind using 20% of the times within a given day was based on the large amount of data generated by the study. Furthermore, the data is recorded on video so the permanency of the data reduces the likelihood of skewed time recordings. In all, 89 observations were used for lining up and 58 observations were used for transitions. The discrepancies in the amount of observations were based on the extra day added to lining up to include a day from the baseline phase and that there were more opportunities to line up than there were to transition.
Chapter 4

Results

Group Video Self-Modeling

The purpose of the group video self-modeling (GVSM) intervention was to reduce the time with which a classroom of students lined up and transitioned between activities. Figure 1 shows the data for the whole group while Figures 2 - 4 show the data for the fast, medium, and slow groups, respectively, for baseline, GVSM implementation, and maintenance. First, results of the whole group will be presented which corresponds to research question 1. Second, results will be presented for the three groups (fast, medium, slow) which correspond to research question 2. Third, similarities in trends will be presented across the three groups and will address research question 3. Finally, interobserver reliability and social validity data will be reported.

Both visual analysis and effect size calculations were used to evaluate the two research questions. The first data analysis that was used is visual inspection of the graphed data. Data were scrutinized to identify changes in the level, trend, variability, and the means across the phases (Kazdin, 2011). In order to improve the accuracy of the visual inspection and to control for the rate of false positives, the conservative dual-criteria (CDC) method was used (Fisher, Kelley, & Lomas, 2003). The CDC method involves setting the trend line of the baseline and the level line 0.25 standard deviations more in the direction of the expected treatment effect. This method was used in order to effectively manage possible issues with data variability.
In addition to visual analysis and the CDC method, three types of effect size calculations were used. The standard mean-difference (SMD) effect sizes were calculated for each condition. Cohen’s criteria (Cohen, 1988) of small (.2), medium (.5), and large (.8) were used to interpret the effect sizes for SMD. The percentage of non-overlapping data (PND) was also calculated for the different conditions. The PND measure calculates the proportion of data in the treatment phases that does not overlap with the baseline data (Scruggs, Mastropieri, & Castro, 1987). The general guidelines for interpreting PND as discussed by Scruggs and Mastropieri (1998) is a PND > 90% is very effective, 70 < PND < 90 is an effective intervention, 50 < PND < 70 is an intervention of questionable effectiveness and a PND < 50 is an intervention with no observed effect and ineffective. One of the limitations of PND is a small number of outlying observations during baseline can compromise treatment outcomes (Scruggs & Mastropieri, 2013; Scruggs et al., 1987). The instability of baseline data during transitions was due to varying durations of activities required additional analyses. Therefore, besides the CDC, SMD, and PND, the percentage of all non-overlapping data (PAND) was used to address the common criticism of the PND that one unreliable data point could detract from the overall effect of a treatment (Parker, Hagan-Burke, & Vannest, 2007). The PAND is calculated similarly to the PND in that overlapping data from the intervention phase are determined. Instead of calculating it with only the number of data points in the intervention phase, the number of all overlapping data from all phases is divided by the total number of data points in the entire multiple baseline.
Whole Group Results

Results in this section address research question 1: Can the use of video self-modeling (VSM) with a group of students have the effect of increasing the appropriate classroom behaviors of lining up and transitioning between activities? Results will be presented first for lining up followed by transitioning using visual analysis (Figure 1) and reported effect sizes.

Lining up. During the baseline phase, data reflected an ascending trend with little variability and an overall mean of 56.6 seconds (range = 37-87, SD = 18.77). Upon implementation of VSM, a sharp immediate descending trend with little variability was observed with an overall mean of 28.33 seconds (range = 16-48, SD 7.26). These data represent a 50% reduction in the amount of time it took students to line up during the VSM phase. The percentage of non-overlapping data (PND) was 93% and the standard mean difference (SMD) was 0.664. During the maintenance phase, data remained stable with a slight decrease in the mean to 25.33 (range = 21-31, SD = 5).

Transitioning. Data for the baseline phase for transitioning indicated an unstable trend with a mean score of 63.17 seconds (range = 38-100, SD = 17.87). The mean score during the VSM phase was 36.38 seconds (range = 22-54, SD = 10.53). These data indicated a 42% increase in the speed with which students transitioned. Data continued to show an unstable trend but reduced greatly in variability. Data were less stable during the baseline and intervention phases of transition compared to lining up because different transitions require different amounts of time (e.g., students required to leave their seats
and walk to another area to obtain wipe boards versus putting items away in their desk and facing forward). The PND for this phase was 50% and the SMD was 0.667. During the maintenance phase, data remained steady with only a slight increase in the mean (M = 38, SD = 6.93, range = 34-46, 12). The percentage of all non-overlapping data (PAND) for both conditions was 87.5%.

*Figure 1.* Latency for full group.
Individual Group Results

Results in this section address research questions 2 and 3: Does VSM affect the speed at which groups of students line up or transition between activities when dividing students into slow, moderate and fast groups? and If VSM has an effect on the average speed at which students line up and transition, will the slower students make larger improvements than the faster students? Results will be presented first for lining up followed by transitioning using visual analysis and reported effect sizes. Results are presented in Tables 1 and 2 after the discussion of the results.

Fast group. Figure 2 shows an overall mean for the baseline was 44.4 seconds (range = 31-61, SD = 10.74) and an ascending trend. An initial low data point of 31 seconds on the first day and a high data point of 61 seconds on the fourth day were shown. With the introduction of the intervention, an immediate decrease in the mean score was obtained, and the data showed a relatively stable trend with the exception of one high data point on day 18 (36 sec.).

The mean for the intervention phase was 25.67 seconds (range = 17-36, SD = 4.89). This is a mean difference of 19.13 seconds or a 43% reduction in the amount of time it took the students to line up. The SMD for the intervention was 0.561 with a PND of 100%. The maintenance phase data remained stable with a mean and standard deviation similar to the intervention (M = 26, range = 21-31, SD = 5).
The transition baseline phase showed a highly unstable pattern with a low of 25 seconds on day 2 and a large spike to 1 minute 32 seconds on day 6. The baseline phase showed an overall mean of 53.33 seconds (range = 25-102, SD = 19.09) for the students to transition between activities. Upon implementation of the intervention, the overall mean lowered by 19.46 seconds (M = 33.88, range = 19-47, SD = 10.148) or a 36% difference in the amount of time it took students to transition over the duration of the intervention. Data showed a great deal more stability but still reflected unstable
tendencies due to the variety of activities that are involved with transitioning. The PND for transition was 25% and the SMD was 0.981. The maintenance phase had a slightly higher mean than the intervention phase (M = 35.33, range = 30-43, SD = 6.81). The PAND for both conditions was 85%.

Medium group. Figure 3 shows graphed data for the medium group which presented an ascending trend during the baseline phase for lining up with a mean of 56.8 seconds (range = 34-84, SD = 19.33). Like the full group and the fast group, the medium group showed a lower data point immediately (34 sec.) and a high data point on day four (84 sec.). The mean for the intervention stage was 28.13 seconds (range = 17-42, SD= 6.06). This was a difference of 28.67 seconds from baseline or a reduction of 50% in the amount of time that it took for students to line up. The PND for lining up was at 93% and had an SMD of 0.674. The maintenance phase showed a mean slightly lower than the intervention phase (M = 23.33, range = 21-26, SD = 2.52) with a somewhat ascending trend line.

The baseline phase for the medium group transitions displayed an unstable pattern with a substantially high data point (93 sec.) on day 6. The baseline phase mean was 66.75 seconds (range = 49-93, SD = 13.51). When the intervention was implemented, the overall mean was reduced to 35.13 seconds (range = 19-63, SD = 13.36) for a difference of 31.63 seconds or a 47% reduction in time. The data showed a descending trend but with an unstable pattern in the beginning with data points from 19 seconds to 63 seconds in two days before they became more stable. The PND for the medium group transition
Figure 3. Latency for medium group.

phase was 88% and the SMD was 0.427. The maintenance phase had a slightly higher mean than the intervention phase (M = 39, range = 33-48, SD = 7.94). The PAND for the medium group was 95%.

**Slow group.** In Figure 4, the baseline phase reflected an ascending trend for the slow group, with a higher score on the fourth day of 116 seconds. The baseline data mean was 69.2 seconds (range = 48-116, SD = 26.98). Data for the slow group showed
Figure 4. Latency for slow group.

an initial unstable pattern during the first two days of intervention (days 6 and 7) before becoming more stable.

The trend line is descending for the intervention data with a mean of 32.13 seconds (range = 14-73, SD = 13.58) for a difference of 37.07 seconds or a 54% improvement in the speed of lining up. The PND for lining up was 93% and had an SMD of 0.728. The maintenance phase showed a decrease from the intervention data with a mean of 26.33 seconds (range = 24-30, SD = 3.21).
The baseline mean for the slow group when transitioning was 74.67 seconds (range = 31-109, SD = 21.17). The data showed an unstable trend with a great amount of variability. For example, one score on day 2 was a low of 31 seconds while on days 6 and 9 there were high outlier scores of 106 and 109 seconds, respectively. The overall mean for the intervention phase was 36.13 seconds (range = 25-47, SD = 6.94) for a reduction of 38.54 seconds or a 52% change. These data were relatively stable with a slight ascending trend line. The PND for transition for the slow group was 25% and showed an SMD of 0.549. Data for the maintenance phase showed a slight increase from the intervention phase in times with a mean of 39.33 seconds (range = 35-46, SD = 5.86). The PAND for the slow group was 82.5%.

**Trends between Groups**

Figure 5 shows the lining up trend lines for the fast, medium, and slow groups for during the baseline phase and then during the intervention phase. The fast trend lines showed less of an incline than the other two groups during baseline for lining up. The medium and slow groups were on a similar trajectory during baseline. During the intervention phase, the trend lines of all three groups moved to a similar position on the graph.

Figure 6 displays the trend lines for the transition behavior. During the baseline phase for transitions, the three trend lines showed a fairly level and consistent line from the fast group with the medium group showing a moderate incline and the slow group showing a rapid incline. Upon implementation of the intervention, the three groups
Table 1

*Line Up Effects*

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<th>SD</th>
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<th>CDC Effect</th>
<th>SMD Effect</th>
<th>PND</th>
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<td>Fast GVSM</td>
<td>25.3</td>
<td>4.89</td>
<td>17-36</td>
<td>Yes</td>
<td>Yes</td>
<td>0.561</td>
<td>Medium</td>
<td>100%</td>
<td>Highly Effective</td>
<td>85%</td>
</tr>
<tr>
<td>Fast Diff.</td>
<td>19.2</td>
<td>5.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Medium BL</td>
<td>56.8</td>
<td>19.33</td>
<td>34-84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium GVSM</td>
<td>28.1</td>
<td>6.06</td>
<td>17-42</td>
<td>Yes</td>
<td>Yes</td>
<td>0.674</td>
<td>Medium</td>
<td>93%</td>
<td>Highly Effective</td>
<td>95%</td>
</tr>
<tr>
<td>Medium Diff.</td>
<td>28.7</td>
<td>13.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow BL</td>
<td>69.2</td>
<td>26.98</td>
<td>18-116</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Slow GVSM</td>
<td>32.1</td>
<td>13.58</td>
<td>14-73</td>
<td>Yes</td>
<td>Yes</td>
<td>0.728</td>
<td>Large</td>
<td>93%</td>
<td>Highly Effective</td>
<td>82.5%</td>
</tr>
<tr>
<td>Slow Diff.</td>
<td>37.1</td>
<td>13.4</td>
<td></td>
<td></td>
<td></td>
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### Table 2

**Transition Effects**

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Visual Inspection Effect</th>
<th>CDC Effect</th>
<th>SMD</th>
<th>SMD Effect</th>
<th>PND</th>
<th>PND Effect</th>
<th>PAND (Line up + Trans. %)</th>
<th>PAND Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full BL</td>
<td>63.2</td>
<td>17.87</td>
<td>38-100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77.5%</td>
<td>Moderately Effective</td>
</tr>
<tr>
<td>Full GVSM</td>
<td>36.4</td>
<td>10.53</td>
<td>22-54</td>
<td>Yes</td>
<td>Yes</td>
<td>0.667</td>
<td>Medium</td>
<td>50%</td>
<td>Minimally Effective</td>
<td>77.5%</td>
<td>Moderately Effective</td>
</tr>
<tr>
<td>Full Diff.</td>
<td>26.8</td>
<td>7.34</td>
<td></td>
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</tr>
<tr>
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<td>53.3</td>
<td>19.09</td>
<td>25-102</td>
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<td></td>
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<tr>
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<td>36.1</td>
<td>10.15</td>
<td>19-47</td>
<td>Yes</td>
<td>Yes</td>
<td>0.981</td>
<td>Large</td>
<td>25%</td>
<td>Ineffective</td>
<td>85%</td>
<td>Moderately Effective</td>
</tr>
<tr>
<td>Fast Diff.</td>
<td>19.5</td>
<td>8.94</td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Medium BL</td>
<td>66.8</td>
<td>13.51</td>
<td>49-93</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Medium GVSM</td>
<td>35.1</td>
<td>13.36</td>
<td>19-63</td>
<td>Yes</td>
<td>Yes</td>
<td>0.427</td>
<td>Small</td>
<td>88%</td>
<td>Moderately Effective</td>
<td>95%</td>
<td>Highly Effective</td>
</tr>
<tr>
<td>Medium Diff.</td>
<td>31.6</td>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Slow BL</td>
<td>74.7</td>
<td>21.17</td>
<td>31-109</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Slow GVSM</td>
<td>36.1</td>
<td>6.94</td>
<td>25-47</td>
<td>Yes</td>
<td>Yes</td>
<td>0.549</td>
<td>Medium</td>
<td>25%</td>
<td>Ineffective</td>
<td>82.5%</td>
<td>Moderately Effective</td>
</tr>
<tr>
<td>Slow Diff.</td>
<td>38.5</td>
<td>14.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Figure 5. Line up trend lines.

Figure 6. Transition trend lines.
showed similar movement toward the same point on the graph. The trend lines for the medium and fast groups were almost the same with a slight decline while the slow group showed a level trend line.

Figure 7 shows the overall mean for the entire group compared to the subgroups. The means showed similar trends.

Figure 7. Mean lines.
For lining up, the mean for the fast group was 44.4 while the medium group showed a mean of 56.8 seconds and 69.2 seconds for the slow group. The range of means from the fast group to the slow group was 24.8 seconds (range = 44.4-69.2). Upon implementation of the intervention, the mean for all three groups decreased with 25.27 seconds for the fast group, 28.13 seconds for the medium group, and 32.13 seconds for the slow group. The range for the intervention from the fast to the slow group was 6.85 seconds (range = 25.27-32.12) or a difference of 17.95 seconds between the mean ranges.

The overall mean for the entire group during the baseline phase for transition was 63.17 seconds compared to 53.33 seconds for the fast group, 66.75 seconds for the medium group, and 74.67 seconds for the slow group. The range of means for the fast group to the slow group was 21.34 seconds (range = 53.33-74.67). After the intervention was implemented, the entire group saw a decrease in their average times to 36.38 seconds compared to 33.88 seconds for the fast group, 35.13 seconds for the medium group, and 36.13 seconds for the slow group. The range for the implemented intervention was 2.5 seconds (range = 33.88-36.13). This is a reduction of 18.84 seconds from baseline for the range of means.

The mean lines in both the lining up and transition behaviors showed a sizeable narrowing between the times of all three groups.

Social Validity

The Intervention Rating Profile – 15 (IRP-15) (Martens et al., 1985) was used as the assessment for social validity. The teacher’s IRP-15 score was 85 out of a possible
90 indicating that the group video self-modeling procedure was generally acceptable. Higher scores on the IRP -15 are indicative of greater acceptability. The lowest score was a 4 (slightly agree) out of 6 for the statement “This intervention is consistent with those I have used in classroom settings.” Some of the statements in which the teacher strongly agreed included (a) “I would suggest the use of this intervention to other teachers,” (b) “This intervention would not result in negative side-effects for the child,” (c) “This intervention would be appropriate for a variety of children,” (d) “I liked the procedures used in this intervention,” and (e) “Overall, this intervention would be beneficial for the child.”

The teacher stated, “It (the intervention) was easy to use in the classroom because the video was already built so it was a quick reminder on how to transition.” She went on to say that she could see it being used at the beginning of the year for routines and to remind students when they are struggling. She liked the intervention because it . . . told them how to do it (the behavior) and showed them how to do it. It was a good visual.” She felt like the video was shown the right amount. She said, “Once a day set the tone at the beginning of the day and they knew from the beginning of the day how to transition.” When she was asked if there was anything that she would change with the intervention she stated, “I wish that we could have included more of the classes so we weren’t wasting so much time transitioning.” When I asked her if she would consider doing the group video self-modeling again, she said, “Definitely.” She said that it made her think about her procedures and the video held her to the standard so that she was making sure that the students were doing the behavior correctly. She also said, “I think that it changed my
behavior because it set up exactly what they needed to do so everyone was on the same page – student and teacher.”

**Inter-observer Reliability**

Inter-observer reliability was measured in three ways. First, the standard method for determining the percentage of inter-observer reliability was determined by subtracting the difference in seconds and dividing by the total number of seconds and then multiplying by 100 (Morgan & Morgan, 2008). The second way was calculated by comparing the number of samples where agreement was within one second of each other as compared to disagreements of more than one second. The third way was to determine the percentage of samples that matched exactly compared to the number of samples that were at least one second apart in disagreement.

Before inter-observer reliability checks were implemented, a second observer was trained by the author how to observe participants and how to time the specific behavior occurring on the videos. The training session needed to yield a score of 90% or higher on ten timings by using the first inter-observer reliability method described by Morgan and Morgan (2008). During the first training session for lining up, the researcher and observer obtained 70% inter-observer agreement. A follow up training session was conducted and an agreement of 98% was obtained. Because the agreement was above 90% for the training session, the training was ended and the second observer began watching the timed recordings.
The inter-observer agreement for lining up using the first method was 97%. The percentage for the second method was 93% agreement while the third method showed a 79% agreement.

For the baseline phase of lining up, inter-observer agreement was 99.5% while the intervention phase showed a 96% agreement by using the first method. The second method of calculating inter-observer agreement showed a 94% agreement in baseline as opposed to a 93% agreement in the intervention phase. The third method showed a 78% agreement rating during baseline while the intervention phase had an 80% agreement rating.

During the first training for inter-observer reliability for transitions, the percentage of agreement was at 99.5%. Since the rate was above the 90% threshold, the researcher felt that adequate training was provided and samples were drawn and observed from the video.

The inter-observer reliability agreement for the first method was 93%. The second method showed an agreement of 93% of the samples being within one second of each other. The third method showed an agreement of 79% of exact matches.

During the transition baseline phase, the inter-observer agreement was 98.5% while the intervention phase showed an 84% agreement. The second method showed an agreement of 91% while the agreement during the intervention phase was 88%. The third method of calculation for inter-observer agreement for the baseline phase was 79% while the agreement for the intervention phase was 80%.
Chapter 5

Discussion

The purpose of this study was to examine the effects of group video self-modeling (GVSM) to improve the speed with which a classroom of students lined up and transitioned from one activity to another. The study lasted approximately two months. Baseline data were gathered and students assigned to one of three groups including data collected on the entire group: (a) quick, (b) medium, and (c) slow based on their average times. Two videos were made with the class showing the proper way to line up and transition from one activity to another, respectfully. The second video was shown after stable data were obtained for lining up. When the transition data stabilized, the showing of the video discontinued for two weeks. After the two week sabbatical, data gathering resumed for three days to obtain maintenance data.

Results indicated that GVSM video self-modeling was successful in increasing the speed with which students lined up and transition between activities. The video recording was most effective in increasing the speed of participants who were in the slowest group, followed by the medium group, while being least effective for the students in the fast group. Results also indicated that VSM decreased the amount of variability between the time that it took participants to line up and transition. The times between groups narrowed considerably and participants were more likely to line up and transition at similar speeds as opposed to during baseline which showed a great amount of disparity between the speeds of the fast, medium and slow groups. Results will be discussed based
on the speed of transitions for the whole group, transitions for segregated group speeds, limitations of the study, implications for practice, and areas for future research.

**Increasing Speed of Transitions for Whole Group**

Almost all of the previous studies that used video modeling that were reviewed for this research focused primarily on one participant. Only two studies used video modeling to help groups of students learn a new behavior (Plavnick et al., 2013; Richards et al., 2010). However, their primary focus was on students with disabilities and in both cases the videos were of peers who were not the primary targets of the intervention and the models were focusing on the behavior of a single individual instead of a group as a whole. The present study extended these results by focusing on an entire class of students without disabilities using videos of their own exemplar behavior on the two dependent variables. The *Association for Positive Behavioral Supports* (APBS) has endorsed the use of videos to enhance behavior programming in the classroom but do not use any data to support the effectiveness of this technique, thus leaving a gap in the literature (Kennedy & Swain-Bradway, 2012) that the present study addressed.

This study was able to build upon the current literature in video modeling and VSM by demonstrating the effectiveness of using the single case research methodology traditionally used for VSM and increasing the amount of students being served. By using an intervention that is traditionally used with one person and expanding it to improve the behaviors of 18 individuals, new possibilities emerged for researchers to examine ways to meet the needs of the maximum number of students in the least amount of time. With
quick interventions being a necessity, GVSM provides a way to see immediate results in the classroom.

The GVSM intervention demonstrated all of the advantages of using a video modeling strategy except instead of assisting in only one student’s behavioral change, it benefitted many students at once. For instance, in the literature review, a number of benefits for using video self-modeling were described. The advantages for the group mirrored the benefits for individuals being a minimally intrusive strategy in the classroom (Baker et al., 2009), easy to implement with current technology, a quick review period with a short video length (Baker et al., 2009; Buggey, 2007; Dowrick, 1999), a purely positive intervention as no negative behaviors were shown (Buggey, 2007), and was culturally indifferent as it focused only on the culture of individuals in the classroom (Dowrick 1999, 2011). Further, the intervention resulted in an immediate change in the behavior of the entire group. This result is similar to the findings in practically all of the published VSM studies that an immediate change in behavior was obtained (Baker et al., 2009; Buggey, 2005; Dowrick, 1999; Hitchcock et al., 2003; Kehle et al., 1990). Group video self-modeling follows all of the traditional benefits of a regular VSM intervention with the exception that it serves a much larger number of students in the same amount of time that it would take one student to receive the intervention. This feature increases the amount of students being exposed to the appropriate behavior and reduces the number of classroom behaviors that need to be addressed individually by a teacher.

One final reason for the increase in speed in the present study may be due to combining two video modeling strategies into one intervention. Researchers have
debated on the best approach to use between video modeling with peers and adults versus video self-modeling (VSM) (Marcus & Wilder, 2009; McCoy & Hermansen, 2007; Ozkan, 2013; Sherer et al., 2001). This intervention removes the debate as it contains both a peer video modeling procedure with a VSM procedure because both a student’s peers and himself or herself are included in the video. Using both of these interventions simultaneously expands the research base because it was the first study to combine both interventions.

One change was made to the structure of this study that differed from the protocols suggested by previous researchers. In order to address the issue of sustainability in a classroom containing many students, a maintenance observation was added two weeks after the final observation in lieu of a fading procedure, the latter of which has been advocated by previous researchers (Sigafoos et al., 2007). Two weeks after the intervention was completed, students’ times remained stable and as a level obtained during intervention. Removing the fading procedure entirely and using probes to determine the need for further viewing of the model may provide new avenues into the necessity of a fading procedure. Future strands of research may look at whether combining a fading procedure and maintenance phase will produce more positive results, or if simply withdrawing the intervention is sufficient to maintain stable changes. Based on a review of the literature, the current study was the only one that used a maintenance probe to determine the long term success of the intervention.
Increasing Speed of Transitions Between Groups

In order to answer the question of the differential efficacy of GVSM to increase the speed of students with varying speeds, the class was divided into three equal groups of six based on their speed with the six fastest students comprised one group, the next six fastest in a medium speed group, and finally the last six in the slowest group. By grouping these students based on speed, data were able to display the differential impact that the strategy had across groups. It was hypothesized that the slow students would show more improvement than the other two groups and the medium group would show more improvement than the fast group. This hypothesis was based on the idea that the faster the student transitioned, the less improvement that they would need to make to have a successful and speedy transition. The results of this study supported this hypothesis.

This narrowing of times between groups during intervention has a few possible explanations. First, the intervention may have equalized the times because the students who initially had slower times were deficient in their understanding of the expectations as opposed to the faster students who had mostly mastered the skill of lining up and/or transitioning. In short, the students who were faster had much less room to improve than the slower students. Second, by showing students the two exemplar videos daily may have served as a reminder of expectations and opportunities to practice them in the correct fashion. Previous researchers have found that students who are taught directly, deliberately, and have ample practice are more likely to have successful transitions in the classroom (McIntosh et al., 2004; Sprick et al., 1998). Finally, the intervention may have
narrowed the gap between groups because there was a point at which the students reached a ceiling effect. Because there was a natural amount of time that students were not able to be any quicker with their transitions under reasonable expectations, all data converged to a narrow range of time.

In general, VSM research does not employ “average performing students” to serve as a criterion measure in which to gauge the relative effectiveness for least successful participants. None of the studies reviewed for this study contained a criterion measure. Kazdin (2011) encourages the use of social comparison in order to evaluate the social validity of the research. A clinically important change is apparent when the intervention brings the behavior to within the level of their “normal” peers’ behaviors. By separating participants into three groups, the fast group’s latencies, in essence, served as the social comparison and criterion in which to judge the relative efficacy and social validity of GVSM for the medium and slow groups. Results of the present study support this assumption because the ending latencies for all three groups were very similar whereas their baseline latencies were quite discrepant. Using a criterion to gauge success with study participants increased both the reliability and validity of the intervention. A concern of studies with a large random sampling in large group designs is that, although the information may provide researcher with a snapshot of a third grader, it may not be illustrative of a successful third grader in the setting or school in which the research was conducted. In short, when researchers describe an “average” third grader, there is no real “average” third grader because (a) each student and each class is unique, and (b) no criterion was determined nor employed (Forbes, Ross, & Chesser, 2011). By using the
most successful students in the class as a criterion measure, effects of the intervention become more pronounced because the end performance the medium and slow groups were congruent with that of the fast group.

**Limitations**

This study has three limitations that should be addressed: (a) variability during the transition phase, (b) minimum number of baseline data, and (c) the types of behaviors or items that should be addressed in future research or replication of this study. First, due to the lack of stability in the transition data, extra analysis was necessary to examine an effect with the intervention. Commonly held research protocols for multiple baseline design supports moving to the intervention phase only when a stable baseline trend has been established (Kazdin, 2011). However, Kazdin also recognized the inherent issues with waiting for stability when using this research methodology in applied settings. Increased variability can be a threat to data-evaluation validity, but more importantly, he pointed out that classroom activities naturally vary in terms of their complexity and time to complete various tasks. In essence, Kazdin advocates for observing behavior under natural circumstances and, consequently, the variability and the natural environment should not to be altered or otherwise managed. His points apply to the present study when classroom teachers give various directions for transitions and those directions necessarily vary in length. For example, in the present study, transition directions were generally comprised of three categories: transition at desk (moving from one assignment to another), getting an item (wipe board, supplies, gym shoes) and going back to their desks, and transitions from their desk to another area in the classroom or vice versa.
Consequently, there was no way to account for different latencies for different directions, nor would it be desirable to artificially control this variable.

The previous limitation leads directly into the next limitation. Namely, there is a risk to methodological control because only two behaviors were addressed. Although two baselines are acceptable for a multiple baseline design, three or more baselines are ideal for two reasons. First, there is risk that if one baseline does not react to the intervention, there cannot be definitive proof that the intervention is responsible for the change of the other baseline. Second, additional baselines create a clearer picture of the effects of the interventions, although more than three or four would certainly have diminishing returns and undermine the real-life situations that comprise a classroom (Kazdin, 2011). The different types of transitions could be addressed and it may reduce the variability in the transition data. Any future replication of the present study should operationally define the transitions into types such as seated or at desk transitions, transitions to get supplies and back to seats and transitions from one area of the classroom to another. By categorizing the types of transitions, variability could be reduced and more baselines could be added to strengthen the results of the intervention.

A third limitation is that transitions, including lining up, were the only behaviors addressed in this study. An assumption cannot be made that other behaviors would have a similar effect. However, as these are beginning level behaviors and common in a student’s behavioral repertoire, other behaviors that are common in the classroom environment may benefit from this intervention. For example, a relatively new intervention called, “Class-wide Function-related Intervention Teams (CW-FIT) uses a
group contingency program to teach classroom rules and appropriate behaviors. The researchers use the skills of (a) how to gain a teacher’s attention, (b) following directions, and (c) ignoring inappropriate behaviors (Kamps et al., 2011; Wills et al., 2010). The CW-FIT intervention awards points to teams based on the appropriateness of their behaviors. The intervention further combines skill teaching, differential reinforcement, group contingency plans, and self-management. A program like CW-FIT requires the teacher to follow the procedure with fidelity and the process of setting up a program of this magnitude could be time consuming. Group video self-modeling, if successful, could reduce a complicated and lengthy structure of a class game like the CW-FIT to three minutes a day of watching a video of the class performing the appropriate behaviors of gaining a teacher’s attention, following directions and ignoring inappropriate behaviors. Later research into the CW-FIT intervention added an on-task component which could also be replicated through a GVSM intervention (Kamps, Conklin, & Wills, 2015).

Behaviors like on-task behavior, following directions, gaining a teacher’s attention and ignoring inappropriate behaviors are often in the repertoire of students but are followed and enforced inconsistently. Like transitions, since there is a familiarity with the behaviors, GVSM should be a good match for these behaviors. More extreme behaviors or behaviors that require students to learn a new skill outside of their current scaffolding may not have the same effect.
Implications for Practice

This study added to the existing literature in a number of ways and created new avenues of research into video modeling. Five implications for practice can be drawn from this study.

First, perhaps the most important implication from this intervention is the high social validity that this intervention establishes. Social comparison was addressed previously as a way of showing a social validation (Kazdin, 2011). Both the slow group and medium group closed the gap with their peers who were most successful at transitions and lining up showing a clinically important change. Further, Wolf (1978) developed a three pronged framework for identifying socially valid interventions. First, the intervention must be something that society wants. Second, the method of intervention must be acceptable and practical. Finally, the practicing implementers must accept the intended and unintended consequences. The intervention must also be able to be used with fidelity by the “intervention agents” or teachers, for a period of time (Horner et al., 2005). Given that GVSM can be implemented with ease and in a quick and timely manner, teachers are able to put this intervention into practice in under an hour. The intervention has practically no downside because, if the implementation procedures for VSM are followed, it reinforces no negative behaviors so even if the intervention does not have an effect, the students are not harmed by seeing an appropriate model performing a social appropriate activity (Buggey, 2007). Because the intervention follows the established procedures developed through years of extensive research into video modeling, fidelity to creating and implementing the intervention should be
relatively simple. Fidelity to the intervention is also increased because once the video is made, as long as it is made within the boundaries of video modeling protocols, the models and the practice show only a positive image and is the exact same with each viewing.

In this study, the cooperating teacher gave the intervention a high amount of praise and it scored high on a social validity assessment. By having an intervention in which there was an immediate impact on the behavior and is quick and easy to implement, the teacher can focus their attention on global behaviors that are common nuisances in the classroom. In this case, the increase in transition time was substantial as it doubled the speed at which students transitioned in most cases and provided more available time for learning. This intervention meets all of the criteria for social validity that both Wolf (1978) and Horner et al. (2005) advocate.

A second implication for practice is that GVSM uses an intervention that is traditionally used with one person and expands it out to improve the behaviors of 18 individuals. This opens up a variety of new possibilities in the field of video modeling and VSM as researchers can begin to look at ways to meet the needs of the maximum number of students in the least amount of time. With quick interventions and high social validity being a necessity for classroom teachers, GVSM provides a way to see immediate results in the classroom.

Third, an unexpected result of the study was that the intervention not only stabilized a fluctuating and unstable behavior pattern but it also narrowed the amount of time that groups of students took to complete the transitions and brought equity to the
behaviors. In short, this study showed that this intervention could create a situation during transitions where the entire group is finishing the transition in roughly the same amount of time. This allows teachers to better plan transitional timings and academic implementation as they would not have to assume that some students would be out of place five minutes after an instruction was given. Teachers could plan their academic activities around the idea that practically all students would finish within 30 seconds of each other and thus be able to adjust lessons accordingly. This also reduces the amount of time that students would need to be called down or reprimanded by the teacher for not following instructions and transitioning at the same speed as the others. These benefits allow more academic time and less time handling behavioral issues.

Fourth, an addition to the current course of research is the combined benefit of the GVSM in that the students are not only watching themselves as part of a VSM procedure but they are also watching a peer video modeling procedure. A common question surrounding video modeling is whether video modeling with other actors is better than VSM and vice versa (Marcus & Wilder, 2009; McCoy & Hermansen, 2007; Ozkan, 2013; Sherer et al., 2001). This removes the question of whether VSM or video modeling is better because it combines the two strategies into one. It is not a stretch to believe that the benefits of peer video modeling, such as watching the popular students in the class do the activity, combined with the benefits of VSM, such as increased self-efficacy, would add to an already powerful intervention. However, this study did not address that question specifically and future research would need to be done to address the benefits of combining these two interventions.
Finally, this intervention helps to address the common concern of teachers in addressing their anxieties with classroom management. New teachers are often fearful of how to address common classroom management issues in the classroom and common classroom management issues are often a cause of teachers leaving the field of education (Oral, 2012; Fontaine et al., 2011). Both new and experienced teachers are often overwhelmed by the day to day classroom management issues that need to be addressed consistently and with fidelity (Gardill & DuPaul, 1996).

Given the high degree of difficulty with managing classroom behaviors properly, this intervention allows for a teacher to easily and quickly address a variety of class-wide behaviors. If schools used this intervention in concert with their current PBIS programming and social skills development, teachers could focus on necessary skills at their grade level. A school district would be able to focus on 4 – 5 skills each year that are socially and emotionally appropriate for the students. By helping students to master each of these skills in previous years, management could be easily addressed with booster sessions if students were not following the general guidelines set out by the school district. For instance, if a school district were to start a program that addressed classroom readiness skills in kindergarten such as students sitting in their seat appropriately, listening to the teacher, lining up and sharing with friends, then the students could learn new skills during their first grade year such as working independently, transitioning, turning in homework and group work. A district would need to determine which behaviors were priorities for their students. Further, if a group behavior was beginning to
start to decline in practice, the teacher could quickly create a video and show it until
students are back to expert levels.

With schools moving toward programming that addresses expectations in
locations such as the hallway, bus, playground and cafeteria, these videos could be made
cheaply and easily at the beginning of the year and reviewed once a week to address a
school-wide behavioral program. A media specialist would be able to create these videos
within the first week of school with each class and provide the teachers with a necessary
behavioral intervention that could be used as needed. Further, if the video is done
correctly, the students will continue to build self efficacy in their ability to be successful
in their positive behavior and the teacher would have a positive intervention that can be
implemented with absolute fidelity as the models would never change.

Areas for Future Research

There are six directions of future research in which this study can provide a base.
First, a limited amount of research has been done under the umbrella of video modeling
in groups as an intervention and none, based on a review of the literature, has used the
specific variant of VSM with groups (Plavnick et al., 2013; Richards et al., 2010). To
date, this study is the first of its kind in terms of using VSM to improve the behaviors of a
group. Findings from this study expand the research base by indicating that VSM can be
used to increase the speed at which students transition from one activity to another.
Although this study showed a significant impact with this group of students, caution
should be used when generalizing the findings because each group can have unique
tendencies that may need changes to this study’s methodology such as classroom procedures, location of supplies, amount of transitions during the day, etc.

Second, although GVSM follows the guidelines and benefits of VSM for this study, assumptions cannot be made as to the generalization of benefits. Replicating this study with a variety of other individuals from different cultures, ages, grade levels, socioeconomic backgrounds, and disabilities would help to substantiate that this is a viable option for classroom management. Further research using individuals with varying backgrounds and identities would also help to lead to standardization and protocols for effective implementation of this strategy.

A third item for future research is to determine how long of a break between showings of the video can be taken while retaining similar results. For this study, the video was shown on a daily basis. It would be important to find the least amount of times needed to show the video, while maintaining comparable results. In that same vein, how quickly can the video be faded and what the point of diminishing returns would be with using this strategy are valuable questions to answer. This study used a break of two weeks before re-examining the results. After two weeks, the results remained steady. The question for future researchers to determine is what an expected timeline is before booster sessions are needed once the students have mastered a skill.

Fourth, since the intervention is a combination of both peer video modeling and video self-modeling, future qualitative research should be conducted to determine if students prefer the video because they see peers that they are familiar with performing the task, because they see himself or herself completing the task successfully or if the
benefits of the intervention come from a combination of the two. This information would help to expand the literature by determining what the value of the intervention is to the students that are being influenced by the video.

Fifth, determining the types of behaviors that this intervention is a good match for will be imperative to future use of this strategy. Since the behaviors of transitioning and lining up are beginning level classroom behaviors that are often in students’ repertoires, replicating this study with other beginning level behaviors such as getting the teacher’s attention, following directions and on task behaviors would be appropriate beginning behaviors. More complex behaviors such as social skills behaviors like standing up to a bully, making friends, and being a good sport are possibilities. Other, more intense behaviors such as aggressive behavior, stealing, and elopement may work but these behaviors are often isolated to individuals. Special purpose schools or special education classrooms might be a good environment in which to test an intervention for more extreme behaviors.

Finally, one of the benefits of this strategy is that it was developed with little reinforcement other than a one sentence statement by principal at the end of the video telling the students that they did a good job. This reinforces literature that VSM is reinforcing because it provides the necessary components needed for confidence, self esteem and, by proxy, self-efficacy (Baker et al., 2009; Bandura, 1997; Booth & Fairbank, 1984; Buggey, 2007). With the current results being as they are with only minimal reinforcement, further research should be done to determine if combining this strategy with other evidence based strategies would improve the times even more. For
instance, would these times improve for all students if a self monitoring component were built in or if a token reinforcement system were attached to the intervention might be questions to address. Although it may lessen the efficacy of the GVSM strategy, this research may show that either GVSM is successful when it is used as a solo intervention or whether combining GVSM with other interventions work as a booster to this strategy.

**Conclusion**

Overall, the findings presented show that using VSM with a group of students for the purpose of increasing the speed at which they transition is successful. Data showed that students improved their rate of speed in which they transitioned, sometimes, by more than twice the speed at which they transitioned during baseline. The data also showed that this intervention helps to decrease the variability of times in which students transition and line up and decrease the discrepancy of time that successful students transition in comparison with students with slower transition times.

GVSM creates a new thread of research for the field of video modeling. The future of this intervention could provide new and substantial means of research as it means that this intervention does not have to be implemented solely to one student. Many of the minor behaviors that plague teachers daily may be reduced by using GVSM as a blanket pre-teaching tool with occasional refreshers built into the schedule either on a planned basis or when appropriate behaviors begin to wane.

Group video self-modeling to improve skills with many students shows to be a promising strategy. This research provides students, who have decreased transition skills, tools to improve their skills to that of similar peers with more advanced transition skills.
The characteristics of this intervention line up well with a substantial literature library which will allow for practitioners and researchers who are familiar with the steps of video modeling to implement this classroom management tool quickly and with fidelity.
References

Amazon. (n.d.). *iPod Touch or iPad Mini*. www.amazon.com


problems: Training and generalization effects. *Behavioral Disorders, 20*(1), 24-34.


Sigafoos, J., O’Reilly, M., & De la Cruz, B. (2007). How to use video modeling and video prompting. Austin, TX: PRO-ED.


http://dx.doi.org/10.1037/h0034617


http://dx.doi.org/10.1080/10459880903286755


Appendix A

Storyboards for Lining up and Transitioning
Script/Storyboard for Lining Up

I. Introduction
   a. Video opens to screen with writing that says, “How to Line Up.”
      Music in the background.

II. Task analysis
   a. Writing and voice over: “Hear the teacher tell the class to line up.”
      Cut to scene of teacher telling students to line up. Camera pans the
      classroom to record all of the students. Cut scene.
   b. Writing and voice over: “Think about where your spot is in line and
      move to that spot.” Record students getting up from their desks and
      moving to the back of the room to line up. Cut scene.
   c. Writing and voice over: “In your spot, stand and face forward with a
      quiet mouth and your hands to your side.” Record video of all
      students standing in line, facing forward and being quiet. Cut scene.
   d. Writing and voice over: “Wait in line patiently until your teacher tells
      you that it is time to move.” Record teacher telling students that it is
      time to leave the classroom and record students following teacher out
      of the classroom in an orderly and neat line with their hands to their
      side and quiet mouths. All students will be in this recording. Video
      model of students ended.
III. Conclusion

a. Scene cut to elementary principal telling the students that they did a good job lining up.

b. Writing: “Great job lining up, third grade!!” Music plays in the background to end the video.
Script/Storyboard for Transition

I. Introduction
   a. Video opens to screen with writing that says, “How to Transition.”
      Music in the background.

II. Task analysis
   a. Writing: “When your teacher says . . .” Cut to scene of teacher telling
      students to get their materials out. Cut scene.
   b. Writing and voice over: “Students should clear off their desk quickly
      and quietly.” Record all students gathering their materials on their
      desk and moving the materials to the inside of their desk. Cut scene.
   c. Writing and voice over: “You should transition as quickly and quietly
      as possible. Like after the Pledge of Allegiance.” Record video of all
      students saying the last few lines of the Pledge, getting hand sanitizer
      and going back to their seats. Cut scene.
   d. Writing and voice over: . . . or when you get out your next subject.”
      Record all students taking materials from their desk, opening a folder
      and getting out their work. Cut scene.
   e. Writing and voice over: . . . or waiting to get your next instructions.”
      Scan room with camera and record students sitting quietly with their
      hands on their desk. Cut scene.
   f. Writing and voice over: . . . or when you get out your wipe boards.”
      Record students getting up from their desk, going to the back of the
room to retrieve their wipe board and sitting back in their seat. Cut

scene.

g. Writing and voice over: “. . . or when putting on your P.E. shoes.”

Record students getting up from their desk, going to the hallway,

retrieving their shoes and putting on their shoes. Video model of

students ended.

III. Conclusion

a. Scene cut to elementary principal telling the students that they did a
good job with transitions.

b. Writing: “Great job transitioning, third grade!!” Music plays in the

background to end the video.
Appendix B

Fidelity Check
Module: Video Modeling

Implementation Checklist for Video Modeling

The implementation checklist steps were adapted from:


Instructions: The Implementation Checklist includes each step in the process of implementing video modeling. Please complete all of the requested information including the site and state, individual being observed, and the learner’s initials. To assure that a practice is being implemented as intended, an observation is always preferable. This may not always be possible. Thus, items may be scored based on observations with the implementer, discussions and/or record review as appropriate. Within the table, record a 2 (implemented), 1 (partially implemented), 0 (did not implement), or NA (not applicable) next to each step observed to indicate to what extent the step was implemented/addressed during your observation. Use the last page of the checklist to record the target skill, your comments, whether others were present, and plans for next steps for each observation.

Site: [Elementary School in Southeast Nebraska] State: [Nebraska]

Individual(s): [Third Grade Class] Learner’s Initials: [TGC]

Skills below can be implemented by a practitioner, parent, or other team member

<table>
<thead>
<tr>
<th>Observation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>Date</td>
<td>2-6-11</td>
<td>2-7-11</td>
<td>2-8-11</td>
<td>2-9-11</td>
<td>2-10-11</td>
<td>2-11-11</td>
<td>2-12-11</td>
<td>2-13-11</td>
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<tr>
<td>Observer’s Initials</td>
<td>WTW</td>
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Planning (Steps 1-6)

**Step 1. Targeting a Behavior for Teaching**

1. Identify a target behavior that is important to be taught. Score**
   - 2 2 2 2 2 2
2. Define and describe the target behavior so that it is observable and measurable.
   - 2 2 2 2 2

**Step 2. Having the Correct Equipment**

1. Acquire a video recording device (e.g., handheld video camera, digital camera, computer technology).
   - 2 2 2 2 2 2 2
2. Identify how the video will be played back (e.g., DVD, VCR, computer).
   - 2 2 2 2 2 2 2
3. Become familiar with the equipment and comfortable using it. Score**
   - 2 2 2 2 2 2 2

**Scoring Key:** 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable

---

Video Modeling: Implementation Checklist

National Professional Development Center on ASD

10/2010
**Module: Video Modeling**

<table>
<thead>
<tr>
<th>Step 3. Planning for the Video Recording</th>
<th>Score**</th>
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</thead>
<tbody>
<tr>
<td>1. Write a script or task analysis detailing exactly what needs to be said and/or done on the video.</td>
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<table>
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<tr>
<th>Observer’s initials</th>
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<td>STM</td>
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<tr>
<th>Step 4. Collecting Baseline Data</th>
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<tbody>
<tr>
<td>1. Learners complete as much of the skill as possible.</td>
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<tr>
<td>2. Collect baseline data to identify the steps of the task analysis that the learner can complete without assistance.</td>
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<thead>
<tr>
<th>Step 5. Making the Video</th>
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<tbody>
<tr>
<td>1. Identify the kind of video that is appropriate for the learner (e.g., video modeling, self-modeling, point-of-view modeling, video prompting), based on the learner’s skill level and preferences, as well as the target behavior.</td>
<td>NA NA 2 2 2</td>
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<tr>
<td>2. Prepare the model (with basic video modeling) or the learner (with self-modeling) for the video.</td>
<td>NA NA 2 2 2</td>
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<td>3. Record a video that is satisfactory in quality and accurately reflects the steps of the task analysis.</td>
<td>NA NA 2 2 2</td>
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<td>4. Edit the video and remove any errors and prompts.</td>
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<tr>
<td>5. Complete voice-overs, if necessary.</td>
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<thead>
<tr>
<th>Step 6. Arranging the Environment for Watching the Video</th>
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<tbody>
<tr>
<td>1. Identify the environment where the video will be watched, considering when and how it will be used within natural routines.</td>
<td>NA NA 2 2 2</td>
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**Scoring Key:** 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable
Module: Video Modeling

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</table>

**Step 6. Arranging the Environment for Watching the Video (cont.)**

2. Ensure that the materials for the performance of the task match those on the video.

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<tr>
<th>Score**</th>
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<tbody>
<tr>
<td>NA</td>
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</table>

**Intervention (Step 7)**

**Step 7. Showing the Video**

1. Allow the learner to watch the video and provide prompts necessary to gain and/or keep attention.

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<tr>
<th>Intervention (Step 7)</th>
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2. Allow the learner to watch the video an appropriate number of times before expecting the learner to use the target behavior.

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<tr>
<th>Intervention (Step 7)</th>
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3. For video prompting, stop the video after each step of the task analysis so the target behavior can be performed by the learner.

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<tr>
<th>Intervention (Step 7)</th>
<th>Score**</th>
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<td>NA</td>
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**Progress Monitoring (Steps 8-10)**

**Step 8. Monitoring Progress**

1. Collect data on the performance of the target behavior, noting the specific steps of the task learners were able to do independently.

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<thead>
<tr>
<th>Progress Monitoring (Steps 8-10)</th>
<th>Score**</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
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2. Note how often and when the learner watches the video when using the target behavior.

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<tr>
<th>Progress Monitoring (Steps 8-10)</th>
<th>Score**</th>
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<td>NA</td>
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3. If after collecting data on three to five occasions, learners are not making progress, begin troubleshooting (see Step 9). If learners are making progress, instruction is continued until they have reached maximum proficiency.

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<thead>
<tr>
<th>Progress Monitoring (Steps 8-10)</th>
<th>Score**</th>
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<td>NA</td>
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**Scoring Key:** 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable.
### Module: Video Modeling

**Step 9. Troubleshooting if the Learner is Not Making Progress**

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<tr>
<th>Observation Date</th>
<th>1</th>
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<th>4</th>
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<tr>
<td>2-4-15</td>
<td>NA</td>
<td>NA</td>
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<td>2</td>
<td>2</td>
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<td></td>
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<tr>
<td>2-7-15</td>
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<td>3-12-15</td>
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<td>NA</td>
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</table>

**Score**

1. Analyze the learner’s progress by monitoring data to identify changes needed for the video modeling procedures.

2. Adjust intervention tactics to help the learner make progress by asking:

   a. Is the learner watching the video enough times per week?

   b. Is the learner watching the video, but not attending to the most relevant parts?

   c. Is the learner getting enough prompting from adults and/or peers to use the target behavior?

   d. Is the learner receiving the appropriate amount and type of reinforcement for performing, or attempting to perform, the target behavior(s)?

   e. Is the video too complex?

   f. Does another task analysis need to be completed to make sure that the video includes the correct steps?

3. Implement the adjustments to the video modeling procedures.

**Scoring Key:**
- 2 = implemented
- 1 = partially implemented
- 0 = did not implement
- NA = not applicable
Module: Video Modeling

<table>
<thead>
<tr>
<th>Step 10. Fading the Prompting and the Video</th>
<th>Score**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Teachers/practitioners fade the use of prompting to encourage independent use and to promote maintenance of the target behavior.</strong></td>
<td>NA NA NA NA NA</td>
</tr>
<tr>
<td><strong>2. Teachers/practitioners use one or more of the following procedures when fading videos:</strong></td>
<td></td>
</tr>
<tr>
<td>a. delaying start/premature stop,</td>
<td>NA NA NA NA NA</td>
</tr>
<tr>
<td>b. error correction, and</td>
<td>NA NA NA NA NA</td>
</tr>
<tr>
<td>c. scene fading.</td>
<td>NA NA NA NA NA</td>
</tr>
<tr>
<td><strong>3. Teachers/practitioners allow the learner to continue watching the video to some extent if it is appropriate, enjoyable for the learner, and supports the behavior.</strong></td>
<td>NA NA NA NA NA</td>
</tr>
</tbody>
</table>

**Scoring Key:** 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable

Reference

**Module: Video Modeling**

<table>
<thead>
<tr>
<th>Date</th>
<th>Observer Initials</th>
<th>Target Skill/Behavior, Comments, and Plans for Next Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-4-15</td>
<td>MTM</td>
<td>A pilot study was completed from 2-2-15 to 2-4-15. This pilot study was used to examine student behaviors and help identify a suitable definition for the behaviors of lining up and transitioning. This study also allowed the researcher to use the video recording equipment, video editing software and converting the video to a video format that is viewable through a computer and video projector. The task analysis was created based on the initial observation of students in the classroom during this time.</td>
</tr>
<tr>
<td>2-17-15 to</td>
<td>MTM</td>
<td>Baseline data was collected by recording the students via video conferencing software and screen recordings. The baseline data was examined daily to determine the level of success that the students had in the behaviors of lining up and transitioning. The data observed the latency in which students were able to line up and transition. Upon completion of the baseline recordings, students were grouped into three equal groups of six based on their average recording times. These groups were separated into slow, medium and fast groups based on their speed.</td>
</tr>
<tr>
<td>2-24-15</td>
<td>MTM</td>
<td>The first video was recorded with the students on how to line up effectively. Students first practiced the behaviors based on the task analysis that was read to them. Several video shots from different angles were taken so that an ample amount of video could be used for the most effective video to display the video to the students. After the video was taken, the video shots were edited so that all errors and prompts were removed and voice-overs, introduction music and text was added to the video.</td>
</tr>
<tr>
<td>3-2-15</td>
<td>MTM</td>
<td>Students were introduced to the video demonstrating the proper way to line up. The video was shown in the classroom before the first line up of the day. During the first day, the students watched the video twice. The video was shown twice so that students could first observe the video for the novelty and newness of seeing themselves on camera. The second observation immediately following the first video was shown so that the students could focus on the behavior that was recorded.</td>
</tr>
</tbody>
</table>
Module: Video Modeling

<table>
<thead>
<tr>
<th>Date</th>
<th>Observer Initials</th>
<th>Target Skill/Behavior, Comments, and Plans for Next Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-12-15</td>
<td>MTM</td>
<td>The second video for transitioning was recorded and edited on 3-11-15. The fidelity check was completed on the first day of observation with the new behavior of transitioning. Like the video for lining up, students were shown the video twice on the first day and once on every day after. Data was monitored daily for both lining up and transitioning. The video for lining up continued to be shown.</td>
</tr>
<tr>
<td>4-7-15 to 4-9-15</td>
<td>MTM</td>
<td>Although a fidelity check was not used for maintenance, it is important to state that maintenance data was used in lieu of fading the group video self-modeling (GVSM) intervention. This decision was made to determine if the GVSM had a lasting effect on the group behavior. Due to time constraints at the end of the school year, this was also more desirable to the cooperating teacher as it reduced the amount of time necessary to observe the behavior in the classroom. Based on the results from the data, there was not an adverse effect in the decision to not fade the behavior as the data remained stable two weeks after the end of the intervention.</td>
</tr>
</tbody>
</table>
Appendix C

Recruitment and Consent Forms
Institution Review Form

Your institution is invited to participate in the following study to improve the speed of classroom transitions and lining up. Please read this form and ask any questions to the researcher that you may have before agreeing to have your institution participate in this study.

**Project:** Using Video Self-Modeling to Decrease the Amount of Transition Time in an Elementary Classroom

**Purpose of the project:** The purpose of this project is to decrease how long students take to transition between activities and line up in the classroom. To do this, students will be asked to create two videos with their teacher to outline the appropriate steps to improve how they line up and how to quickly transition from one activity to another. Once the video is created, students will watch the video daily in order to review the steps needed to transition between activities and line up appropriately. The video for each behavior will be less than three minutes in length.

**Procedures:** All activities for the study will take place in one classroom in your district. First, the students will be observed and recorded via conference recording equipment, to determine how quickly they transition from one activity to another and line up to transition out of the classroom. The video recordings will be used solely for observational purposes and will be used to gather timed recordings to determine how long students in the classroom take to line up and transition between activities. Once it has been determined how long it takes for students to transition and line-up, a training video will be developed with the students in the classroom on how to line-up properly. This video will be shown daily to the students in order to enhance the speed and organization in which students line-up. A second video will be made several days later on how to transition between activities in the classroom effectively. The video will be shown daily to the students in order to enhance the speed and organization in which students move and prepare properly for classroom activities. The classroom will be recorded via video conferencing software in order to record the time that it takes for students to line up and transition. Information that will be obtained in this study will include the amount of time it takes for students to line up and transition between activities.

Students who do not participate in this study will not be included in either of the training videos. The training video will not be shown to other students, classrooms or adults outside of the research team or the school administrative team and faculty.

**Risks and/or discomforts:** Risks to participants in this study are less than minimal. Students in your district will be performing tasks that they do every day at school.

**Benefits:** The benefits from the intervention will be that students will learn the correct and most expedient way in which transition between, and to, their next activity. By doing this, students will benefit by having more time available for academic work.
Confidentiality: All information that is analyzed and graphed will be coded so that no identifying information is shown about participants including the school district. Participants will only be identified by a number or nonsense name. In any report that may be completed or published, there will not be any information that will make it possible to identify the student. Records for this study will be stored for ten years in a locked cabinet in the researcher’s office and only the researcher, his advisor or assistants will have access to these records.

Compensation: There will be no money given to the district, the participating classroom teacher or the students for participating in this study.

Opportunity to ask questions: At any time throughout the study, you may get answers to any questions that you may have. You may contact Matt McNiff to discuss the research by telephone at 402-806-0571 or email him at mmcniff@esu5.org. If you have questions that Mr. McNiff cannot answer about your rights, or have any concerns about the study, you may contact the University of Nebraska Institutional Review Board at 402-472-6965 or contact Mr. McNiff’s supervising professor, Dr. Reece Peterson at 402-472-5480.

Freedom to withdraw: Participation in this study is voluntary. Your institution may choose to not participate up to the point that the intervention has been initiated. There will be no consequences if an institution does not participate in this study. If for any reason you do not wish to have your institution participate, please contact Matt McNiff. If you withdraw from this study at any time, it will not affect you or your institution’s relationship with Mr. McNiff, the University of Nebraska – Lincoln or your school. If you withdraw, you will not lose any benefits that you are otherwise entitled to receive.

Matthew McNiff, M.A., Principal Investigator  
Office: 402 223 5277
Educational Service Unit #5  
900 West Court Street  
Beatrice, NE 68310

Reece Peterson, Ph.D., Supervising Professor  
Office: 402-472-5480
University of Nebraska at Lincoln  
202A Barkley Memorial Center  
Lincoln, NE 68583
Institutional Approval Form:
I have read the institutional approval form information for the group video self-modeling research study. By signing this form, I give consent for my institution to participate in this study. I am aware that I can revoke my consent at any time.

If you choose to give consent for your institution, please complete the information below:

Yes, ___________________________ grants institutional approval for the conduction of the Group

Name of institution

Video Self-Modeling Study:

I, ___________________________ grant institutional approval for the conduction of the group video self-modeling research study at ___________________________.

Name of institution

Signature of Superintendent: ___________________________ Date: ___________________________

Signature of Building Principal: ___________________________ Date: ___________________________

Signature of Investigator: ___________________________ Date: ___________________________

If consent is given, please return this statement of consent within one week of receiving it. You may keep the information attached to this signature page for your records.
Teacher Consent Form

You are invited to participate in the following study to improve the speed of classroom transitions and lining up. Please read this form and ask any questions that you may have before agreeing to have your institution participate in this study. Below, you will find information on how you may participate in the study.

**Project:** Using Video Self-Modeling to Decrease the Amount of Transition Time in an Elementary Classroom

**Purpose of the project:** The purpose of this project is to decrease how long students take to transition between activities and line up in the classroom. To do this, students will be asked to create two videos with their teacher to outline the appropriate steps to improve how they line up and how to quickly transition from one activity to another. Once the video is created, students will watch the video daily in order to review the steps needed to transition between activities and line up appropriately. The video for each behavior will be less than three minutes in length.

**Procedures:** All activities for the study will take place in one classroom in your district. First, the students will be observed and recorded via conference recording equipment, to determine how quickly they transition from one activity to another and line up to transition out of the classroom. The video recordings will be used solely for observational purposes and will be used to gather timed recordings to determine how long students in the classroom take to line up and transition between activities. Once it has been determined how long it takes for students to transition and line-up, a training video will be developed with the students in the classroom on how to line-up properly. This video will be shown daily to them in order to enhance the speed and organization in which students line-up. A second video will be made several days later on how to transition between activities in the classroom effectively. The video will be shown daily to the students in order to enhance the speed and organization in which students move and prepare properly for classroom activities. The classroom will be recorded via video conferencing software in order to record the time that it takes for students to line up and transition. Information that will be obtained in this study will include the amount of time it takes for students to line up and transition between activities.

Students who do not participate in this study will not be included in either of the training videos. The training video will not be shown to other students, classrooms or adults outside of the research team or the school administrative team and faculty.

**Risks and/or discomforts:** Risks to participants in this study are less than minimal. You and your students district will be performing tasks that they do every day at school.
Benefits: The benefits from the transition intervention will be that students will learn the correct and most expedient way in which transition between, and to, their next activity. By doing this, students will benefit by having more time available for academic work.

Confidentiality: All information that is analyzed and graphed will be coded so that no identifying information is shown about participants including the school district. Participants will only be identified by a number or nonsense name. In any report that may be completed or published, there will not be any information that will make it possible to identify the student. Non-identifiable data for this study will be stored for ten years in a locked cabinet in the researcher’s office and only the researcher, his advisor or assistants, will have access to these records. You will not be identified in any way in the data or future reports.

Compensation: There will be no money given to the district, the participating classroom teacher or the students for participating in this study.

Opportunity to ask questions: At any time throughout the study, you may get answers to any questions that you may have. You may contact Matt McNiff to discuss the research by telephone at 402-806-0571 or email him at mmcniff@esu5.org. If you have questions that Dr. McNiff cannot answer about your rights, or have any concerns about the study, you may contact the University of Nebraska Institutional Review Board at 402-472-6965 or contact Dr. McNiff’s supervising professor, Dr. Reece Peterson at 402-472-5480.

Freedom to withdraw: Participation in this study is voluntary. You may choose to not participate up to the point that the intervention has been initiated. There will be no consequences if you do not participate in this study. If for any reason you do not wish to participate, please contact Matt McNiff. If you withdraw from this study at any time, it will not affect you or your institution’s relationship with Mr. McNiff, the University of Nebraska – Lincoln or your school. If you withdraw, you will not lose any benefits that you are otherwise entitled to receive.

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Reece Peterson, Ph.D., Supervising Professor
University of Nebraska at Lincoln
202A Barkley Memorial Center
Lincoln, NE 68583

Office: 402 223 5277
Office: 402-472-5480
Teacher Informed Consent Form:
I have read and understand the teacher informed consent form information for the group video self-modeling research study. By signing this form, I give my consent participate in this study and agree to participate in the study as described. I am aware that I can revoke my consent at any time.

If you choose to give consent to participate in this study, please sign below:

Signature of Teacher: ____________________________ Date: ____________
Signature of Investigator: _________________________ Date: ____________

You may keep the information attached to this signature page for your personal records.
Teacher Recruitment Script

Hello Mr./Mrs./Ms. ____________________.

My name is Matt McNiff and I am a doctoral student at the University of Nebraska at Lincoln. I am currently looking for partners to conduct research into reducing the amount of time that it takes for students to transition between activities in the classroom and line-up. At this time, your classroom fits the parameters in terms of class size and grade level.

The strategy that will be used to decrease the time for transitions and lining up is called video self-modeling. Video self-modeling involves creating training videos on how to appropriately line up and transition between activities using the students as the training models. The students then watch the video daily and data would be taken to determine how long it takes them to line up and transition effectively.

If you would like to improve the speed at which students transition and line-up, I would like to go through the consent process with you. (Move to the consent paper work if teacher agrees to participate.)
Dear Parent:

Your child is invited to participate in the following study to improve the speed of classroom transitions and lining up. You can ask that your child not participate in this study. Please read the following description of the study and decide if you would like to make the request that your child not participate in the study. You will find information at the end on how you may ask that your child not participate in the study.

Project: Using Video Self-Modeling to Decrease the Amount of Transition Time in an Elementary Classroom

Purpose of the project: The purpose of this project is to decrease how long students take to transition between activities and line up in the classroom. To do this, students will be asked to create two videos with their teacher to outline the appropriate steps to improve how they line up and how to quickly transition from one activity to another. Once the video is created, students will watch the video daily in order to review the steps needed to transition between activities and line up appropriately. The video for each behavior will be less than three minutes in length.

Procedures: All activities for the study will take place in your child’s classroom. First, the students will be observed and recorded via conference recording equipment, to determine how quickly they transition from one activity to another and line up to transition out of the classroom. The video recordings will be used solely for observational purposes and will be used to gather timed recordings to determine how long students in the classroom take to line up and transition between activities. Once it has been determined how long it takes for students to transition and line-up, a training video will be developed with the students in the classroom on how to line-up properly. This video will be shown daily to them in order to enhance the speed and organization in which students line-up. A second video will be made several days later on how to transition between activities in the classroom effectively. The video will be shown daily to the students in order to enhance the speed and organization in which students move and prepare properly for classroom activities. The classroom will be recorded via video conferencing software in order to record the time that it takes for students to line up and transition. Information that will be obtained in this study will include the amount of time it takes for students to line up and transition between activities.

Students who do not participate in this study will not be included in either of the training videos. The training video will not be shown to other students, classrooms or adults outside of the research team or the school administrative team and faculty.

Risks and/or discomforts: Risks to your child are less than minimal. Your child will be performing tasks that they do every day at school.
Benefits: The benefits from the intervention will be that students will learn the correct and most expedient way in which transition between, and to, their next activity. By doing this, students will benefit by having more time available for academic work.

Confidentiality: All information that is analyzed and graphed will be coded so that no identifying information is shown about your child. Children will only be identified by a number or nonsense name. In any report that may be completed or published, there will not be any information that will make it possible to identify the student. Non-identifiable data for this study will be stored for ten years in a locked cabinet in the researcher’s office and only the researcher, his advisor or assistants will have access to these records.

Compensation: There will be no money given to your child’s teacher or your child for participating in this study.

Opportunity to ask questions: At any time throughout the study, you may get answers to any questions that you may have. You may contact Matt McNiff to discuss the research by telephone at 402-806-0571 or email him at mmcniff@esu5.org. If you have questions that Mr. McNiff cannot answer about your rights, or have any concerns about the study, you may contact the University of Nebraska Institutional Review Board at 402-472-6965 or contact Mr. McNiff’s supervising professor, Dr. Reece Peterson at 402-472-5480.

Freedom to withdraw: Participation in this study is voluntary. You or your child may choose to not participate up to the point that the intervention has been initiated. There will be no consequences if a child does not participate in this study. However, student participation in this study is appreciated. If for any reason you do not wish to have your child participate, please contact Matt McNiff. If you withdraw your child from the study, it will not affect you or your child’s relationship with Mr. McNiff, the University of Nebraska – Lincoln or your school. If you withdraw, you will not lose any benefits that you are otherwise entitled to receive.

Consent: To ask that your child not participate in this study, please call or send a note to the school, your child’s teacher or Mr. Matt McNiff by the following date: __________. If you do not ask to have your child left out of the study, your child will participate in the classroom observation, video self-modeling video creation and viewing of the video with the other students in the class. If you ask that your child be left out of the study, your child will not be included in the video self-modeling video creation, but will still be part of the normal classroom transitions, line ups and classroom activities.

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Reece Peterson, Ph.D., Supervising Professor
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202A Barkley Memorial Center
Lincoln, NE 68583
Appendix D

Institutional Review Board Approval
February 6, 2015

Matthew McNiff
Department of Special Education and Communication Disorders
7758 W State Hwy 4 Beatrice, NE 68310

Roece Peterson
Department of Special Education and Communication Disorders
BKC 202A, UNL, 68583-0732

IRB Number: 20150214995 EX
Project ID: 14995
Project Title: Using Video Self-Modeling to Decrease the Amount of Transition Time in an Elementary Classroom

Dear Matthew:

This letter is to officially notify you of the certification of exemption of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board’s opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution’s Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 1.

You are authorized to implement this study as of the Date of Exemption Determination: 02/06/2015.

1. Your stamped and approved informed consent documents have been uploaded to NUgrant (files with Approved.pdf in the file name). Please use these documents to distribute to participants. If you need to make changes to the informed consent documents, please submit the revised documents to the IRB for review and approval prior to using them.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:
* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
* Any breach in confidentiality or compromise in data privacy related to the subject or others; or
* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines.

https://nugrant.unl.edu/era/irbview/PrintedMessage.php?ID=373640
and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman, CIP
for the IRB