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The Impact of Video Modeling on Middle School Students with Autism

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The Impact of Video Modeling on Middle School Students with Autism

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Abstract

The purpose of this study was to show how video modeling can be used with middle school students on the autism spectrum. According to Gardner and Wolf (2018) video modeling is growing as a practice in the special education field and has been used to teach a wide variety of skills. The theoretical framework of positivism was used to collect data on how video modeling can be an effective intervention for teaching students daily routines. The program Links was used to help set up the routines and collect data during this study. The study was conducted with two students in a middle school level three classroom.

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CHAPTER ONE

INTRODUCTION

It is of critical importance that students with autism develop skills that promote independence and help them to be successful in the classroom setting. There are numerous interventions and strategies to choose from to help students with autism develop the skills needed to meet academic goals and become more independent in the classroom. Many of the strategies have been around for a long time and have proven to be successful, but video modeling is growing in popularity due to its high success rate when used to teach a wide variety of skills in various settings.

Video modeling has been shown to be an evidence-based practice over the last several years, it has been used to teach skills in areas such as social skills, life skills, daily routines, and academics. Its use of technology and ability to individualize the use for students' needs are just a few reasons it has grown in popularity. Video modeling is when a learner watches a video of the desired behavior or skill and is given the chance to mimic or imitate the behavior or skill (Osos et al., 2021). Video modeling is now being used in conjunction with and sometimes in place of picture-based systems such as PECS or picture activity schedules (Kellam's et al., 2018; Osos et al., 2021). This research will take a closer look at what video modeling is, how it is being used to increase independence in students of all ages and abilities and evaluate the importance of prerequisite skills and training to use video modeling successfully.

Brief Literature Review

Many studies showed that video modeling can be effective if done properly and consistently (Yakubova et al, 2016; Wertalik & Kubina, 2018, Osos et al, 2021). In special education classes, video modeling has become a practice that has increased throughout the profession (Caldwell & Mehta, 2018). Video modeling has been used to teach a wide range of life skills including cooking, caring for pets, setting a table, and other household tasks (Gardner & Wolf, 2013). Although studies have shown video modeling has been used to replace or in conjunction with picture systems such as PECS (Picture Exchange Communication System) or daily picture schedules (Kellam's et al., 2018; Osos et al., 2021). Due to video modeling being a relatively new strategy, there is still a great deal of information to be gathered regarding its efficiency and effectiveness.

Statement of the Problem

With the growing number of students diagnosed each year with autism or other disabilities, it is more important than ever for these students to become more independent, increase their classroom productivity, and improve their life skills. Video modeling has become a popular strategy, although it still has some research limitations such as sample size and age range in which the research has been done (Kellam et al., 2018, Wertalik & Kubina, 2018). Some professionals are stressing the importance of acquiring the proper training on how to use video modeling successfully and consistently to make it as effective as possible for students and teachers in the classroom.

Purpose of the Study

The purpose of this study is to see if student independence can be increased in the special education classroom and in the general education class by using video modeling. There is a broad range of abilities in the special education classroom. Teachers spend a significant amount of instructional time throughout the day repeatedly prompting simple skills that are typically independent for learners at the middle school level. Common strategies may include picture schedules, social stories, and reteaching important skills. Video modeling is a strategy that may eliminate the need for teachers to repeat prompts and reteach skills. One of the benefits of video modeling is that it can be made age-appropriate for individual students.

Video modeling can better fit the developmental stages of higher functioning students who have outgrown the social stories and pictures schedules that are traditionally used in teaching independence and routines. The technology aspect of video modeling has the potential to attract student attention and avoid the embarrassment that can sometimes occur due to the "childishness" that typically accompanies other learning strategies such as the pictures of small children in the picture schedules. Middle school-aged students who feel embarrassed by a learning strategy are reluctant to interact and learn from it.

When introducing a new concept, it is important to understand which skills the student will need to develop to be successful when using video modeling. Therefore, there is great value in both evaluating which skills need to be taught to the student, and if there is any training necessary for the instructional staff.

Research Question

This study will take a closer look at video modeling. If used consistently and correctly, can video modeling help students with autism at a middle school level increase their independence in daily routines and life skills? There will also be a special focus on the importance of training and prerequisite skills in the success of using video modeling.

Definition of Variables

The following are the variables of study:

Variable A (Videos or Screen Shots) In this study the independent variable will be the videos and/or screenshots of the videos used to teach the students the step-by-step task of each routine or skill.

Variable B (Completion of Task) In this study the dependent variable will be the increase of independence the students will have on routines or skills taught through video modeling. Considering the video modeling will be taught through task analysis (breaking down each step throughout the routine), students may master routines in part or as a whole.

Significance of the Study

The significance of this study is to help increase students' independence in everyday routines. Examples of this would be maintaining a school arrival routine, prepping for specific daily activities, and completing simple self-care tasks. It could also help improve behavior

management and completion of tasks in the classroom. Video modeling may also significantly decrease the amount of prompting required by the teacher during a class period.

Permission and IRB Approval

In order to conduct this study, the researcher will seek MSUM's Institutional Review Board (IRB) approval to ensure the ethical conduct of research involving human subjects (Mills & Gay, 2019). Likewise, authorization to conduct this study will be seek from the school district where the research project will be take place (See Appendix A).

Informed Consent

Protection of human subjects participating in research will be assured. Participant minors will be informed of the purpose of the study via the Method of Assent (See Appendix B) that the researcher will read to participants before the beginning of the study. Participants will be aware that this study is conducted as part of the researcher's master's degree Program and that it will benefit her teaching practice. Informed consent means that the parents of participants have been fully informed of the purpose and procedures of the study for which consent is sought and that parents understand and agree, in writing, to their child participating in the study (Rothstein & Johnson, 2014). Confidentiality will be protected through the use of pseudonyms (e.g., Student 1) without the utilization of any identifying information. The choice to participate or withdraw at any time will be outlined both, verbally and in writing.

Limitations

The first limitation in the research is sample size. Only two students will be used for this study, both middle school students. A larger sample would provide more accurate mean values and provide a smaller margin of error.

The second limitation in the research is the integrity and consistency exercised by the trained paraprofessionals who will be working on the routines with the students. Throughout the school day, if the routines are not executed correctly, it could affect the overall results. The paraprofessionals will be observed daily to ensure the routines are being executed in the correct manner. However, there is always a possibility of human error.

The last limitation in the research is teacher bias. In this study, the teacher and research are one and the same. The teacher will be involved in teaching the video modeling as well as collecting data. There is a possibility that an unconscious bias may be present.

Conclusions

Video modeling has become popular in special education due to its flexible nature and ease of use with a wide range of abilities and age levels. The main purpose of this research is to explore if video modeling can increase independence of daily routines and life skills in students with an autism diagnosis. The study will show the effectiveness of video modeling when used at the middle school level. The “Literature Review” will summarize previous studies on video modeling, focusing on how they are impacting students in special education classrooms.

CHAPTER 2

LITERATURE REVIEW

Over the years, instructors have used a plethora of strategies and tools to teach essential life, social, and communication skills to students diagnosed with autism. One of the most recent evidence-based practices used to teach the aforementioned skills is video modeling (Caldwell & Mehta, 2018). A student learning via video modeling will first view a video of the desired behavior or skill, then take part in an activity that mimics or imitates the behavior or skill (Osos et al., 2021). Video modeling is presented in one of three ways: self-modeling, peer modeling, or adult modeling. It has become a widely used method of learning because it provides user flexibility in both setting and skills. This study will focus on video modeling because of its immense potential to teach students of multiple age ranges and skill levels. Video modeling can be used to teach a wide range of life skills including cooking, caring for pets, setting a table, and other house-hold tasks (Gardner & Wolf, 2013). This study will determine if video modeling increases independence in daily routines in children with autism at the middle school level.

What Came Before Video Modeling

Before the use of video modeling, students with autism used picture schedules to help them perform the step-by-step tasks needed for following classroom and at-home routines. Watson and DiCarlo's study (2016) evaluated the effectiveness of a picture schedule in helping a child in a general education classroom become more independent with everyday routines. The student in the study was a kindergartner who was not receiving intervention services. It was difficult for the student to establish and follow multi-step daily routines. For the study, the student was taught three different schedules using a picture schedule: morning routine, mealtime

routine, and afternoon routine. The results revealed that when the pictures schedule was implemented, the child could more independently complete the desired routines. As a result, the teachers used fewer prompts throughout the school day (Watson & DiCarlo, 2016).

A study in Indonesia by Efendi, Firdiana, Indreswari, Lailiyah, and Sunandar (2019) showed a 29% increase in task completion when using the visual supports of PECS (Picture Exchange Communication System). The student in the study was a kindergartener who did not have autism but was having trouble following daily task and routines. This increase in task completion not only helped the child become more independent, but also decreased the teachers prompting time by 19%, giving her more time to focus on other aspects of her classroom (Efendi et al., 2019).

These studies show that teaching routines through pictures can help increase independence for many students both in and out of the classroom. As technology continues to advance, fundamental elements of successful interventions (such as PECS) can be adapted for newer technology. In this case, video modeling uses the same basic principles of PECS but presents it to the student using video technology.

The Impact of Video Modeling

As the use and access of technology in the classroom increases, teachers are searching for effective, new methods to implement intervention strategies. Some teachers are replacing picture schedules (PECS) with video modeling. It is important to compare the effectiveness of video monitoring to the picture schedules they are replacing. Kellam's, Frandsen, Cardon, Knight, and Anderson (2018) compared static pictures to video prompting with three middle school students raging in the ages from twelve to fourteen. The skills they focused on were throwing a ball

overhand, walking backwards, washing a mirror, cutting a banana, and brushing teeth (Kellam's et al., 2018).

The static pictures that were used in this study were screen shots from the videos they made, to show the steps of each task for the video modeling. Before the students were taught the routines, the researchers taught the students how to use the static picture and the binder. They also taught the students how to use and access the iPad that was used for showing the video modeling. With students in both groups adequately trained in their respective skill, the students then began the process of learning the new routines. At the conclusion of the study, researchers found that the percentage of independent correct responses in the video monitoring group was as effective as the static picture group in most of the interactions (Kellam's et al., 2018).

Many other studies showed that video modeling can be affective if done properly and consistently. In the study done by Osos, Plavnick, and Avendano (2021), used two different conditions: one being video enhanced activity schedule, and the other being an electronic activity schedule only. In the study two out of four preschool children met mastery criteria in the video enhanced schedule. One met mastery with both conditions, and the other met mastery with only the electronic version. Even though this study showed that video modeling can be effective, some children might need a combination of the two strategies to help them learn certain behaviors or routines (Osos et al., 2021).

Video Modeling is also being used to help increase academic achievement. As shown in a study by Yakuhavo, Hughes, and Shinaberry (2016), video modeling can be used to improve individual success in the classroom setting. In the study, video modeling was used as a tool when working with four kindergarten-aged students. The students were diagnosed with autism spectrum disorder. The goal of the study was to use video monitoring to increase student success

in solving problems in the areas of addition, subtraction, and number comparison (Osos et al., 2021).

The students were given five different video clips for their video monitoring exercises. The longest video was three minutes and fifty-five seconds in length. The shortest video was three minutes and eight seconds. These video lengths were long enough to teach the desired skill(s), yet short enough to hold the students' attention. The study spanned twenty-three days with students participating in the video monitoring three days a week (out of a five day per week school schedule). At the conclusion of the study, researchers found that the video monitoring intervention had a significant effect on student academic achievement. In the areas of addition, subtraction, and number comparison, students had a stronger academic performance in the classroom using video modeling (Osos et al., 2021).

Spriggs, Knight, and Sherrow (2014) completed an in-class academic study that reflected similar results to that of the Osos study (2021). In the study, researchers used a visual activity schedule that had embedded video modeling. A visual activity schedule shows step-by-step instructions for students to follow with the goal of completing the desired task. Students then check off individual steps as they complete them. Researchers wanted to know if the video monitoring, when used as part of the visual activity schedule, could improve student success with transitional skills and other tasks. Four students participated in the research activities. Each student participant had a task, assigned by the classroom teacher, which was appropriate to his or her individual needs. Then, students used a visual activity schedule with a video modeling catered to their individual task (Spriggs, et al., 2014).

The results of the study showed that for two of the students, the combination of the visual activity schedule with video monitoring was an effective instructional method. The students had

success in completing their tasks. The other two students required the video models to be broken into smaller chunks before showing growth in their respective skill areas. The study also showed that all participants were able to generalize the transition skills. All students eventually were able to phase-out the video modeling segments of the visual activity schedule once the skills were mastered (Spriggs, et al., 2014).

These studies show that using video modeling technology in the classroom can lead to student success in both behavioral and academic areas. The success of the video modeling learning tool among children with autism can be seen across all grade levels and with students of varying ability. According to Wilson (2013), there are many reasons why video modeling is rational to use in the classroom. Among them are increased child independence when using video modeling, the ease in which teachers can individualized video modeling for each student, and the flexibility of video modeling offers in being used across various skills and settings. Although compelling evidence supports the effectiveness of video modeling, some research shows that there may be a series of pre-requisition skills necessary for video modeling to be successful. These skills must be taught to the student first to increase the likelihood of student success in using video monitoring (McDonald et al., 2015).

Pre-Requestion Skills and Training

Pre-requisition skills and training are an important part of the success when using video modeling with students. These skills included gross motor imitation, immediate imitation of actions with objects, and computer picture-to-objects matching (McDonald et al., 2015). The study was conducted with twenty-nine children ranging from the ages of 3.6 to 12.1 years and showed that things such as short-term memory may play an important part when it comes to

learning from video modeling. There was also a strong correlation between delayed imitation and learning to use the video modeling (McDonald et al., 2015).

Several studies used surveys to gather information from professionals and caregivers who used video modeling with their students. A study done by Alabbas and Miller (2019) looked at the use of assist technology which included video modeling. The study focused on the caregivers perspective; the caregivers took the survey. According to the survey results, 5% of the caregivers used video modeling as part of their strategy to assist with typical everyday routines such as morning routine, mealtime routine, and playing routine. However, when surveyed about what they knew about assistant technology and how to use it to teach routines, 37% of them answer they knew "a little". Results showed that 54% percent of the caregivers reported receiving little or no training. Only 5% of survey participants reported receiving a lot of training (Alabbas & Miller, 2019).

Caldwell & Mehta (2018) conducted a survey that included 510 professional educators across the United States. Educators were asked about evidence-based practice of video modeling when teaching students routines and skills both in and out of the classroom. The article indicated that some published research on video modeling shows that educators enjoyed participating in video modeling, believed that video modeling is worthwhile, "would likely continue to use it, and recommend to other educators use it as well" (Caldwell & Mehta, 2018, p. 104). "Video modeling as indicated in this article has been shown to be effective to teaching students and helping them generalize skills in the areas of social skills, communication skills, behavior, joint attention, play, school readiness, academic, motor, and vocational skills" (Caldwell & Mehta, 2018, p. 103). These studies show that knowing how to use video modeling and teaching the

skills necessary to implement video modeling are important in the overall achievement students experience when using video modeling.

Video modeling is becoming increasingly popular as a tool for teaching students with autism skills and routines. One of the reasons video modeling may be so widely used is because of its flexibility across skills. Video modeling also requires fewer tools and equipment compared to other intervention methods, which ultimately makes it easier for students to access and manipulate. Teachers often must replace lost pictures from schedules, which leads to wasted time and resources. With video modeling, the resources are available to the students and unlikely to get lost or destroyed.

Although there have been numerous examples of success using video modeling with younger students with autism, there are still many unanswered questions about video modeling and its effectiveness on students with autism who are older or have higher functions autism.

Research Question and Theoretical Framework

Using the theoretical framework of positivism, this study will look at if used consistently and correctly, can video modeling help students with autism at a middle school level increase their independence in daily routines and living skills? The study will measure whether of not middle school students with autism will be able to learn steps of daily routines using video modeling. Data will be collected by measuring the completion of each step of the routine once the video modeling for the student has been implemented. The information will be collected using the data sheets that are used with a program called that breaks down each routine into steps that can be easily measured. Also, during the study teacher observations and notes will be

reviewed to help determine that the video modeling was used correctly and consistently and the impact that may have on student data.

Conclusion

There is evidence that video modeling is an evidence-based practice that, if used correctly, can be very effective in teaching a wide variety of skills across ability levels and ages. However, many of the research articles about video monitoring focus on researching the use of video modeling when used with younger or lower function students with autism. There were a few articles, such as the one done by Spriggs, Knight, and Sherrow, that showed it could be used for students in the upper grades and in combination with visual activity schedules (2014). However, it is important to explore how visual modeling can be used to teach daily living skills and daily routines for students at a middle school level with different ability levels. It is also important to focus on the importance of teaching the pre-requisites skills and training to staff and students before implementing the use of video modeling.

CHAPTER 3

METHODS

It is important that special education teachers help students with autism develop skills that promote independence and help them to be successful in the classroom setting. There is a wide range of interventions and strategies that professionals can use to help students develop those skills. This study will focus on video modeling and how it can be used to help middle school students with autism develop skills in the areas of daily routines and life skills.

Research Question(s)

If used consistently and correctly, can video modeling help students with autism at a middle school level increase their independence in daily routines and life skills? There will also be a special focus on the importance of training and prerequisite skills in the success of using video modeling.

Research Design

This study will be done in a quantitative design using the method of Positivism, which includes experimental research. This design was chosen because it uses reliable tools that help measure reality and is embedded in the philosophy that there is a single reality or truth (Thompson, 2015). Data was collected as the students moved through daily routines using video modeling as the tool of breaking down the task into individual steps. The data was scored using a rubric that was provided by the Links curriculum on which the routines are based. The design was an A-B design and students were retaught steps in the areas for which they were having trouble reaching mastery. The independent variable was the video modeling for the routines and the dependent variable was the task analysis of each step of the daily routines.

Setting

This study took place in a level-three classroom in a middle school located in south-central Minnesota. The town in which the study took place has a population of around 12,000 people. The town is known for its small-town feel and its year-round festivities and focuses on

art culture. The middle school includes fifth through eighth grade and has a student population of 662. The demographics break down as the following: 17.2% Hispanic/Latino, 10.7% African American or Black, 68% White, .5% American Indian, .6% Asian, and 3% of two or more races. The school has 7.7% English Language Learners and 31.3% of the students receive free or reduced lunch. The school also has a special education population of fourteen percent. The classroom in which this study took place has a total of six students, all males. The classroom is part of a special education cooperative that is made up of seven surrounding districts and helps serve students who require a level-three setting due to a diagnosis of autism or other social or communication disability. Parent involvement within the school and within the classroom is high, and communication is consistent between teachers and parents.

Participants

The participants of this study were middle school students between the ages of eleven and thirteen. They were males diagnosed with an autism spectrum disorder. Fifty percent of the participants were on free and reduced lunch and came from single-parent homes.

Student A: Student A was a fifth-grade male who was diagnosed with autism. He was a non-verbal communicator and used a Pictures Exchange System (PECS) to communicate but is working on transitioning to a digital communication system. He used vocal sounds when he was upset or happy but did not have the ability to form clear words. He attended a level-three classroom and had a one-to-one paraprofessional that helped him throughout the day with both academic and life skill tasks. He could walk, use the bathroom on his own, and feed himself, and complete other simple routines. He was able to use an iPad with little to no assistance and had

been working on independent work routines and learning how to navigate his own picture schedule. He used a token board for reinforcing behaviors on completing tasks which he then got to pick a choice of activity for his free time. He was also motivated by snacks such as Teddy Grams and Cheerios.

Student B: Student B was a sixth-grade male who was diagnosed with autism. He attended a level-three classroom and had a classroom para for when he needed assistance. He was verbal and high functioning but struggled with social interactions and being independent in daily routines. He often needed to be redirected due to being easily distracted and off-task. He also struggled with reading and math skills and needed assistance in completing work, especially if it involved handwriting. He would often refuse to write if the work was longer than a few sentences. He could do most functional routines on his own but needed to work on following a schedule and completing a task without redirection. He also needed to work on completing tasks in a timely manner to stay on schedule and not fall behind his peers. He worked on a token system for stars that he earned at the end of the day. The stars transferred to larger rewards at the end of the week.

Sampling

The participants for this study were chosen from the classroom in which the researcher is the educator. The two participants were chosen based on the routines they needed to learn to become more independent in the classroom. The students were able to operate the technology used for demonstrating the skills needed in video modeling.

Instrumentation

The instrument used is one that is part of the Links Curriculum (Star Autism Support, 2013) which is a curriculum designed for students with autism to help teach daily routines and skills in the classroom. The tool is designed to break the routines and skills into smaller steps, and a rating scale is used to score each step of the process. The scoring is based on a four-point system that goes from students being able to do the step of each task independently to not completing the task, even with vigorous prompting. Each routine was printed for the professional and broke down routines step by step. It also showed the prompts that were used in the video and how to prompt the student if more instruction was needed. This ensured the instruction and prompting for each student was consistent (see appendix C of scoring grid). Because the routines were broken down into step-by-step tasks, the length and number of steps per task depended on the routines and which participant was completing them. The scoring sheet was set up to collect data three times a week for three weeks including the week of baseline data collection.

Data Collection

Data was collected two or three times a week using the scoring rubric as the participants completed the task using the video that was recorded ahead of time. The participants were learning up too two routines, and the staff was trained on how to collect data appropriately. Teacher observation notes were taken and used to help with data collection throughout the process.

Data Analysis

Data were summarized by averaging the data collected for each routine at the end of each week. The overall mean was calculated for each step of the routine at the end of the data collection process. The Links program also provided an assessment rubric and summary for each routine when entered into their database. Each routine was scored individually and compared to the baseline data both as a whole routine and in a step-by-step task analysis.

Table 3.1.

Research Question(s) and System Alignment

Research Question	Variables	Design	Instrument	Validity & Reliability	Technique	Source
If used consistently and correctly, can video modeling help students with autism at a middle school level increase their independence in daily routines and life skills?	IV: video modeling DV: task completion of each step in daily routines or life skills	Positivism - Experimental Design	Links Rubric Videos Routine Rubrics	A study done on Links programs and Links programs shows evidence of EBP.	Task analysis of routines students will view via video modeling	Middle school participants Sample size: 2-3 (all students have ASD and are in level 3 resource room)

Note: This table outlines the research questions, methods, and instruments used during this study.

Procedures

The procedure began with targeting one to two behaviors for each student to work on through the video modeling process. Student A goal behaviors were handwashing and morning routines. Student B goal behavior was to increase his independence in following and setting up his daily schedule and an end-of-the-day routine. Next, the equipment including the iPad, rubrics, and score sheets were collected and checked to make sure they were in proper working

condition. Before the videos were recorded, baseline data was collected for each routine for each participant and entered in the Links curriculum database. Once the baseline data was collected, staff recorded the videos of each routine in the way they wanted the participant to learn the task. The video recording was done by staff whom also performed the routines in the videos. Each video was edited and downloaded onto the iPads of each participant. Next, the video modeling was introduced into the student's schedules. They first watched the entire video in one sitting while staff prompted students to stay on task when necessary. After watching the video a few times, the teacher then prompted the participant and helped them to stop the video after each task as they went through the routine step by step. This process was repeated daily; data was collected throughout the process for three weeks. If the participant was not making progress, adjustments such as reteaching a step or using more prompts at the steps in which the student was struggling were made throughout the process and noted in the teacher observations. Once a routine was mastered, the video modeling was phased out from daily viewing to weekly viewing. After the students showed mastery for two weeks in a row, the video modeling was concluded, and the task became part of the daily routine for that student. During the process, the paraprofessionals were trained and reminded on how to use video modeling and collect data in a consistent manner. This was done through teacher direction, modeling from the teacher, and making sure that the students' schedules were consistent and video modeling was done daily.

Ethical Considerations

The participants of this study will be taught basic routines through video modeling and will be scored on the mastery of each step of the routine. The students will remain anonymous throughout the study and will not be penalized for any reason throughout the study. The parents,

students, or guardians may withdraw consent at any time without repercussions. A permission letter will be sent home explaining their rights and procedures of the study. If at any time the procedures of video modeling become too overwhelming or frustrating for the students, it will be readjusted or terminated, and a new program will be used to teach the necessary skills.

Conclusions

The process of video modeling can be very time-consuming, but the results proved to be beneficial to both students and staff. The steps that were taken during this research helped students learn to be more independent in the classroom. As the students moved throughout the process, they became more independent and were able to navigate their daily routines in a more efficient way. The data collected helped the teacher determine where more direct teaching needed to occur and helped the teacher plan for the next steps for students to become more independent in the classroom environment.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

Introduction

This research was conducted to find out if video modeling could be used to help students with autism learn new routines or tasks in pursuant to becoming more independent in the classroom. Two students were chosen to participate in the study using convenience sampling. Student A was a fifth grade male who was a non-verbal communicator and used a PECS system to communicate. Student B was a sixth grade male who was higher function on the

autism spectrum and was independent in many ways. He needed to be prompted several times during the day to stay on track and not engage in unwanted behaviors. Both students were assigned one or two tasks to learn through video modeling. The videos were made by the teacher with the teacher as the demonstrator in the videos. Student A was learning a morning routine and a hand washing routine. Student B was working on setting-up and managing his daily schedule more independently so he can stay on track throughout the day. The results of the study are presented in the following paragraphs using the Links curriculum and score rubric.

Data Collection

Data collection was done by using a rubric that is part of the Links/Stars curriculum which was used to help students learn new skills and routines in the classroom. The rubrics use the following scoring system that is based on a scale of zero to four, each number representing a prompting level of independence. The scoring scale is set up as follows:

Links Independent Scoring Scale	
0	Does not complete with any form of prompting
1	Continuous Physical
2	Intermittent Physical
3	Gesture, Visual, or verbal prompt
4	Independent
NA	Not Applicable

Note: More details descriptions of each level can be found in appendix B. Star Autism Support, n.d. https://starautismsupport.com/

Data collection was completed by the teacher and the paraprofessional three times a week. Week one of the data collection was to collect baseline data before the intervention was introduced during weeks one and two. During the second and third week, the student was shown the video each time before completing the task. Before the intervention was introduced the paraprofessional was trained in how to use the program and give specific instructions on what to look for at each step to help score the student correctly on the rubric.

Each student had different routines to learn through the video modeling process. Student A was working on hand washing and morning routine. Student B was working on setting up a daily schedule and following the schedule throughout his school day. During the study, student A was more cooperative than student B when it came time to watch the videos and follow the routines. Student B, who is a student with higher functioning skills, at first did not want to cooperate and was refusing at times to fully cooperate with the change in routine during the first couple of days during baseline collection. This could have been due to a change in his daily routine. Eventually, once student B realized that he would be given more directions (through the video) he was willing to cooperate and made watching the video part of his daily routine.

Over the course of the study, other situations came up that had to be solved such as making sure the videos where on the correct iPad for each student and ensuring that each iPad was charged and ready. Each day the teacher and paraprofessional would touch base at the end of the day to trouble shoot any problems that may have come up while running the routine and reviewed data collection. The data was reviewed each day at the end of the day and any problems would be addressed at that time.

Results

RQ 1: If used consistently and correctly, can video modeling help students with autism at a middle school level increase their independence in daily routines and life skills?

Table 4.1. shows the data for student A's handwashing routine including the baseline data and the two weeks of data collected after introducing the video of the teacher modeling the handwashing routine. The handwashing routine consisted of a total of eight steps that were scored using the rubric in appendix B during each data collection. The average scores of each step are shown in the table indicating the week the data was collected. This table also includes the baseline data.

Table 4.1.

Student A Handwashing Routine

Steps	**Baseline Data -No video**	**Week One w/Video**	**Week Two w/video**
Go to sink	4	4	4
Turn on water	2	3.5	3.5
Hands in water	1.5	3.25	4
Get soap	2.25	2.75	3
Rub hands	1.75	2	2
Rinse hands	3.25	2.25	3
Turn off water	4	4	4
Dry hands	3.25	4	4
Total Routine Average	**2.75**	**3.2**	**3.4**

Note: The scores above represent averages of a period of one week for each step of the routine as collected by using the rubric shown in the above section and in appendix B. Data was collected during all periods three times a week. The total routine average was than calculated by averaging all the steps for each week.

The table above shows that over the course of the two-week intervention Student A made progress in many steps of the routine. The rubric shows a score of 4, which means the student was able to do

those steps independently with no prompting. There were several steps that the student was able to do independently, before the intervention was presented, including going to the sink and turning off the water. However, there were several steps, such as hands in the water and drying hands, that the student was able to become independent in during the video modeling intervention. The step of "rinse hands" was one that the student was able to do with a small amount of prompting in the beginning but stayed the same throughout the data collection period with a slight decrease during week one. The student struggled the most with the step of rubbing hands together and it was decided that a new video would be made that was specific to that step in the routine. The new video was introduced to the student at the end of week two, but no data was collected at that time. Overall, the average of the complete routine for the student went from a 2.75 which means the students was receiving several prompts to a 3.4 which was almost reaching complete independence with a few prompts on the steps in which the student still struggled.

Table 4.2.

Student A -Morning Routine

Steps	**Baseline Data -No video**	**Week One w/Video**	**Week Two w/video**
Hang up Backpack	4	4	4
Get iPad	2.5	3.5	4
Check Schedule	1	3	3
Set 10 min timer	0	1	1
Total Routine Average	**1.9**	**2.9**	**3**

Note: The scores above represent averages of a period of one week for each step of the routine as collected by using the rubric shown in the above section and in appendix B. Data was collected during all periods three times a week. The total routine average was than calculated by averaging all the steps for each week.

Table 4.2 shows that Student A also made improvements using video modeling in his morning routine. He started out being able to hang up his backpack independently without prompts. Once the video was introduced, he was able to go from needing physical help in getting his iPad from the charging station to being independent in this step at the end of week two. He also made progress in being able to check his schedule to see what came next in his

day. The one step he did not make much progress in was setting his timer for ten minutes at the start of the day to get his ten minutes of iPad time before his day began. This step, like the step of rubbing his hands together in his hand washing routine, was then broken down into a separate video after week two to see if the student could become independent in this step. Overall, the video modeling allowed Student A to go from needing physical assistance (assigned as a two on the rubric) to completing most of the routine with little or no prompting.

Table 4.3.

Student B - Schedule Routine

Steps	**Baseline Data -No video**	**Week One w/Video**	**Week Two w/video**
Watch Video	0 (no video)	3	3
Look at written schedule	2	3	3
Set up picture schedule	2	3	3
Follow Schedule	0	2	3
Total Routine Average	**1.9**	**2.9**	**3**

Note: The scores above represent averages of a period of one week for each step of the routine as collected by using the rubric shown in the above section and in appendix B. Data was collected during all periods three times a week. The total routine average was than calculated by averaging all the steps for each week.

The table above shows that Student B was not able to gain full independence using the video to help set up his day and follow his daily schedule. During the baseline data collection, Student B was not shown the video for step one but given a verbal direction on how to set up his schedule and what was expected. At first, the student was refusing to follow directions and was needing several prompts and physical prompting (pointing at schedules, handing him icons) to

get him to follow directions. This behavior continued until the second day of week one when the student began to watch the video with a verbal prompt and made it part of his daily routine. However, he still needed at least one verbal prompt after week two. The video modeling was helping him make progress but at a slower pace.

Data Analysis.

The results of this study show an increase in independent behavior for both students in their daily routines when video modeling was introduced. As with the study done by Yakuhavo, Hughes, and Shinaberry (2016), this study showed that video modeling can be used to help increase independence in daily skills or routines in the classroom and help decrease prompting needed by teachers and paraprofessionals. Even though both students did not completely become independent in the whole routine and still have steps that need to be worked on, the study showed that video modeling can help teach students at a middle school level learn new skills. As the students continue to use video modeling the steps that the students were struggling with should and can still be taught using video modeling when broken into smaller pieces. Another way to achieve the steps that the students did not show independence in could be to use picture icons instead of video modeling or use a combination of both (Kellams et al., 2018). However, this goes back to using pictures, task strips, and even binders which can be cumbersome in a classroom. Also, some middle school students might find those tools embarrassing if they must use them outside of the special education classroom.

One other result that comes from this study is that using video modeling with higher function students, such as Student B, could result in refusal of participation. Student B was not as cooperative in watching the video when the study first began. When asked why he was not

wanting to participate he simply stated that he did not need a video to help him. Once the teacher explained why the video was important and what its purpose was, the student was more inclined to watch the video at the beginning of the day and made it part of his daily routine.

Some problems that the researcher came across when collecting data included trying to remember to collect data, especially as the students became more independent as the weeks went on. To help with this, a timer was set at the beginning of the day on the teacher's phone to help remind the paraprofessionals to collect the data each day.

Overall, the results of this study showed comparable results to that of the study by Gardner and Wolf (2013), that video modeling can be used to teach a wide range of skills including life skills. Video modeling can be effective across multiple grades, and video modeling can be used at various levels of autism functioning. Before using video modeling, it is important to make sure each student has the pre-requisition skills needed to make video modeling successful (McDonald et al., 2015) and to make sure that adequate training is provided for any staff or parent who may be implementing the video modeling with the student (Alabbas & Miller, 2019).

Conclusion

In conclusion this study showed that students at the middle school level with autism can learn to become more independent when video modeling is used in teaching daily routines. Even though some of the steps of the video needed to be broken down further or needed to be presented in a different way, the intervention was successful in increasing the overall average of

the students independence in the daily routines. Once video modeling was introduced and implemented daily, the staff used fewer prompts with the two students throughout the day.

CHAPTER 5

IMPLICATIONS FOR PRACTICE

The purpose of this study was to see if the intervention of video modeling would help increase the independence of middle school students with autism in daily routines. Both students in the study were middle school boys, but they functioned differently in the classroom. The study showed the video modeling can be effective and help increase independence if used correctly over a period of time. However, there are times where adjustments had to be made or the video modeling needed to be broken down into smaller pieces to show results.

Action Plan

Video modeling will be implemented in the classroom to help students learn new tasks and routines independently. The Stars/Links program will continue to be used to help set up and collect data for those routines. Video modeling will also be used to break down larger parts of routines to give students more support. I hope to also begin to explore how to use video modeling with my higher functioning students in the areas of social skills and life skills. Another way I hope to expand on video modeling is by having the students help make the videos. To make sure video modeling is being used correctly and efficiently in the classroom, I will need to find a training resource. Once I have fully implemented this practice into my

classroom, I plan to make a video that I can share with parents so they can use video modeling at home to help with independence in the home environment.

Plan for Sharing

I plan to share my study with the teachers within my cooperative and with the principals in the buildings in which I teach. I also hope to share my results with special education teachers through the autism cooperative to show that video modeling can be effective across many disabilities and age groups. The major pieces of this study that I feel would be important to share would include the importance of training staff on how to use video modeling. Also, video modeling can be used to learn a large routine, but it also may be beneficial to use video modeling to help learn specific steps in a smaller routine or skill. Overall, I feel the information in this study can be shared with anyone who plans to look into or implementing video modeling in the classroom or in his or her home.

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Appendix A -Approval Letter

Institutional Review Board DATE: February 2, 2022

TO: Lisa Dudley, Principal Investigator Kristen Carlson, Co-investigator FROM: Dr. Robert Nava, Chair Minnesota State University Moorhead

IRB ACTION: APPROVED PROJECT TITLE: [1865383-1] The Impact of Video Modeling on Middle School Students with Autism

SUBMISSION TYPE: New Project APPROVAL

DATE: February 2, 2022 EXPIRATION DATE:

REVIEW TYPE: Exempt Review

Thank you for your submission of New Project materials for this project. The Minnesota State University Moorhead IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission. This submission has received Exempt Review based on the applicable federal regulation. Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document. Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure. All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to the Minnesota State University Moorhead IRB. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the Minnesota State University Moorhead IRB. This project has been determined to be a project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of . - 1 - Generated on IRBNet Please note that all research records must be retained for a minimum of three years after the completion of the project. If you have any questions, please contact the Minnesota State University Moorhead IRB. Please include your project title and reference number in all correspondence with this committee. This letter has been issued in accordance with all applicable regulations, and a copy is retained within Minnesota State University Moorhead's records

Appendix B- Parent Letter

October 24, 2021

100 Lincoln Drive
St. Peter, MN 56082

Dear Parent or Guardian,

Your child has been invited to participate in a study to see if using video modeling will increase daily routines and/or life skills.

Your child has been selected because he/she is in my special education classroom. If you decide to participate, please understand your child will be asked to do the following, and these are typical classroom activities that involve no risk to your child.

1. Your child will be learning basic daily routines or life skills using video modeling. Video modeling which is watching adults or premade videos from other schools complete a task through step-by-step video instruction.
2. They will be taught the steps of each task through the video modeling and data will be recorded by data sheets, teacher notes and observation on how they are succeeding at each step.
3. No recording of your child will be done without your written permission

Although principal Tamara Engel has granted me permission to conduct this study, since this information is being used to help me complete my master's degree at Minnesota State University, Moorehead, I need the have parental consent to use this information in my final paper that I am required to do as part of my degree. If I didn't need this information to complete my master's degree, I would be using this strategy in my normal everyday lessons and collecting that data in the same manner and I would not need signatures. If you sign this form, you are giving me consent to use the information that I gather. All the information with be confidential, no names will be used. Please also note, that your child can choose to not participate at any time without any consequences.

Please feel free to ask any questions you have regarding this study. You may contact me at school at 507-934-4210 or ldudley@mnved.org. You may also contact my advisor at: _____

You will be offered a copy of this form to keep. You are deciding whether to participate. Your signature indicates that you have read the information provided about and have decided to participate. You may withdraw at any time without prejudice after signing this form should you choose to discontinue participating in this study.

_____ _____

Signature of Parent or Guardian Date

Signature of Investigator Date

Appendix C-Scoring Grid

Links Curriculum Scoring Grid:

4 - Independent

Student can complete the entire routine activity, step, or skill without a physical gesture, and/or verbal prompting.

3 - Gesture, visual or verbal prompt

Student needs a gesture, visual and/or verbal prompt to complete the routine activity, step or skill.

2 - Intermittent physical prompt

Student needs intermittent physical assistance to complete the routine activity, step, or skill (may also include gesture, visual, and/or verbal prompts).

1 - Continuous physical prompt

Student needs continuous physical assistance to complete the routine activity, step, or skill (may also include gesture, visual, and/or verbal prompts).

0 - Does not complete with any form of prompting

Even with continuous physical assistance, the student does not complete the routine activity, step, or skill.

N/A

A particular routine activity, step or skill is not applicable for this student.