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Effects of point-of-view modeling to teach life skills to students with cognitive impairments

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EFFECTS OF POINT-OF-VIEW VIDEO MODELING TO TEACH LIFE SKILLS TO STUDENTS WITH COGNITIVE IMPAIRMENTS

by

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Dedications

I would like to dedicate this manuscript to my best friend and husband, John Zacharkow III, who has been a constant source of support and encouragement, my parents Walter Spiehs and Dr. Colleen Glavin Spiehs, who taught me the value of hard work and have always supported me in every path I take, and my sister Chelsea Spiehs, who has been my partner in crime and confidant throughout my life.

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Abstract

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The purposes of this study were to evaluate the effectiveness of point-of-view (POV) video modeling in teaching culinary skills to elementary students with developmental and cognitive disabilities, compare when the video contains narration versus sound indicators, and to evaluate students' maintenance of gained skills without watching the video. A total of 8 students in grades 3-5 with an age range from 8-11 participated in the study. A single subject research design with ABCD phases was used in this study (Phase A baseline, phase B and C intervention, and Phase D maintenance). Results showed that students were gained skills during the intervention and maintained them without viewing the video or practicing the target skills. It seems that video-based instruction has potential for teaching students with cognitive disabilities.

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Chapter 1

Introduction

Statement of Problems

It is generally accepted that having the skills to live independently is important for all individuals as they transition from childhood to adult lives. Children acquire independent living skills by observing and helping their parents at home, such as cooking, performing chores around the house, and setting tables. These skills are naturally obtained without a great deal of planning and instruction, while they are difficult for students with moderate to severe cognitive disabilities. Individuals with moderate to severe cognitive disabilities have difficulty with memory, problem-solving, attention, reading, linguistic, math, verbal and visual comprehension ("Cognitive" http://webaim.org/articles/cognitive, 2014). Memory difficulty may cause individuals with cognitive disabilities to have difficulty recalling knowledge and skills they have already learned. ("Cognitive", 2014) As indicated by Westling and Fox (2004), these individuals not only have challenges learning new skills, but also generalizing or transferring learned skills into another setting. Solving problems and attending to a task can both be difficult for these individuals along with processing text in verbal or written format. Solving math problems is another challenge. Also, visual stimuli can be another challenge because of the way the brain processes to understand the common senses. For these students, seeing is learning (e.g. incidental learning) may not be the fact. Therefore, structured training is needed in school for these students to learn life skills. A carefully planned lesson on life skill should target at helping these students transition from childhood into an independent adult life ("Life Skills and Transition with Life Centered

Education (LCE)", 2014). School curriculum should incorporate life skills using strategies for delivering instruction, including simulation, community-based instruction, and using technology such as video modeling.

Simulations refers to a scenario that simulates a real life situation for students to practice. Such a natural environment where the target skill would occur is useful to expose the students to different examples of the target skill, so that they can be ready to employ the targeted skill in a real life setting (Kleinert, Browder, & Towles-Reeves, 2009). It is found that presenting students with natural settings where skills need to be applied is beneficial for skill acquisition and maintenance (Stone-MacDonald, 2011).

Community-Based Instruction (CBI) refers to teaching community skills to students with moderate or severe cognitive disabilities in the environment and context in which the skills will occur during their day to day lives, for example, grocery stores, restaurants, etc. It benefits their ability to quickly generalize these skills if students learn and practice the skills in a real life environment. Some examples include: selecting products in stores, paying at the cashier, etc. (Branham, Collins, Schuster, & Kleinert, 1999). Thus, CBI is considered a necessary means of instruction to successfully transition individuals from being a student to an adult in the community (Patton, Cronin,& Jairrels, 1997).

Video modeling is a relatively new teaching strategy for students with cognitive disabilities to learn a wide variety of life skills (McCoy & Hermansen, 2007). It requires that the target skill be videotaped pre-prepared, and presented in instruction as a visual model. These target skills include social, academic, and life skills. An advantage to video modeling is that the teacher has a complete control over the teaching procedure because

he/she has developed the contents of the video. There are many types of video modeling, such as adult video modeling, peer video modeling, self-video modeling, and point-of-view video modeling. Adult video modeling refers to the target skill in the video being presented by an adult. When another child is presented in the video demonstrating the skill it is called peer video modeling. The child or adult may or may not be known to the student and, typically, the child is the same gender as the student. Video self-modeling is when the student him/herself is videotaped performing the target skill. Sometimes this is used as a reflection tool for the student. Another way to approach video self-modeling is to videotape the student many times or over time until a video can be pieced together of the student successfully completing the target skill. Point-of-view video modeling is when the video is taken from the perspective of the student completing the target skill. The other is called mixed models, which is when any of the other models are combined with one another (McCoy & Hermansen, 2007).

All types of video modeling have shown positive results, though peer modeling and self-modeling have shown to be a bit more effective than adult modeling (McCoy and Hermansen, 2007). The latest type is point-of-view video modeling, starting in 2000, then followed by other studies to demonstrate its positive impact on student learning. Reviewing research, it is found that such a model has been used to target self-help skills (e.g. getting dressed, caring for pets, mailing a letter, and using a microwave), as well as play skills (e.g. motor actions with toys) (McCoy & Hermansen, 2007). None of these studies have focused on a particular life skill, especially culinary arts skills for upper elementary students.

While it may seem logical to teach many life skills to students in high school, it is also extremely important to begin teaching these skills at an earlier age, so that students have enough time to practice before they need to apply the skills in their lives independently. If students with moderate to severe disabilities are not taught until they enter high school, there may not be enough time to practice the skills necessary in just a few years. Relevant life skills can and should be taught throughout a student's schooling (Patton, Cronin, & Jairrels, 1997).

Emerging research concerning the use of video modeling techniques with positive results suggests that video modeling may be a valuable tool for teaching a variety of skills to individuals with cognitive and developmental delays. There is a lack of research surrounding life skill acquisition for upper elementary aged students (grades 3-5) using point-of-view video modeling. The objective of this study is to determine if point-of-view video modeling is a successful strategy to develop culinary skills of upper elementary students. Furthermore, this study will investigate whether point-of-view video modeling is effective when the video is narrated or when the video is silent except for attention-getting sounds at key points.

Significance of the Study

Many instructional strategies have been presented in the field of special education to teach students with cognitive disabilities. One of these methods that requires more research is point-of-view video modeling. Point-of-view video modeling has been used to teach play skills, daily dressing, pet caring, and microwave operation. This study attempts to investigate how this model will be applied in teaching culinary arts life skills to upper elementary students.

Additionally, it is known that students with cognitive and developmental disabilities can be sensitive to processing multiple forms of sensory information (Engel-Yeger, Hardal-Nasser, & Gal, 2011). For that reason, this study will also examine the effectiveness of point-of-view video modeling with a narrated video versus a video that is silent except for a few sounds at key points. These sound indicators will be presented in a step by step fashion to guide students to complete the required task.

Statement of Purposes

The purposes of this study are to: (a) evaluate the effectiveness of point-of-view video modeling on teaching culinary arts life skills to elementary students with developmental and cognitive disabilities; (b) compare the effectiveness of point-of-view video modeling with narration to point-of-view video modeling with no narration but with sound indicators at key locations; (c) evaluate students' performance to maintain any gained skills without watching the video regularly.

Research Questions

1. Is point-of-view video modeling effective in teaching culinary life skills to elementary students with developmental and cognitive disabilities in grades 3-5?
2. Are there any differences in skill acquisition when using point-of-view video modeling with narration versus point-of-view video modeling with no narration but with sound indicators at key locations?
3. After the skill is taught, will the students maintain the skill without regularly watching the video?

Chapter 2

Review of the Literature

Students with cognitive disabilities often have difficulty in learning skills involving memory, problem-solving, attention, reading, linguistic, verbal, math, and visual comprehension ("Cognitive", 2014). These obstacles may impact their retention and maintenance of their learning, as well as generalizing what they have learned into new settings and situations (Westling & Fox, 2004). Because of their memory problems, individuals with cognitive disabilities may have difficulty in recalling skills and knowledge they have already learned. Solving problems, attending to a task, and processing visual stimuli can all be challenging tasks for these individuals ("Cognitive", 2014). These skills permeate into adult lives seamlessly for most people, but for those with cognitive disabilities, structured instruction may be needed to acquire life skills.

Importance of Teaching Life Skills

According to the report by Life Centered Education (2014), almost 3/4 of people with disabilities do not have jobs, more than one third are living in poverty, and over half of individuals with disabilities earn under $5,000.00 per year. This means that these individuals are not coming out of schools with the right skills to pursue employment. Interestingly, Baer *et. al.* (2011) found that involving students in a vocational education program doubled the students' chances for full-time employment when they completed their schooling. It is found that vocational education is linked with higher wages, more work hours offered, job satisfaction, as well as overall higher rates of employment for individuals with disabilities (Harvey, 2002). The link between teaching life skills to students seems to be pretty clear. It is imperative that life skills be directly taught to

students while they are in school, so that they can be prepared for their future employment when they enter adulthood (Bouck, 2010).

Patton, Cronin, and Jairrels (1997) note that transition education or life skills education aimed at helping students to become independently functioning adults, should start as early as preschool (1997). For students who have problems with acquiring skills as well as generalizing those skills, it is never too early to begin planning the steps to help them be as successful as possible. Student's needs should drive the school curriculum and programs (Patton, Cronin, & Jairrels, 1997). In addition to recognizing the value and need for teaching life skills, it is important to examine the different strategies for teaching these skills.

Instructional Strategies for Teaching Life Skills

There are a variety of instructional strategies provided in teaching life skills to students with cognitive disabilities. Classroom simulation, Community Based Instruction (CBI) and Discrete Trial Teaching (DTT) are a few of the major instructional strategies. Additionally, other strategies can be embedded into these three major areas to enhance the quality of the instruction delivered. These are task analysis, prompting strategies, and social stories. The strategies above have been researched and found to be successful in teaching skills to individuals with disabilities. The particular skills that work best with each student depend on that student's individual strengths, weaknesses, and needs.

Classroom simulation. Classroom simulation serves as a real scenario involving a learner with real skill practice and can be an effective way to teach skills and promote generalization (Kleinert, Browder, & Towles-Reeves, 2009). In this scenario, the educator creates an environment that simulates a real life situation for the student to

practice. Presenting students with natural settings to practice skills has been found to assist in skill acquisition and maintenance (Stone-MacDonald, 2011).

Alberto, Cihak, and Gama's study (2005) used classroom simulation to teach students how to withdraw money and purchase items with a debit card. The researchers compared whether the use of picture prompts to guide classroom simulation was more effective than video modeling to guide students through the target steps. A total of 8 students, whose ages ranged from 11-15, participated in the study. All students acquired and maintained the skills regardless of which method was used but it was found that static pictures were more efficient, as students made fewer errors and met mastery criterion faster than the students who engaged in video modeling (Alberto, Cihak, & Gama, 2005).

In a similar study, Rowe, Cease-Cook, and Test (2011) used classroom simulation to teach 3 high school students, 2 males and 1 female between the ages of 16-18, to purchase items with a debit card and track expenses. The instructor taught a 15 step process with static picture prompts to guide the students through the process in their classroom. All three students met mastery criterion and were able to generalize these skills into a real life setting (Rowe, Cease-Cook, & Test, 2011).

In addition, Rowe and Test (2012) added 5 additional steps to the process in another study. It was found that 4, 10th grade students were able to learn a 20 step process using debit card and calculation. The students were 16 years old, 2 males and 2 females, 3 were diagnosed with learning disabilities, and the other with autism and emotional disabilities. They were all able to pay for items with a debit card, track their expenses, deposit money, and keep track of the transactions in a check register. This was taught

through classroom simulation, the teacher set up a pretend "store" within the classroom, complete with a debit card machine made out of cardboard, checkbook, etc. After practicing in their classroom, these students were able to generalize this knowledge to the real world and to perform the skills in the community. These skills were maintained with no further instruction for about 5 weeks (Rowe & Test, 2012).

Ayres, Douglas, and Cihak's study (2011) combined the use of computers and classroom simulation. In their study, 4 students, 2 males and 2 females between the ages of 12-15, were taught to locate clothing sizes by learning to match from the shopping list to the clothing tags. Pictures were displayed on a PowerPoint presentation for the students to view. Clothing racks with clothes were set up in the classroom for students to practice the skill. All of the students learned the skill and generalized to a real life setting (Ayres, Douglas, & Cihak, 2011). It seems that real life simulation in class plays an important role for these students to practice the skills learned and transfer into their lives out of the classroom.

Community based instruction. Community-Based Instruction (CBI) is another strategy that has been successful in teaching skills to students with cognitive disabilities. In this type of teaching, the skill is taught in the actual environment where the student could practice. This may occur in places students would encounter in their daily lives, such as the grocery store, restaurants, etc. (Branham, Collins, Schuster, & Kleinert, 1999). CBI is considered an important instructional method to successfully teach life skills to students with disabilities (Patton, Cronin, & Jairrels, 1997).

Because of the cost to implement CBI on a regular and frequent basis, Steere and DiPipi-Hoy (2012) suggest strategies to apply in the classroom to support CBI even when

leaving the school regularly is not an option. Some of these strategies include: task analysis, role playing, and classroom simulations (Steere & DiPipi-Hoy, 2012). In addition, CBI is cited as a necessary means of instruction to successfully transition individuals from life as a student to life as an adult in the community (Patton, Cronin, & Jairrels, 1997).

In 2012, Ciccone, Hennessey, and Stokes performed a study to see if parents could be taught to provide CBI to their children to enhance language learning in everyday contexts. A total of 18 parents and their children were included in the study; of the children, 12 were male and 6 were female, ranging from 21 through 53 months of age. All of the children were diagnosed with language delays. It was found that both parents and children communicated more with each other after the parents were trained and implemented instruction. In addition, the vocabulary of the children was notably larger and their language skills had improved significantly (Ciccone, Hennessey, & Stokes, 2012).

Carter, Trainor, Ditchman, Swedeen, and Owens's study (2009) investigated the effect on community-based summer work for 220 high school students with high incidence disabilities. After the summer, over half of the participants worked in some capacity and most of those individuals were paid for their work. Interestingly, about 3/4 of them were employed part time. The results showed some potential benefits of community based work for these students (Carter, Trainor, Ditchman, Swedeen, & Owens, 2009), however, these participants were not followed long enough to see if this community-based work experience impacted their ability to find gainful employment after high school. This study also did not investigate students with low incidence

disabilities for their employment possibilities. These individuals would need more support, and for them, CBI would likely be even more critical.

Another way to support these students is to combine CBI with classroom simulation. For example, Branham, Collins, Schuster, and Kleinert's study (1999) compared CBI with classroom simulation, video modeling, and classroom simulation and video modeling. Three students with moderate mental disabilities between the ages of 14 and 20 participated in this study. The target skills taught were mailing letters, cashing a check, and crossing the street. All three combinations were found to be effective in teaching the students the target skills and successfully generalizing the skills into real life situations. Interestingly, CBI combined with classroom simulation was the most efficient at teaching the target skills (Branham, Collins, Schuster, & Kleinert, 1999).

Discrete trial teaching. Discrete Trial Teaching (DTT) has been found to be an effective method with students on the autism spectrum and those with developmental delays. It can be used to teach various skills such as: imitation, receptive and expressive language, conversation, grammar and syntax, play, and social and emotional skills. These skills will be applicable in the real life world outside of school.

Downs, Downs, Johansen, and Fossum (2007) found that DTT was successful in teaching a variety of skills including communication, daily living, socialization, and appropriate behavior. A total of 12 students, 7 boys and 5 girls with a wide variety of disabilities between the ages of 40-61 months, participated in the study. They were assigned into 2 groups, one group received DTT and the other did not. Over the course of the 27 week intervention, each student in the DTT group was provided 30-42 hours of DTT, with about 1.30-1.58 hours per week. There were multiple sessions per day and

each session lasted 10-15 minutes. Results showed that those in the DTT group gained skills in communication, daily living skills, and socialization. The group who did not receive DTT instruction did not make gains in these areas. (Downs, Downs, Johansen, & Fossum, 2007).

In another study, Crockett, Flemming, Doepke, and Stevens (2007) taught DTT to two parents whose children were diagnosed with autism. Both children were male and 4 years old. The parents were taught how to teach their child functional skills. Subsequently, one child was taught about attending, writing, counting, and indicating preference while the other taught about attending, labeling, playing with a ball, and verbal imitation. It was found that after 4-6 sessions, slight gains were already being seen. In the beginning of the study incorrect responses from the children were frequent, but towards the end, correct responses in all areas were increasing. This encouraging finding supports the success of DTT as an instructional method and also highlights the importance of parent involvement in their children's learning (Crockett, Flemming, Doepke, & Stevens, 2007).

While DTT has been considered an effective instructional method for students with autism spectrum disorders, Gutierrez, Hale, O'Brien, Fischer, Durocher, and Alessandri (2009) conducted a study to determine if particular procedures had any effect on the amount and timeline of learning. In this study, using only target stimuli without any distractors when first introducing a new concept and including distractors at the start of instruction towards a new target skill were compared. Three students between the ages of 24-48 months participated in the study to learn receptive identification skills. The results were mixed, one student learned best with the first method, another learned best

with the second, and the third learned at the same rate regardless of which process was employed. It was concluded that the first method requires slightly more sessions for skill mastery to take place; this makes sense because it adds an extra step to the learning process (Gutierrez, Hale, O'Brien, Fischer, Durocher, & Alessandri, 2009). This study found that some of the intricacies involved in DTT were individualized per child and that DTT, overall, is an effective instructional method.

Strategies to embed within other instructional strategies. Task analysis is a strategy that can be used to break down target skills into small and sequential steps to make it more manageable for skill acquisition. It can be used to assist students in obtaining a variety of skills, including life skills. In addition to breaking down a target skill, modeling is the focus. If students do not know how it looks to successfully complete the skill, it will be harder for them to achieve the mastery level themselves. After the student observes the target skill successfully demonstrated, he/she would understand the steps then ample practice can be followed Repetitive practice is needed for the student to become proficient at executing the skill. Furthermore, as the student is practicing the skill, it is important for the teacher to deliver specific feedback and positive reinforcement so that he/she can either correct the mistake right away or knows the step is correctly completed (Kleinert, Browder, & Towles-Reeves, 2009).

Prompting strategies can be used to assist students in acquiring skills, including life skills. Prompts are typically systematically faded as the student becomes more independent at the task at hand. There are various types of prompting, including most to least, least to most, simultaneous, or controlling prompting. Success has been

documented for use of these prompts in situations to meet students' needs (Colozzi, Ward, & Crotty, 2008).

Steere and DiPipi-Hoy (2012) suggest the use of social stories as a way to supplement life skill acquisition. They suggest repeated readings of the social story to target the skills that will be practiced. This can be especially helpful in CBI where a student is met with tasks outside the school and is faced with interacting with individuals and situations that he/she may not be familiar with.

Video modeling. Video modeling, a relatively new teaching strategy for individuals with cognitive disabilities, can be used to effectively teach a wide variety of skills related to: emotional regulation, social interaction, reading letters, reciting classroom rules, writing, using a copy machine, covering one's buttocks when urinating in a public place (Ohtake, Takeuchi, & Watanabe, 2014), functional math (Burton, Anderson, Drater, & Dyches, 2013), employment (Goh & Bambara, 2013), play, purchasing (Marcus & Wilder, 2009), first aid (Ozkan, 2013), serving oneself a snack independently (Shrestha, Anderson, & Moore, 2013), emotional, social, academic, and life-skills. McCoy and Hermansen (2007) indicate that one of the benefits to video modeling is that there seems to be an increase in student interest and ability to maintain attention on the instruction. Because many individuals with a variety of disabilities may have been successful with and prefer learning through technology, video modeling is a logical choice to teach life skills (Ayres, Mechling, & Sansosti, 2013). The advantages of video modeling include: cost savings over having live teachers and therapists, flexibility in the setting in which the video is used, ability to repeat video as many times as needed, and the standardization potential of video modeling (Marcus & Wilder, 2009).

Adult video modeling. One type of video modeling is Adult Video Modeling. In this type, an adult is videotaped modeling the targeted skill. The adult may be familiar to the student or may be an unknown person. An advantage for adult video modeling is that potentially less individuals need to be involved with filming, and the filming process can be streamlined because adults may be able to more accurately model target skills with less editing (McCoy & Hermansen, 2007). In their meta-analysis, McCoy and Hermansen (2007) indicated that adult video modeling was effective in teaching individuals play, perspective taking, conversation, purchasing, and spelling skills.

Nikopoulos and Keenan's study (2007) combined adult video modeling and peer video modeling. Three students with autism between the ages 6 and 7 were included in the study. The target skill was complex social sequences. In the video, a 10 year old peer engaged an adult in a social interaction. It is noted that using a combination of peer and adult video modeling, students with autism could learn equally well from adults and peers. The results showed that these students not only learned the target skills, but also maintained and generalized these skills after 1 and 2 month follow ups (Nikopoulos & Keenan, 2007).

Further, Allen, Wallace, Greene, Bowen and Burke's study (2010) combined adult video modeling and point-of-view video modeling. The age of the participants ranged between 17-22, thus, the adults who modeled the behavior could possibly be considered as peers. These three individuals were taught how to entertain and promote products while wearing an air-inflated costume. They were shown what it would look like to perform these skills from inside the costume using point-of-view video modeling, and what the character looked like from the outside performing the skills using adult/peer

video modeling. All of the participants met mastery criterion for the skill and two of them even retained the skills after 2 months. They were able to generalize the skill to a real life working environment (Allen, Wallace, Greene, Bowen, & Burke, 2010). Interestingly, Allen, Wallace, and Renes's study (2010) provided the same procedures with 3 participants and demonstrated similar results to support the findings. Therefore, adult video modeling seems effective to teach life skills to individuals with cognitive impairments.

Peer video modeling. Peer video modeling requires a peer, typically the same gender and around the same age as the student, modeling the target skill. The peer model may be familiar to the student or someone that the student does not know. Most commonly, the peer used as the model is a typically developing peer and is used to teach language, socialization, play, and independent living skills. (McCoy and Hermansen, 2007).

In Reagon, Higbee, and Endicott's study (2006), peer video modeling was provided to teach play skills to one 4 year old boy with autism. The goal was to teach him pretend play skills with a play partner. In the video, his older brother along with a typically developing peer-modeled the target skills. The participating child was able to acquire the skill and generalize it across multiple people and locations. In addition, it is noted that he maintained the skill over time (Reagon, Higbee, & Endicott, 2006).

In Marcus and Wilder's study, peer video modeling and self-video modeling were compared to teach 3 children between the ages 4-9 to label novel items or symbols. Results showed that all of the children mastered the target skills when self-video modeling was presented, while only one child mastered the target skills when peer video

modeling was provided. On the contrary, the results in another study by Sherer et al. (2001), cited by Marcus and Wilder to compare peer video modeling and self-video modeling found no difference in mastering target skills of participants between peer and self-video modeling.

To further verify the findings, peer video modeling and self-video modeling were compared when teaching first aid skills to 3 students with cognitive impairments between the ages of 9-14 (Ozkan, 2013). Both types of video modeling were equally successful overall. Results showed that one student made faster progress with peer video modeling, while one made faster progress with self-video modeling, and the third made equal progress with both types of modeling.

Given the success of the three studies discussed, it seems reasonable to conclude that peer video modeling, while not always the most effective for every student, does show promising positive results when used as a teaching tool to teach life skills to students with cognitive impairments.

Self-video modeling. Unlike the other types of video modeling, self-video modeling has two distinct types. One type is known as positive self-review, which entails creating a video of the learner that shows his/her performing the target skill successfully. This type of self-video modeling typically requires prompts from the teacher and good video editing skills. The second type of self-video modeling is known as feedforward, which shows the learner engaging in a task in a different setting, but edits the learner into the targeted setting. This has been used to assist individuals with selective mutism (Collier-Meek, Fallon, Johnson, Sanetti, & Delcampo, 2012). Other types of self-video modeling are also found: one type being positive self-review and the other an unedited

video for the learner to self-critique (McCoy and Hermansen, 2007). Self-video modeling is defined as a positive form to separate from others because it requires self-critique. To make this type of video modeling effective and accurate in the teaching process, any inappropriate behaviors that may distract from the target skills should be excluded when editing the video (Buggey & Ogle 2012).

Multiple studies have found success in teaching learners through the use of self-video modeling, which has been found to be successful in teaching various skills. For example, MyCoy and Hermansen (2007) reviewed studies on using this type of video modeling. These studies showed success in teaching learners to reduce aggressive behaviors such as tantrum and to increase skills of social actions and language, and other skills such as laundry sorting, making lunch, and hand washing.

One specific example in Ohtake, Takeuchi, and Watanabe's study (2014), demonstrated that 2 elementary children, one in the 1st grade and the other in the 2nd grade, learned to urinate with their pants covering their buttocks when in a public restroom using self-video modeling. One student was able to achieve mastery by watching the video of himself performing the skill, and the other was able to acquire the skill only after a dinosaur (his hero) was inserted into the video also performing the target skill (Ohtake, Takeuchi, & Watanabe, 2014).

In addition, 2 male and 1 female adults were taught job skills using self-video modeling. In Goh and Bambara's study (2013), the men were 53 and 47 and the female was 28. Each of them was in a different job position, requiring different job skills. The job skills for one male were shoe cleaning and book room organizing, for the other male cleaning fitting rooms, storing shoes, and using the computer to input information, and

for the female putting conference packets together, shredding paper, and making photocopies. The video setting was the same in which the task would need to be completed for each individual and for each task. This study found that some individuals did meet mastery in some skills but not others, though improvements were made by each learner in each skill (Goh & Bambara, 2013).

In Burton, Anderson, Prater, and Dyche's study (2013), self-video modeling was also used to teach academic skills to 4 male learners between the ages of 13-15. They were taught functional math skills using video self-modeling on an iPad. Students watched 5 videos of themselves successfully completing story problems. The videos were created by providing the participants with a written sheet with task analysis accompanied by the level of prompting necessary to insure successful completion of the problem. The videos were edited to appear as if the students completed the tasks independently. These videos were viewed by the participants 2 times per day, 4 days per week. This continued until each participant was able to achieve mastery and sustain this over three additional sessions. Results showed that participants made significant improvement and met mastery criteria (Burton, Anderson, Prater, & Dyches, 2013).

Point-of-view video modeling. Point-of-View (POV) video modeling requires a video to be created from a first–person perspective of someone performing the target task. Though this is one of the most recent types of video modeling, it already shows promise as an effective teaching strategy for students with disabilities (McCoy and Hermansen, 2007). POV video modeling has been found in teaching skills such as: independent living, social (Mason, Davis, Boles, & Goodwyn, 2013), dressing, caring for a pet, mailing a letter, making popcorn, (McCoy and Hermansen, 2007), serving oneself

an afternoon snack (Shrestha, Anderson, & Moore, 2012), and play (Hine and Wolery, 2006).

Shrestha, Anderson, and Moore's study (2012) also used POV video modeling to teach one 4 year old boy with autism to serve himself a snack and clean up after eating. Forward chaining was provided together with a task analysis to teach the target skills in a step-by-step fashion, using three smaller videos. As the boy mastered three sections, all video segments compiled to present as a whole. Results showed the boy did meet criteria for mastery of this skill, and he was able to maintain this skill over time, even without the video modeling video. He was not, however, able to generalize the skill to serve other snacks (Shrestha, Anderson, & Moore, 2012).

Hine and Wolery's study (2006) used POV video modeling to teach play skills to 2 preschoolers with autism between the ages of 30-43 months. A video was taken of adult hands completing the play skills with gardening tool toys and cooking tool toys (2 separate videos). Each day, for 15 days, the participants were probed for the acquisition of the target play skills, video viewing, and practice of the target skills. These three components took approximately 15 minutes. It was found that both girls met mastery criteria for all of the targeted play skills in the sensory area and most of the play skills did not have to be prompted or given additional reinforcement beyond the video. Additionally, many of the play skills generalized into other areas of the classroom beyond the sensory area (Hine and Wolery, 2006). These findings are encouraging and hold potential for this type of video modeling.

Studies of Point-of-View video modeling have shown to be valuable in teaching life skills to students with disabilities, however, the participating students in the previous

studies were those with autism or developmental delays. Additional research is needed to assess the effectiveness on learners with other disabilities.-Further research may be completed with preschool and elementary learners because the current research has focused on older participants (Mason, Boles & Goodwyn, 2013).

Summary

It is clear that students with cognitive impairments may need specific targeted instruction to acquire the life skills necessary to function as independently as possible for their adulthood. Without these skills, these individuals are not able to be independent when they leave school. There are many research-based teaching strategies to teach life skills to meet individual needs. As technology permeates our lives, it provides an opportunity for teachers and students in teaching and learning. Video modeling is one of the technology-based teaching strategies shown to be successful in teaching life skills of students with cognitive impairments. Despite this, there is still more to be done, specifically using POV video modeling with elementary students. Review of research in life skills instruction using video modeling showed that only high school students were involved, while elementary children were missing because of their young age. Considering the population with cognitive impairments, early instruction in life skills may be needed at the elementary level, so that the students can review the skills year by year until they are able to achieve the mastery level when they leave school.

Chapter 3

Methods

Setting

This study took place in a self-contained classroom for students with multiple disabilities in a diverse suburban community in southern New Jersey with a population of 50% Caucasian, 31% African American, 8% Asian, and 8% Hispanic. There was one teacher, five teacher assistants, and eight students in this classroom where they learn all academic subjects and life skills. The teacher has had 6 years of teaching experiences in various classrooms and 3 years in this setting.

The school district reflects the diversity of the community. The school where this study took place consists of grades 3, 4, and 5 with 900 students. In the realm of special education, this school offers in-class supports, pull-out resource rooms, and self-contained settings for students classified as having learning disabilities, autism, multiple-disabilities, emotional/behavioral disabilities, etc. Many efforts are made to keep these students in district while providing appropriate services.

Participants

A total of 8 students in grades 3-5 with an age range from 8-11 participated in the study. Of the 8 students, 3 are male and 5 are female, 2 are Caucasian, 4 are African American, and 2 are Hispanic. Their disabilities include autism, cerebral palsy, vision difficulties, Down Syndrome, communication impairments, and all with cognitive delays. Most students are functioning at or below a kindergarten through first grade level. All students communicate primarily through verbal means and are able to read to some extent, and understand numbers and basic mathematical concepts. None of the students

take the statewide assessment, but are involved in the alternate portfolio evaluation for students with moderate and severe disabilities, following the NJ state criteria. Table 1 presents some general information of the participants.

Table 1

Student information

Student	**Age**	**Gender**	**Classification**	**Current Reading Level**
A	9	M	Communication Impaired	Mid first grade
B	9	F	Multiply Disabled	Kindergarten
C	9	M	Multiply Disabled	Kindergarten
D	9	F	Multiply Disabled	Waiting to receive this information
E	10	F	Multiply Disabled	Kindergarten
F	10	F	Autism	Early first grade
G	11	F	Multiply Disabled	End of kindergarten
H	11	M	Autism	Mid first grade

In the area of life skills, specifically culinary life skills, student strengths and weakness vary but one thing all students have in common is a dependency on adults' assistance. Student A is able to read directions to a recipe with picture assistance, but depends on teacher's prompts to carry out the step.

Student B is an enthusiastic learner but struggles to read even with picture assistance and also has limited exposure to a variety of foods. For example, when making a fruit salad, this student did not know the difference between strawberries and blueberries because she had never seen or tasted either.

Student C is able to obtain the ingredients necessary to complete a step but has difficulty reading the step at times even with picture assistance. This student has little experience with measuring tools.

Student D is able to read the recipe steps almost independently with or without picture assistance. Usually his student can obtain the necessary ingredients when requested, but has difficulty opening items and using measuring tools appropriately.

Student E has cerebral palsy and mobility difficulty with challenges using the left hand. It is necessary for this student to use a walker to get around, making it nearly impossible to obtain the ingredients unless within the distance for her to reach. This student also has a vision problem that inconsistently impacts her ability to read even with picture assistance. She is increasingly able to recognize the need to ask for help without prompting.

Student F is usually able to read the steps to a recipe with picture assistance but typically requires adult prompting to follow through to actually perform the task.

Student G is relatively able to read-the steps to a recipe with picture assistance but depends prompting to implement the steps. Significant wait time is necessary for this student to realize that he must attempt the task.

Finally, Student H is able to read the recipe steps with picture assistance and typically gather the necessary ingredients. This Student has difficulty in fine motor skills, therefore using measuring tools appropriately is especially challenging.

Materials

Instructional materials. An array of different materials were used in this study that focused on the effects of Point-of-View (POV) video modeling. Classroom space, closet, shelves, and counter space was used for students to practice the skill of making English muffin pizza. Students also had access to a mini refrigerator and a microwave. Paper plates, plastic ware, English muffins, tomato sauce, and cheese were also used to create the target recipe skill. Students watched the video presented on the classroom computers and listened to the audio with headphones. The video was recorded with a Sony Handycam (HDR-CX240) camera and edited with Audacity, VSDC Free Video Editor, and Any Video Converter. Still screen shots of portions of the video can be seen in Appendix A. When needed, still images of each task were presented as a visual prompt to complete a step during practice. A picture example of these visual prompting cards can be seen in Appendix B.

The video outlines each step listed in the task analysis sheet taken from the perspective of the person completing the task. This is known as Point of View video modeling. The video was recorded in the classroom where the students will perform the task and every material presented in the video was available for the students. First, the video depicts the steps necessary to make the English muffin pizza, followed by the steps necessary to clean up. The visual portion of the video tape is the same for all participants. The audio, however, has two versions. The first version has a narration playing as the

individual completes the task, while the second version is silent except for sound indicators at key parts of each step.

Measurement materials. A task analysis data sheet was used to evaluate each student's progress. It specified each step and prompting level necessary for the student to complete the task with scores from 5-0. A least to most prompting hierarchy was provided. The higher the score, the more independently the task was completed. A score of 5 was given for independent task completion, 4 was given when a gestural prompt was provided, 3 was given when a visual picture was used to guide the step, 2 was given when the teacher modeled the skill, 1 was given if partial physical assistance was provided, and 0 was given if full physical assistance was presented to complete a step. The teacher and one of the classroom assistance both recorded students' scores when they were completing the steps. Training was provided to the teacher assistant on the least to most prompting procedure. The assistant compared data with the teacher to ensure accuracy. Table 2 presents the observation check list.

Table 2

Observation Checklist

Task: Making your pizza	
Step	**Prompting Level** 5 4 3 2 1 0
Stand up	
Walk to closet	
Open closet	
Take out English muffins	
Take out plate	
Take out spoon	
Close closet	

Table 2 (continued)

Step	**Prompting Level** 5 4 3 2 1 0
Take supplies over to counter space next to microwave	
Put them down	
Walk to refrigerator	
Open refrigerator	
Take out mozzarella cheese	
Take out tomato sauce	
Close the refrigerator	
Walk back to the microwave station	
Open bag of English muffins	
Take English muffin out of the bag	
Take out one	
Pull the English muffin apart	
Put the half you want on your plate	
Open tomato sauce	
Use spoon to scoop one spoonful of sauce	
Put sauce on pizza	
Use spoon to spread sauce around the English muffin	
Open the mozzarella cheese	
Take out a pinch of cheese	
Sprinkle cheese on English muffin pizza	
Open microwave	
Put in English muffin pizza	
Close microwave door	
Push 30	
Push start	
(stay near microwave)	
Open microwave when it dings	
Take English muffin pizza out	
Evaluate if it's done	
Put it down on counter	
Close microwave	
Feel the bottom to check heat	
Try it/Eat!	
Task: Cleaning up	
Step	**Prompting Level** 5 4 3 2 1 0
Take spoon out of tomato sauce	
Put spoon on plate	
Thrown plate and spoon in trash	

Table 2 (continued)

Step	Prompting Level 5 4 3 2 1 0
Put the lid on the tomato sauce	
Zip up mozzarella cheese bag	
Take tomato sauce and mozzarella to refrigerator	
Open refrigerator	
Put items inside refrigerator	
Close refrigerator	
Go back to microwave station	
Put English muffins back into the bag	
Seal the bag w/ bag tie	
Put English muffins back in the closet	
Get a paper towel from the closet	
Rip off one paper towel	
Close closet	
Walk over to workspace	
Wipe workspace (putting crumbs in hand)	
Throw away crumbs and paper towel	

Note: 5=independent, 4=gestural prompt, 3=visual picture prompt,
2=adult modeling prompt, 1=partial physical prompt, 0=full physical prompt

Research Design and Procedures

A single subject research design with ABCD phases was used in this study. Phase A, the baseline, student performance scores were recorded over 5 separate days for 2 weeks. Students were asked to complete the target task without prompting or access to the video. Each score was recorded on each step every time the individual participants were instructed to complete the skill. During Phase B and C, the intervention, participants viewed the video 2-3 times per week and practiced the skill immediately after watching the video. Phase B will be the students who view the narrated video and phase C will be the students who view the sound tones video. The B and C phase lasted 4 weeks and each participant watched the video and practiced 10 times (every other day - 2 times one week,

3 times the next, etc.). Least to most prompting was provided for steps that students were unable to complete independently. The same process was taken to record scores on each step each time the participants were instructed to complete the skill. Phase D, maintenance, occurred 2 weeks after Phase B and C concluded, participants were instructed to complete the target skill 2 times per week without watching the video to measure their skill maintenance. The same procedures were used to record the students' performance scores.

During the instructional portion of the study, participants viewed the video at a computer using head phones, so that the sound does not impact the experience of other students who may or may not be in the same group. After viewing the video, participants were guided to practice the skill. Data sheets were used to record individual student's performance. Each participant's task completion was scored using the table outlined in the *Materials* section.

Data Analysis

The median and mean scores of each student across phases were presented in a visual graph. Means and standard deviations were presented in a table to compare the difference in each phase to analyze the effectiveness of the intervention.

Chapter 4

Results

This chapter displays the results from the baseline, intervention, and maintenance sessions. Students C, D, E, and H were grouped to view the narrated video and students A, B, G, and F viewed the sound toned video. Table 3 and 4 present the means and standard deviations of each student's performance scores across all phases. Table 5 presents the results from the student survey questions. Figures 1 and 3 represent the median of students' performance across phases. Figures 2 and 4 represent the mean of students' performance across phases.

Table 3

Means and Standard Deviations of students' performance across phases (narrated video group)

	Baseline		**Intervention**		**Maintenance**	
	Mean	SD	Mean	SD	Mean	SD
Student C	0.10	0.30	4.70	0.82	4.75	1.09
Student D	0.24	0.77	4.35	1.53	4.07	1.92
Student E	0.03	0.18	3.14	1.89	3.48	2.32
Student H	0.39	1.35	4.25	1.42	4.11	2.42

Table 4

Means and Standard Deviations of students' performance across phases (sound tones video group)

	Baseline		**Intervention**		**Maintenance**	
	Mean	SD	Mean	SD	Mean	SD
Student A	0.00	0.00	4.71	0.93	4.75	1.03
Student B	0.00	0.00	4.77	0.66	4.83	0.88
Student G	0.00	0.00	4.21	1.43	4.02	1.94
Student F	2.71	2.51	4.27	1.46	4.07	1.93

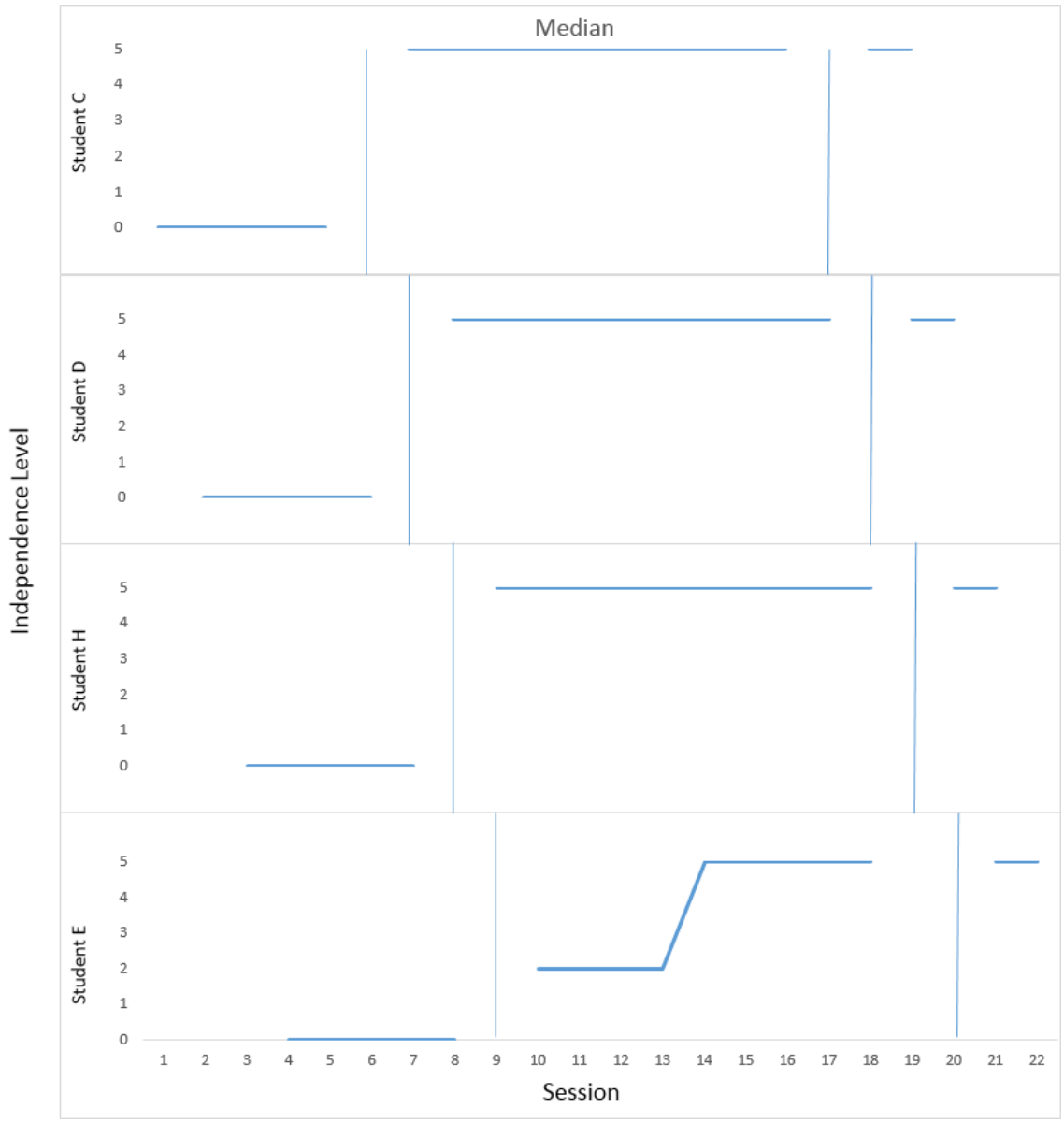

Figure 1. Median of students' performance across phases (narration video group).

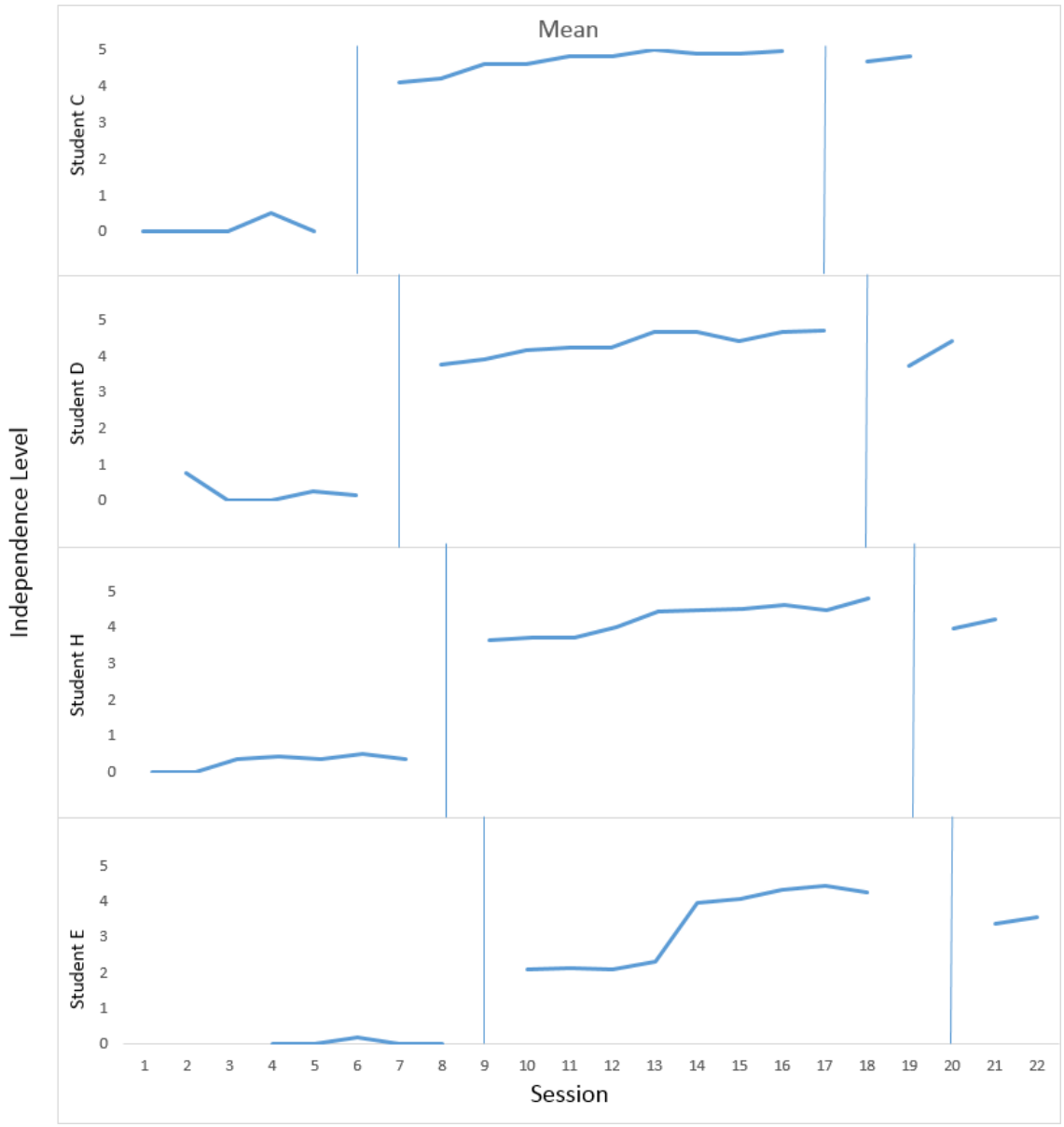

Figure 2. Mean of students' performance across phases (narration video group).

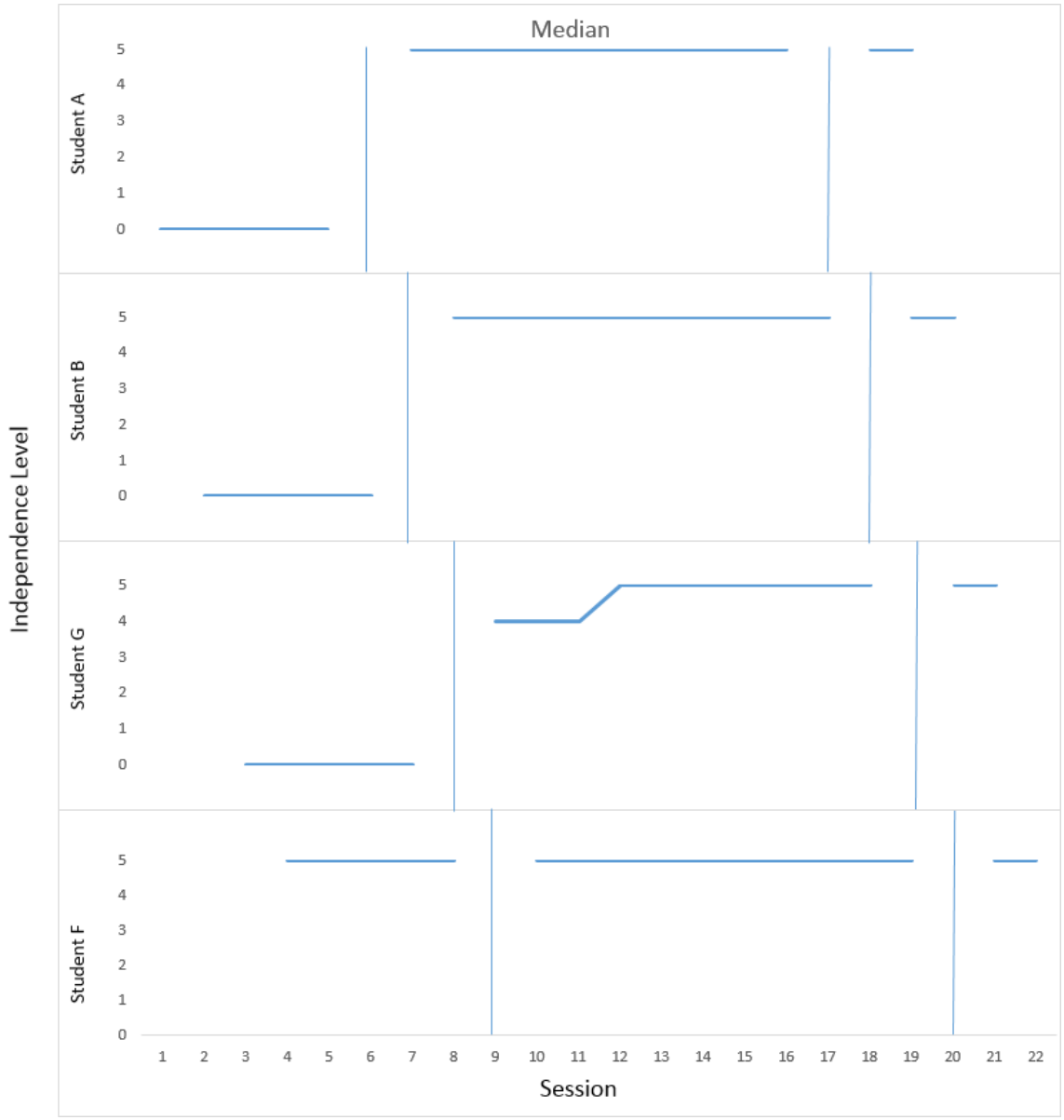

Figure 3. Median of students' performance across phases (sound tones video group).

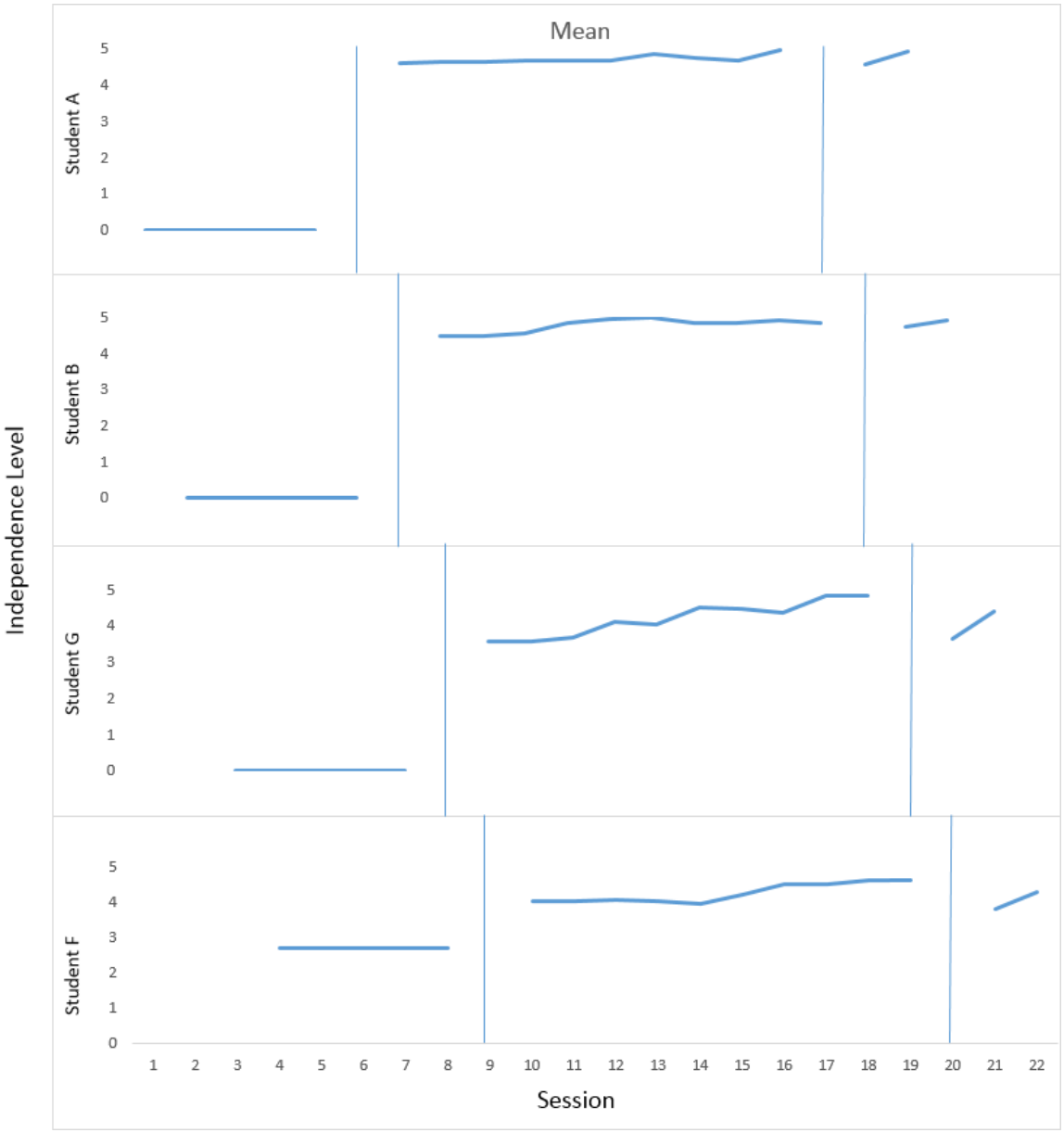

Figure 4. Mean of students' performance across phases (sound tones video group).

Following the maintenance sessions, a survey with 5 questions was given by the teacher to the students. Some students chose to say "yes/no" or "easy/hard" in response and some chose to shake their heads to represent "yes/no" for their responses. Table 5 presents their responses.

Table 5

Survey Results

	Yes/Easy Narration Group	**No/Hard Narration Group**	**Yes/Easy Sound Tones Group**	**No/Hard Sound Tones Group**
Did you like watching the English muffin pizza video?	100%	0%	100%	0%
Did you like making an English muffin pizza?	100%	0%	100%	0%
Do you think it was easy or hard to make an English muffin pizza?	75%	25%	100%	0%
Did you get better at making an English muffin pizza?	100%	0%	100%	0%
Do you think you'll make an English muffin pizza by yourself again?	75%	25%	100%	0%

Chapter 5

Discussion

The purposes of this study were to evaluate the effectiveness of point-of-view video modeling on teaching culinary skills to elementary students with developmental and cognitive disabilities, compare the effectiveness of point-of-view video modeling with narration to point-of-view video modeling without narration but only sound indicators at key locations, and to evaluate students' performance to maintain their gained skills without watching the video regularly. Eight students were included and were split evenly into two groups.

Results indicate that the majority of students were unable to complete the task during the baseline. Some students attempted some steps, most commonly getting up, going to the back of the classroom, opening the closet, and looking for ingredients. Even though the ingredients were all present, only two students took out any of the ingredients. None of the students were able to complete any of the clean-up steps.

All 8 students achieved a high level of success during the intervention, nearly mastering each step of making an English muffin pizza. At times, steps were completed out of order but were still completed successfully and in a way that resulted in the same finished product. For example, a student might throw away his plastic spoon and plate separately to complete the clean- up step that required throwing away together, this step was still considered as a completed-task. This indicated that the students not only remembered the steps, but also understood the concept of completing these steps, rather than simply imitating the task as the video displayed. Interestingly, during the task analysis, one step required students to put the remaining English muffins back in the

closet, students had different reactions when they removed the last English muffin. One student put the empty container back into closet, just as he would if there were English muffins left (as there were in the video). Another student thought about the situation and decided to throw away the empty packaging. A similar situation occurred when the shredded mozzarella cheese ran out. This shows that, while effective in teaching specific skills, there can be a limitation of video modeling. It may need to include unique situations that are specifically address "troubleshooting"-for students to learn problem solving skills. It may be difficult to predict every variation an individual may encounter, but is important to teach students critical thinking skills so that they can learn to encounter different situations and think about ways to solve the problem.

During maintenance, many students remembered most of the steps during the first maintenance session and were able to successfully complete much more during the second session. This could be due to students remembering more of what they practiced and saw in the video after doing the task again for the first time after discontinuing viewing the video. It would be valuable to evaluate if students maintain these skills in a longer time, for example, several months.

The first research question addressed the effectiveness in teaching culinary life skills to elementary students in grades 3-5 with developmental and cognitive disabilities. Results demonstrated that students entered with minimal ability to complete the necessary skills to make an English muffin pizza, acquired most or all of the necessary skills and successfully completed the task during intervention, and successfully retain the majority of skills after two weeks without watching the video. The results are similar to Shrestha, Anderson, and Moore's study (2012) using Point-of-View (POV) video

modeling. Their study focused on teaching one 4 year old boy with autism to serve himself a no-cook snack after school and clean up. The child was able to learn all of the skills and successfully complete the steps. He was also able to maintain the skill over time without watching the video, but not able to generalize to other snacks. Comparatively, students in the present study learned the culinary life skills of making English muffin pizzas and cleaning up after completing the task. They also remember clean up skills in different settings, for example, weekly group cooking lessons and after eating a snack at school.

The second research question addressed differences in skill acquisition between the group using video with narration and sound tones. Many other studies did not indicate whether their videos were narrated, silent, etc. After searching the internet for video modeling, it seems that the majority of videos included narration or speech at times where it would be appropriate for the skill being taught. This study found that students in both groups acquired and maintained the skills.

The third, and final, research question addressed student ability to maintain the skill without watching the video. Similar to Nikopoulos and Keenan's study (2007) and Reagon, Higbee, and Endicot's study (2006), the participating students were able to maintain the target skills without the video presentation. This finding seems consistent with that of Hine and Woldery's study (2006), in which students were able to generalize skills to different settings. The ability to maintain the target skill, as well as generalize the skill, is a critical component in determining success of an intervention, in this case POV video modeling. If students are unable to maintain a skill in the absence of the video, it will become unfeasible to continue to possess the skill. If individuals with cognitive

disabilities are able to retain learned skills in the absence of watching the instructional video, they will be able to add to their set of skills. Without this they will lose these skills as quickly as they gained them, as it is not feasible to watch a plethora of videos each day and the amount of skills to acquire would be severely limited by this factor.

Limitations

Despite the positive results of the study, there were a couple of limitations. The sample size of 8 students, 4 in each group is relatively low. Because of this, it can be noted that students in each group's success in achieving the target skills cannot be generalized to the effectiveness of narrated POV videos versus POV videos with sound indicators.

Additionally, this study was performed in a classroom where students were able to see others completing the target task at times during the intervention. During the baseline and maintenance, care was taken to block off portions of the classroom using dividers. It was not feasible to do this during the entire intervention as it was disruptive and distracting to other instruction. During much of the time, the students weren't interested in watching their peers performing the target skill. They were engaged in other activities and the primary excitement for students was watching the video and completing the target task themselves. Although they were able to view a peer engaged in the task, students were mostly engaged in other academic tasks. This may mean that they were potentially exposed to the video as well as some live peer modeling. Because students achieved a high level of success during intervention, much of the peer modeling was accurate, but there could have been times where students saw a peer completing a step incorrectly or saw a peer completing inaccurate steps.

Implications

Using POV video modeling with narration or sound tones could be adapted and used by teachers to teach group cooking lessons to promote increased independence and decreased reliance on teacher's instruction and prompts. Further, it could be expanded to other skills and subject areas, for example, life skills, math skills, and science experiments. In addition, POV video modeling could be combined with community-based instruction to promote skill acquisition with less teacher prompting. For students who are engaging in the activity for the first time, it could reduce stress and anxiety of performing skills in an unfamiliar location. If students regularly take trips to the grocery store to purchase supplies for home or for in-class cooking lessons, they can watch a POV video of the experience prior to the trip. This will take away the anxiety of unknown situations, build expectations, and demonstrate the necessary steps for shopping.

POV may also be used for teaching different learners a variety of skills. School administrators may encourage the use of POV video modeling for skill acquisition across different academic settings, for example, regular education rooms, inclusion rooms, and pull-out resource rooms for students with cognitive disabilities.

Recommendations

If a similar study is conducted again, it would be helpful to have larger group sizes so that comparisons can be made about the effectiveness of narrated POV video modeling versus POV video modeling with sound indicators. It would also be helpful to isolate different types of learners in large groups for comparison. The sound indicators

might be more helpful for students that can't process as much sensory input when compared with students who can handle simultaneous types of sensory input.

Ideally, it would be useful to conduct this study in a location that is more isolated or separated so that other participants can't watch an individual attempt to execute the skills during practice/intervention sessions. Removing potential peer modeling will isolate the video along with the corresponding practice for all of the participants' skill acquisition.

Future studies could also investigate the effectiveness of POV video modeling for culinary arts skills with individuals of various ages. For example, it could be possible for younger students to learn basic skills such as using a spoon or older students to learn to perform complex skills.

Conclusion

Results of this study add information to research on video modeling to teach students with moderate disabilities, especially those with cognitive disabilities in learning life skills. It has positive implications for the use of POV video modeling to teach similar skills to elementary-students in the future. Further studies with larger groups would be suggested to validate the finding. Based on the results, I plan to incorporate learning through POV video modeling into my lessons to enhance student skill acquisition and independence levels.

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Appendix A

Video Modeling Screen Shots

Appendix B

Visual Prompting Cards