A Comparison of the Effects of Video Prompting With and Without Error Correction on Vocational Skill Acquisition for Individuals with Moderate to Profound Intellectual Disabilities

THESIS

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By

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Abstract

Video prompting has been demonstrated to be an effective method of teaching new skills to individuals with intellectual disabilities. The purpose of this study was to compare the effects of using video prompting with or without error correction delivered via an Apple iPod Touch on the acquisition of vocational tasks for three individuals with intellectual disabilities. The participants were selected through teacher nomination and the two targeted vocational tasks were determined based upon equivalence of difficulty and teacher suggestion. The tasks selected were dust mopping and wet mopping. Both tasks required the use of standard janitorial equipment and were performed within the hallways of the participants’ school. A multiple probe combined with an adapted alternating treatments design was used to assess the level of skill acquisition for each of the two tasks. Results showed that for two participants, the acquisition of skills was equal under both conditions, and was slightly better in the absence of the error correction procedure for the remaining participant.
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Fields of Study

Major Field: Education
# Table of Contents

Abstract ......................................................................................................................... ii  

Vita ................................................................................................................................. iii  

Fields of Study ............................................................................................................. iv  

Table of Contents ........................................................................................................ v  

List of Tables ................................................................................................................ vii  

List of Figures .............................................................................................................. viii  

Chapter 1: Introduction ............................................................................................... 1  

  Purpose of the Study ................................................................................................. 9  

  Research Questions ................................................................................................. 10  

Chapter 2: Method ....................................................................................................... 11  

  Participants ............................................................................................................... 11  

  Setting ...................................................................................................................... 12  

  Experimenter .......................................................................................................... 13  

  Tasks and Materials .............................................................................................. 13  

  Dependent Variable and Data Collection ............................................................... 16  

  Independent Variables ............................................................................................ 18
List of Tables

Table 2.1 Participant characteristics ................................................................. 12
Table 2.2 Task analyses and duration of task steps.............................................16
Table 3.1 Task step error rates...........................................................................26
List of Figures

Figure 3.1 Overall accuracy for all participants on both tasks………………………………25
Figure 3.2 Dust mopping accuracy without video prompting………………………………27
Figure 3.3 Wet mopping accuracy without video prompting………………………………28
Chapter 1: Introduction

Individuals with intellectual disabilities are diagnosed based upon an intelligence quotient (IQ) score below 70, identification of limitations prior to the age of 18 and significant impairments in two or more areas of adaptive behavior (American Psychiatric Association /DSM-IV-TR/, 2000). The limitations experienced by individuals with intellectual disabilities (ID) in adaptive behavior skills, lead many to experience a reduction in their ability to access and maintain employment opportunities (Martorell, Gutierrez-Recacha, Pereda, & Ayuso-Mateos, 2008). The lack of skills necessary to participate in employment activities becomes a contributing factor in the low rate of employment currently evidenced across the demographic of individuals with intellectual disabilities. This lack of employment has been verified by The National Longitudinal Transition Study – 2 (Wagner, Newman, Cameto, Garza, & Levine, 2005). Without the job skills needed to secure and retain, individuals with intellectual disabilities may experience a reduction in their overall quality of life (Eggleton, Robertson, Ryan, & Kober, 1999). Engagement in employment activities also provides individuals increased opportunities to demonstrate self-determination within their lives and to further develop self-determined behaviors throughout their lifespans (Heller, Schindler, Palmer, Wehmeyer, Parent, Jenson, & O'Hara, 2011). Self-determined behaviors are those behaviors which entail an individual making decisions about all aspects of their own life
without interference from unwarranted external influences (Wehmeyer, 2006, p.42-43). It is important to recognize that the ability to perform tasks independently is a vital component of self-determination (Wehmeyer, Kelchner, & Richard, 1996). If an individual is able to demonstrate independent performance of vocational tasks they may be more likely to access and maintain employment opportunities, which will result in their ability to lead more self-determined lives (Test, Mustian, Fowler, Kortering, & Kohler, 2009). Employment provides individuals the opportunity to engage in increased levels of self-determined behaviors and to develop their repertoire of adaptive skills (Stephens, Collins, & Dodder, 2003). Participation in natural environments, such as employment, can improve the level of self-determination and quality of life for an individual with a disability (Kober & Eggleton, 2005).

The unique learning needs and skill deficits experienced by individuals with intellectual disabilities necessitate instruction that is specially designed to meet their educational needs (Cooper, Heron, & Heward, 2007). When teaching students functional skills, teachers often use response prompting strategies such as verbal, physical, modeling, or gestural prompts (Cooper et al., 2007). These prompting procedures are commonly delivered by the teacher and systematically faded until the learner is able to complete the task independently. This instructional process can be time consuming and the learner will sometimes demonstrate a continued need for instructional supports in order to perform the skill correctly and independently (Lancioni & O’Reilly, 2001).

Vocational tasks often require the independent completion of complex task sequences, which makes the use of teaching strategies that encourage increased independence in responses and a reduction in the frequency and intensity of external
prompting a valuable tool when teaching such skills to individuals with intellectual
disabilities. Researchers have used a variety of teaching strategies that include visual,
auditory, and video prompts to support the acquisition of vocational skills by learners
with intellectual disabilities.

The use of picture prompts has been one of the most widely evidenced methods
for teaching vocational and other function skills to individuals with intellectual
disabilities. For example, Wacker & Berg (1983) demonstrated that the use of picture
prompts was effective at teaching complex assembly and packaging vocational tasks to
five individuals with moderate to severe intellectual disabilities. The study also
demonstrated maintenance of the skills over time. Audio prompting has also been
documented as an effective teaching strategy for the development of independent skill
performance by individuals with intellectual disabilities. One study used auditory
prompting as an instructional strategy to effectively teach multi-step tasks of daily living
to four participants with moderate to severe intellectual disabilities. A multiple baseline
across participants' and settings was used and the study also showed generalized used of
the acquired skill to a second setting in addition to maintenance in responding (Briggs,
Alberto, Sharpton, Berlin, & McKinley, 1990). Another study demonstrated the
acquisition of independent cooking skills through auditory prompting across two
participants with severe intellectual disabilities (Lancioni, Klaase, & Goossens, 1995). In
2005 a study was published that demonstrated the effectiveness of utilizing a Palmtop
PC-based system that paired photo and auditory prompts to teach transition-related tasks
such as coffee preparation to four students with developmental disabilities (Riffel et al.,
2005).
The progression of research has moved in the direction of smaller and more portable rather than larger and more cumbersome prompting devices. For example, an iPod is small enough to be carried in a person's pocket, which is not the case for laptop and desktop computers. This provides the opportunity for individuals to more easily use the prompting device across a variety of settings, and with the devices’ smaller size they are more discrete and likely more socially appropriate. A handheld prompting device was used to teach four students with moderate to severe intellectual disabilities the skill of transitioning through a chain of vocational tasks through the independent operation of the device (Cihak, Kessler, & Alberto, 2008). The study used photos paired with auditory cues which were presented to the participants on a portable computer that was located in a pack fastened around their waists and also to headphones so that they could receive the auditory prompts more discretely. All four participants in this study met mastery criteria. Another study demonstrated the efficacy of using a handheld prompting device to teach two vocational tasks including pizza box assembly and software packaging by ten adults with moderate to severe intellectual disability. This was a beta study that used a two-group within-subjects experimental design. Using a palm-top PC the participants were exposed to prompts that included pictures paired with auditory prompts to teach the targeted tasks. (Davies, Stock, & Wehmeyer, 2002).

Video prompting includes the presentation of a video segment in which a portion of a task is demonstrated and then the participants has the opportunity to complete that step or segment of the task before moving on to the next step. Video prompting differs from video modeling in that it breaks down a task into smaller video segments which are presented in isolation in contrast to video modeling where the participant is shown a
video of the entire task being completed and then given the opportunity to complete the task. The distinction between these two response prompting strategies was exemplified in a study which compared the two response prompting strategies (video prompting and video modeling) on the acquisition of daily living skills by adults with developmental disabilities (Cannella-Malone, O'Reilly, Sigafoos, Cruz, & Lancioni, 2006). The study demonstrated that video prompting was more effective than video prompting for all participants. Video prompting provides real-life high quality imaging and can pair both audio and visual output. Videos can be edited for length, point of view, and vocal instruction overlay to accommodate a variety of learning needs. Also, tasks can be broken into any number of steps to suit the learner’s needs. The number of steps can be easily modified once the learner begins to acquire the skill and no longer needs prompting on each discrete task step. A variety of equipment has been utilized to present video prompts, some of these include, desktop/laptop computers, Palmtop personal computers, personal digital assistant (PDA), and portable DVD players.

Tasks of daily living have been taught utilizing video prompting and the method has been documented to be effective in many studies and for a variety of specific daily living tasks (Cannella-Malone et al. 2006; Mechling & Gustafson, 2009; Graves, Schuster, Kleinert, & Collins, 2005; Mechling, Gast, & Fields, 2008; Sigafoos et al. 2005). In a 2007 study, video prompting presented on a portable computer was used to teach dish washing to 3 participants with developmental disabilities employing a multiple baseline across subjects design (Sigafoos, et al., 2007). In the study video prompting was used in conjunction with a 3-step fading procedure in which video clips where merged to form larger multi-step segments that were presented to the participants in order to train
them to become increasingly more independent in their ability to perform the task. The results of this study demonstrated that all three participants reached stable responding at 80 to 90% correct when video prompting was used. Studies have documented the efficacy of video prompting in the teaching of cooking skills to individuals with developmental disabilities (Mechling & Gustafson, 2009; Mechling et al., 2008), microwave use (Sigafoos et al., 2005). A 2010 study demonstrated the efficacy of video prompting in the acquisition of daily living skills for adolescents with autism (Van Laarhoven, Kraus, Karpman, Nizzi, & Valentino, 2010). This was also demonstrated through a study that included 3 participants with moderate intellectual disabilities in the acquisition of microwave use, laundry folding, and table cleaning. This study compared three video-based instructional procedures (i.e., video rehearsal, video rehearsal + photo cues, and video rehearsal + video prompting) and found that video prompting was the most effective procedure (Van Laarhoven & Van Laarhoven-Myers, 2006).

The presentation of video prompting on a handheld device has been demonstrated to be an effective way to teach a variety of skills to individuals with developmental and intellectual disabilities. One such study demonstrated the efficacy of teaching a multi-step cooking task for participants with moderate intellectual disabilities (Mechling, Gast, & Seid, 2010). In this study prompting via static pictures was compared to video prompting on the independent performance of cooking tasks by six young adults with intellectual disabilities using an adapted alternating treatment design. The video prompts were performed from the spectator view and included verbal cues for each step of the task as the video clip played. The results showed that video prompting was more effective than pictures for all six participants. The continual advancement in technology has introduced
the possibility of utilizing commercially available, widely used, and easy to operate handheld devices such as the iPod Touch for the presentation of video prompting to teach independent skills to learners with intellectual disabilities. A study utilizing a commercially available iPod to present video prompts showed the acquisition of employment tasks, including bathroom cleaning, mopping floors, and garbage removal by one individual with a developmental disability. This study employed a multiple probe across behaviors design and the participant of the study used the iPod independently. The video clips used were from the spectator perspective and the study also used a two part error correction procedure that included a second viewing of the video prompt followed by a physical or model prompt if a second error occurred. The results of this study showed that the participant was able to meet criterion with four sessions for all three tasks (Van Laarhoven, Johnson, Van Laarhoven-Myers, & Grider, 2009). These handheld devices are easy to use, portable, and cost effective relative to desktop or laptop computers that can also be used to present video prompting. The iPod Touch, similar to a PDA, is a small device that is commonly used by individuals without disabilities and therefore does not attract attention as being different or a signal that the individual using it has a disability.

Although video prompting has been demonstrated to be an effective method for teaching new skills to individuals with developmental and intellectual disabilities, current research has also documented the need for further study of the use of error correction procedures and how these might be used with video prompting to promote the speed and accuracy of skill acquisition. Error correction procedures can provide value when participants are unable to gain the targeted skills through video prompting alone or when
the time required to reach mastery takes too long. Goodson et al. (2007) were able to demonstrate that the addition of an error correction procedure, which included a second viewing of the video prompt, in addition to an *in vivo* model of the task step, was effective at teaching the task of table setting when video prompting alone was unsuccessful. Their study included four adult participants with mild to moderate intellectual disabilities. The video prompts were presented from the perspective of a spectator and included a one sentence voice over of instructions related to the specific task step. Video prompts were shown to the participants on a portable computer. All participants reached 100% correct when the error correction procedure was implemented and only one of these adults was able to gain the skill of table setting with video prompting alone. It was conveyed in this study that future research was warranted in order to further investigate the advantages and determinants of using error correction procedures with video prompting.

The study utilizing an iPod to video prompt a single participant in the acquisition of employment task implemented an error correction procedure from the outset of intervention (Van Laarhoven et al. 2009). The error correction procedure was two-part and included video review followed by a least to most prompt sequence. This error correction procedure was replicated in a study done by Cannella-Malone, Wheaton, Tullis, Wu, & Park (under review). In the unpublished study by Cannella-Malone et al. (under review) the effects of video prompting alone were compared to video prompting with error correction on the acquisition of two tasks of daily living (i.e., sweeping and table washing). The study used an iPod Touch and included three participants with moderate to profound intellectual disabilities. The video prompting procedures used were
a replication of the procedures used in the Goodson, Sigafoos, O’Reilly, Cannella, & Lancioni, (2007) study. The two part error correction procedure, which was a replication of the one used by Van Laarhonven et al. (2009) was used and included video review followed by a three step hierarchical least-to-most prompt sequence (i.e., modeling, modeling + verbal instruction, and physical prompting). This error correction procedure was initiated from the outset of intervention and was assigned to the table washing task. If a participant failed to complete a task step correctly after viewing the initial video prompt, the error correction procedure was implemented. The results of this study showed that for two participants the addition of the error correction procedure increased efficiency of table washing when compared to sweeping (i.e., no error correction). Once video prompting with error correction was demonstrated to be more effective, it was implemented for both tasks. If a participant did not reach mastery for a task with error correction being implemented in vivo instruction was implemented.

Building on the work of Malone et al. (under review), this study aimed to extend the previous research by comparing the effects of implementing video prompting paired with an error correction procedure from the outset of intervention with video prompting alone on the acquisition of two vocational tasks by individuals with moderate to profound intellectual disabilities. This study did not employ a hierarchical least-to-most prompting procedure but instead initiated the use of video review and modeling + verbal instructions from the outset of intervention.

**Purpose of the Study**

The purpose of this study was to compare the effectiveness of video prompting alone to video prompting plus an error correction procedure presented on an iPod Touch.
on the acquisition of two equivalent vocational tasks by three individuals with moderate to profound intellectual disabilities. The study also sought to provide additional evidence to support the current research, which has found prompting through the use of a handheld device to be effective in increasing the independent performance of vocational skills by individuals with intellectual disabilities.

**Research Questions**

This study was conducted and data were obtained and analyzed with the purpose of answering the following questions:

1. Is video prompting with error correction more effective than video prompting without error correction on the acquisition of two equivalent vocational tasks?
2. Is video prompting presented on an iPod Touch an effective method for teaching vocational tasks to individuals with moderate to profound intellectual disabilities?
Chapter 2: Method

This chapter provides descriptions of the methods used in the conduct of this experiment. Descriptions are provided for participants, setting, experimenter, materials, defined dependent measures, defined independent variables, experimental design, baseline procedures, intervention procedures, inter-observer agreement, procedural integrity, and social validity.

Participants

The participants in the study included three students with intellectual disabilities, who required specially designed instruction to meet their educational needs. The three students were enrolled in a K-12 special education school and all experienced moderate to profound intellectual disabilities. Two of the participants had a diagnosis of autism and one of the participants had a diagnosis of both cerebral palsy and seizure disorder. All students had vision and hearing within normal range and mobility that would not impede their ability to engage in the experimental tasks. The students ranged in age from 15 to 16 years old and all three represented a minority demographic. The three participants had been nominated by their teachers for participation in the study and the teachers also helped in selection of the tasks that would be appropriate and beneficial for the students to learn. All three participants had educational goals that focused on the development of independent task completion and vocational skill acquisition. Additionally, for the two participants for which Vineland Adaptive Behavior Scale-Interview Edition (Sparrow,
Balla, & Cinchetti, 1984) scores were available, the daily living skills scores were low.

Each of the participants had been exposed to video prompting during participation in previous research studies, but none had been exposed to the specific tasks used in this study. Table 2.1 provides characteristics for each participant.

| Name | Age | Diagnosis | Race         | IQ: 23

Vine|l|and Scale |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben</td>
<td>15</td>
<td>Autism ID (Severe)</td>
<td>Somali American</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abe</td>
<td>15</td>
<td>Autism ID (Profound)</td>
<td>African American</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liam</td>
<td>16</td>
<td>Seizure Disorder ID (Moderate) Cerebral Palsy</td>
<td>Hispanic American</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1. Participant characteristics. Vineland Adaptive Behavior Scales - Age equivalence (presented in years: months).

Setting

The study was conducted in a self-contained special education school located in urban setting that served students between the ages of 5 and 22. Each participant was enrolled in a classroom that contained between 6 and 8 students of similar age with significant intellectual disabilities. Each classroom contained one teacher and 2-4
classroom aides. Ben had an assigned 1:1 aide that was with him at all times due to behavior challenges that included frequent attempts at elopement. Experimental sessions for dust mopping were conducted in a hallway of the school adjacent to the cafeteria, and sessions for wet mopping were conducted in a separate hallway of the school. The wet mopping task also required the use of a janitorial closet that was located in a hallway of the school and the section of hallway that was mopping was located adjacent to the closet. All sessions were conducted in these natural settings within the school and the locations were not blocked off from students and staff walking through the hallways during sessions. Both hallway locations were free of furniture or fixtures that could have created an obstacle to sweep or mop around.

**Experimenter**

The experimenter was a graduate student at The Ohio State University pursuing a M.A. degree in Special Education with an emphasis in Applied Behavior Analysis. She was an Ohio licensed K-12 mild/moderate Intervention Specialist and a Texas licensed PreK-12 mild to intense Special Education Teacher. Her B.A. degree was received in 2003 from The Ohio State University with a major in history. She received her initial teacher licensure through the completion of a teacher certification program at Blinn College located in Brenham Texas. The experimenter had taught students with intellectual disabilities for seven years.

**Tasks and Materials**

The study tasks were dust mopping the hallway and wet mopping the hallway. Each task was broken into 10 discrete steps which were then performed by an adult and filmed in order to create a video prompt for each step of both tasks. The length of each
video clip varied, with a range of 7 to 28 seconds. The tasks were selected based upon their equivalence in terms of length and difficulty to perform. Both tasks required similar response effort in order to achieve correct responding in terms of motor movement and duration of engagement.

Materials used for the dust mopping task included a dust mop with a 36 inch head, shredded white paper, a large open topped trash can, broom, and an upright dustpan. The dust mop, trash can, broom, and upright dustpan were all lined up and adjacent to one another along a hallway wall. Materials used for the wet mopping task included a yellow custodial rolling bucket with squeezer section, mop, and “caution wet floor” sign. The rolling bucket was filled with approximately 3 inches of water prior to the beginning of each session. Wet mopping items were all kept in a janitorial closet off of one of the school hallways. The materials for the respective tasks were kept in the same location and position across all sessions.

A commercially available iPod Touch was used to present video prompts to the participants and the iPod was housed in an auxiliary speaker (iMainGo 2 Handheld Speaker) which amplified the auditory instructions during prompting to ensure that participants could hear the instructions above background noise. The videos were created using a digital video camera. The video files were transferred onto a computer and then loaded onto the iPod Touch. Table 2.2 provides the task analysis used for each task with the specific video clip lengths for each step of each task. The table also displays the average length of the videos for each task. The videos were taken from the viewpoint of a spectator, meaning that the participant watched another person complete the tasks steps. The adult used in all video footage was consistent and wore the same articles of clothing.
during all video segments. All video clips included voice over instructions, which provided the participant with an auditory cue of what should be done to complete each step of the task as the videos played. As an example, for the first step of the dust mopping task, the auditory instruction stated, *Pick up the dust mop and take it to the section of hallway where you’re going to sweep.* The video showed the adult picking up the dust mop, walking to the hallway and stopping in the location where the next step of the task and corresponding video prompt would begin. In the next video prompt for this task the auditory instruction stated, *Now, push, turn, and sweep the section of hallway* and the video clip showed the adult engage in that exact behavior. The voice used to record the auditory instructions was the same for all video segments.
<table>
<thead>
<tr>
<th>Dust Mopping</th>
<th>Time (s)</th>
<th>Wet Mopping</th>
<th>Time (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Take dust mop to hallway</td>
<td>13 s</td>
<td>1. Open closet door</td>
<td>7 s</td>
</tr>
<tr>
<td>2. Sweep section of hallway</td>
<td>10 s</td>
<td>2. Put caution sign out</td>
<td>19 s</td>
</tr>
<tr>
<td>3. Shake dust mop</td>
<td>7 s</td>
<td>3. Take bucket to hallway</td>
<td>20 s</td>
</tr>
<tr>
<td>4. Sweep dust into pile</td>
<td>9 s</td>
<td>4. Squeeze mop</td>
<td>28 s</td>
</tr>
<tr>
<td>5. Put dust mop away</td>
<td>14 s</td>
<td>5. Take mop to floor</td>
<td>11 s</td>
</tr>
<tr>
<td>6. Take broom and dustpan to dust</td>
<td>19 s</td>
<td>6. Mop section of hallway</td>
<td>28 s</td>
</tr>
<tr>
<td>7. Sweep pile into dustpan</td>
<td>18 s</td>
<td>7. Put mop in bucket</td>
<td>7 s</td>
</tr>
<tr>
<td>8. Take broom and dustpan to cafeteria</td>
<td>15 s</td>
<td>8. Take bucket back to closet</td>
<td>22 s</td>
</tr>
<tr>
<td>9. Empty dustpan</td>
<td>16 s</td>
<td>9. Put sign away</td>
<td>22 s</td>
</tr>
<tr>
<td>10. Put dustpan away</td>
<td>15 s</td>
<td>10. Close closet door</td>
<td>11 s</td>
</tr>
<tr>
<td>Mean Video Length</td>
<td>13.6 s</td>
<td>Mean Video Length</td>
<td>17.5 s</td>
</tr>
</tbody>
</table>

Table 2.2. Task analyses for both tasks in the study, including the length of each video prompt and the mean duration of all video prompts for each task.

**Dependent Variable and Data Collection**

The dependent variable in this experiment was the percentage of steps completed correctly for each task. Both tasks were broken into 10 steps, and the number of steps completed correctly on a task during a single session was divided by the total number of steps and multiplied by 100 to determine the percentage of steps completed correctly. During baseline, a task step was recorded as correct if the participant accurately completed a task step within 30 s of the initial instruction or within 30 seconds of the completion of the previous task step. During intervention, a correct demonstration of a
task step was recorded if the participant correctly completed the indicated step after viewing the video prompt the first time presented within 30 s of the end of the video clip. The response was also recorded as correct if the participant initiated and accurately completed the task step prior to the experimenter presenting the video prompt. Each task step was recorded by the experimenter as either correct, independent correct (no video prompt was needed), or incorrect. For the dust mopping task, which was assigned to the error correction treatment, the experimenter also recorded data on whether or not the participant was able to correctly complete a task step after watching the video a second time. A correct response was only recorded if the participant emulated the actions taken by the adult in the video with topographic and functional equivalence. For example, in the dust mopping task for the task step of sweeping the section of floor, the participant had to sweep the section of floor as shown in the video using the physical positioning and movement that was demonstrated by the adult in the video prompt.

Data were collected approximately two days per week between the hours of 9:00 am and 11:00 am. Participants were exposed to between one and two experimental sessions per day for each task. If the participant was exposed to two sessions with the same task in a single day, the sessions were separated by a minimum of 30 minutes. Sessions were alternated so that participants did not engage in the same task at the same time during each session, meaning that a participant would not engage in dust mopping as the first task during all sessions. All participants were taken out of the classroom individually during study sessions by the experimenter and sometimes accompanied by a second observer who collected inter-observer agreement (IOA) data, in addition to a classroom aide during study sessions.
**Independent Variables**

The independent variables in this study were video prompting with error correction and video prompting without error correction. Each participant was taught to perform both dust mopping a section of hallway and wet mopping a section of hallway with the use of video prompts presented on the iPod Touch. All participants were first exposed to baseline conditions in order to determine if they could perform any of the task steps prior to intervention. Once baseline responding was stable for both tasks the intervention was started. During intervention all participants were presented video prompts on the iPod Touch for each task. Dust mopping was assigned to the error correction condition.

**Interobserver Agreement (IOA)**

To ensure that data collected during the study was accurate, a second observer recorded the accuracy of participant responses during study sessions. This data was then compared with the experimenter’s data and a percentage of agreement, or IOA, was calculated. IOA was calculated by dividing the total number of agreements by the number of agreements plus disagreements and multiplying by 100. The observers used for IOA were trained by the experimenter who explained the task analyses and corresponding data sheets to the second observer. The experimenter gave examples of correct and incorrect responses and allowed the observer to watch a session before collecting IOA data. IOA data were collected during 14.3%, 25%, and 10% of all phases for Liam, Abe, and Ben, respectively. The IOA was 100% for all participants across both tasks and all study phases.
Procedural Integrity

A procedural integrity checklist was used in order to assess the accuracy of study procedure implementation by the experimenter. This checklist listed the procedures for each task sequentially, and the second observer recorded if the experimenter completed the procedures accurately or inaccurately. A percentage of procedural integrity was calculated by dividing the number of steps completed correctly by the total number of steps and multiplying by 100. Procedural integrity data were collected during 5.7%, 9.4%, and 8.3% of all phases for Liam, Abe, and Ben, respectively. The mean procedural integrity was 98.6% (range of 90%-100%) for all participants.

Experimental Design

This experiment used a multiple probe (Horner & Baer, 1978) across participants in conjunction with adapted alternating treatments design (Gast & Wolery, 1988). The multiple-probe across participants design was used to demonstrate the effectiveness of the intervention on skill acquisition. The adapted alternating treatment design was used to compare the effectiveness of video prompting with error correction to video prompting without error correction on participant skill acquisition of two equivalent tasks. The experimental conditions included baseline and intervention with intervention having separate treatments for each task: video prompting with error correction for the dust mopping task and video prompting without error correction for the wet mopping task.

Procedures

Baseline Procedures

During baseline, each participant was brought to a task, placed in front of the task and instructed to engage in the task. No video prompting was used during baseline
sessions. For wet mopping the hallway, the participant was oriented toward the closed janitorial closet door and told to *mop the hallway*. For the dust mopping task, the participant was oriented toward the dust mop and told to *dust mop the hallway*. During each session, the trainer and a reliability observer (when available) recorded the number of steps the participant completed correctly. If the participant did not initiate the first step of the task within 30 s, the session was terminated. Also, if the participant did not complete subsequent steps within 30 s the session was terminated. The participant was given non-contingent access to a reinforcing item or activity after the session was terminated. When giving the reinforcer to the participant the trainer said to the participant *thank you for working with me*. Data were recorded as correct or incorrect during baseline procedures for each step of each task.

*Intervention Procedures*

**Video prompting without error correction**

The wet mopping task was assigned to the condition without error correction. The iPod Touch was held by the trainer and positioned so that the video was easily viewed by the participant. The participant was oriented toward the screen of the iPod and the trainer said, *watch this*. The trainer then played the video clip of the first step of the task. When the video clip had ended the trainer said to the participant, *now you do it*. The participant was then given 30 s to complete that step of the task. If the participant did not correctly complete the step within 30 s, the trainer completed that step of the task as unobtrusively as possible and proceeded to show the next video clip of the next step of the task. The completion of each step in the task is necessary to ensure the progression of the task remained in sync with the order of the video prompts. The same procedure was used for
each step in the task analysis until the last step had been completed. No additional instruction, feedback, prompting, or reinforcement was delivered. When the session was over, the participant was given access to non-contingent reinforcement and the experimenter stated thank you for working with me. The criteria for mastery was set at 100% of steps correct during a session.

**Video prompting with error correction**

The dust mopping task was assigned to the video prompting with error correction condition. The procedures were identical to the initial video prompting condition, except that an error correction procedure was implemented if the participant did not complete a step of the task correctly within 30 s of watching the video clip for that step. The error correction procedure involved interrupting the participant if they attempted to complete a step incorrectly and saying, Sorry, [name], that’s not quite right. Here watch this. The video clip was then shown a second time while the trainer pointed to the screen and said, Watch this. When the video clip ended, the trainer said, Now you do it. The participant was then given another 30 s to complete the step. If the second viewing of the video clip failed to produce the correct response, the trainer completed the step correctly while saying to the participant, Watch me and repeating the instruction given in the video prompt. This provided not only a second video prompt but also a model or in vivo prompt for the participant. As an example, if the participant failed to sweep the section of hallway as shown on the video prompt, the experimenter would say No, that’s not quite right, watch this and would then show the video prompt once more to the participant. After viewing the video a second time, the instructor said, Now you do it. If the participant failed to engage in the correct response within the 30 seconds of the second
viewing, the experimenter said *Watch me* and proceeded to demonstrate that step of the task while saying *Now push, turn, and sweep the section of hallway*. All other responses were recorded as incorrect. When the session was over, the participant was given access to non-contingent reinforcement and the experimenter stated *Thank you for working with me*. The criterion for mastery was set at 100% of steps completed correctly during a session.
Chapter 3: Results

This chapter presents the results obtained for each participant for both the dust mopping and wet mopping tasks throughout the study.

Liam

Dust mopping.

The top graph in Figure 3.1 displays the overall percent correct data for Liam on both tasks with the dust mopping task indicated by filled in data points. During baseline conditions for dust mopping (with error correction), Liam demonstrated a steady 0% accuracy rate across three consecutive sessions. When video prompting was initiated, Liam’s accuracy rose to 50%. Liam’s accuracy increased to a steady response rate of 80% of steps completed accurately across 4 consecutive sessions ($M=75\%$, range 50-100%). When the initial rate of acquisition seemed to plateau at 50% across 3 consecutive sessions, the use of paper debris scattered over the floor was initiated. This led to an immediate rise in accuracy to 70%. Task components that caused Liam the most trouble during dust mopping included steps 2 (sweep section of floor) and 4 (sweep dust into pile). Across intervention sessions, Liam demonstrated an error rate of 80% and 87% for task steps 2 and 4, respectively. Task step error rates for Liam are displayed in Table 3.1. In addition to Liam’s overall percent correct for dust mopping, he also demonstrated a climb over sessions in the number of task steps performed without first viewing the video prompt. He reached a level of 70% accuracy on steps completed independent of
video prompting over the last 4 intervention sessions. Liam’s data for independent correct responses for dust mopping are displayed in Figure 3.2 with diamond shaped data points.

Wet mopping.

Liam’s data are displayed in the top graph of Figure 3.1 and this data series is marked with the open circle data points. During baseline conditions for wet mopping, Liam demonstrated a steady low response rate of between 0% and 10% accuracy. Once intervention was initiated and video prompting was introduced, Liam’s overall accuracy increased to 90% during the first intervention session ($M=92\%$, range 70-100%). Liam reached an accuracy rate of 100% across the final three sessions of intervention for wet mopping. During intervention, Liam demonstrated a steady increase in his ability to perform the wet mopping steps independent of video prompting and reached an accuracy of 100% across the three final sessions of intervention. Figure 3.3 displays Liam’s data for independent correct responses across sessions, this data series is identified by diamond data points.
Figure 3.1. Overall percent correct for all participants on both tasks.
## Task Steps Error Rates across Intervention Sessions

<table>
<thead>
<tr>
<th></th>
<th>Wet Mopping</th>
<th></th>
<th>Dust Mopping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liam</td>
<td>Abe</td>
<td>Ben</td>
</tr>
<tr>
<td>1. 0%</td>
<td>1. 0%</td>
<td>1. 20%</td>
<td>1. 27%</td>
</tr>
<tr>
<td>2. 21%</td>
<td>2. 27%</td>
<td>2. 40%</td>
<td>2. 80%</td>
</tr>
<tr>
<td>3. 0%</td>
<td>3. 9%</td>
<td>3. 20%</td>
<td>3. 13%</td>
</tr>
<tr>
<td>4. 7%</td>
<td>4. 64%</td>
<td>4. 80%</td>
<td>4. 87%</td>
</tr>
<tr>
<td>5. 0%</td>
<td>5. 64%</td>
<td>5. 20%</td>
<td>5. 0%</td>
</tr>
<tr>
<td>6. 21%</td>
<td>6. 100%</td>
<td>6. 100%</td>
<td>6. 7%</td>
</tr>
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<td>7. 14%</td>
<td>7. 0%</td>
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<td>8. 7%</td>
<td>8. 0%</td>
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<td>9. 0%</td>
<td>9. 18%</td>
<td>9. 20%</td>
<td>9. 27%</td>
</tr>
<tr>
<td>10. 0%</td>
<td>10. 0%</td>
<td>10. 20%</td>
<td>10. 0%</td>
</tr>
</tbody>
</table>

Table 3.1. Task steps error rates.
Figure 3.2. Percentage of dust mopping task steps without video prompting across all study sessions.
Figure 3.3. Percentage of wet mopping task steps without video prompting across all study sessions.
Abe

Dust mopping.

Abe’s data for dust mopping is displayed in the middle graph of Figure 3.1 and the dust mopping data points are indicated with filled in circles. During baseline conditions for the dust mopping task, Abe demonstrated steady 0% responding over five consecutive sessions. Once entered into intervention, Abe’s overall accuracy increased to 80% across five of the six sessions prior to the end of the experiment ($M=64\%$, range 30-80%). The addition of debris scattered on the floor was initiated during the third session of intervention, and on this day Abe moved from 40% to 60% accuracy. Abe initiated and accurately completed a single step in the dust mopping task without video prompting one time during the study. This data is shown in Figure 3.2 and his data series is marked by square data points. The dust mopping task steps that Abe was not able to acquire were 2 (sweep section of hallway) and 4 (sweep dust into pile). During intervention Abe missed these steps 100% and 91% of the time, respectively. Table 3.1 displays these results.

Wet mopping.

Abe’s overall accuracy data for wet mopping is shown in the middle graph in Figure 3.1 and the data series is marked by open circle data points. During baseline conditions for the wet mopping task, Abe demonstrated a consistent response rate of between 0 and 10% accuracy ($M=4\%$, range 0-10%). Once the intervention was started, Abe jumped to an accuracy rate of 40% and showed increased responding over time until he reached a steady response rate of 80% accuracy ($M=71\%$, range 40-90%). The specific task steps that Abe struggled to acquire during wet mopping was step 6 (mop section of hallway). Abe had a 100% error rate across all intervention sessions for this task step.
Table 3.1 displays task step error results. Across session Abe also began to independently initiate and correctly complete tasks steps without first viewing a video prompt. The highest accuracy demonstrated for this independent correct response was 40% and this data is displayed in Figure 3.3 with Abe’s data indicated by the square data points.

**Ben**

*Dust mopping.*

During baseline conditions for the dust mopping task, Ben demonstrated a constant 0% accuracy across all sessions. On the first day of intervention when video prompting was introduced, Ben’s accuracy increased to 70%. Debris was scattered in the floor during all of Ben’s dust mopping sessions. During the last two sessions of dust mopping, Ben’s accuracy was 80% (M=60%, range 0-80%). This data is displayed in the bottom graph of Figure 3.1 and the closed circle data points represent his accuracy for dust mopping. The task steps that Ben struggled most to acquire for this task included steps 2 (sweep section of hallway) and 4 (shake dust mop). Ben’s data for these task steps showed a 100% error rate across all session of intervention for both steps. This data is displayed in Table 3.1. Ben was able to perform 10% of steps independent of the video prompt during only one session and this data is shown in Figure 3.2 with his data represented by triangular data points.

*Wet mopping.*

During baseline conditions for wet mopping, Ben demonstrated 0% responding across all sessions. Once intervention was initiated and video prompting was introduced, Ben demonstrated an accuracy of 70% on the first session and subsequently demonstrated 80% accuracy across three consecutive sessions (M=62%, range 0-80%). Ben’s overall
accuracy for wet mopping is displayed in the bottom graph of Figure 3.1 with open circle data points. Ben’s performance of steps 4 (squeeze mop) and 6 (mop section of hallway) had the highest rate of error during intervention with an error rate of 80% and 100% respectively. This data is displayed in Table 3.1. During one wet mopping session, Ben performed 10% of task steps independent of video prompting and this data is shown in Figure 3.2, with his data series indicated by diamond data points.
Chapter 4: Discussion

This chapter will discuss the results of the study and relate them to the research questions outlined in Chapter 1. The results will be discussed in relations to previous research as well as study limitations, and future research directions.

Research Question 1

*Is video prompting with error correction more effective than video prompting without error correction on the acquisition of two equivalent vocational tasks?*

The results of this study showed that video prompting with error correction was not more effective than video prompting without error correction in the acquisition of two equivalent vocational tasks by three adolescents with moderate to profound intellectual disabilities. For all participants there was not an increased accuracy rate for the dust mopping task, which was assigned to the error correction condition, when compared to the acquisition rate of the wet mopping task which did not include an error correction procedure. In fact, one of the participants reached 100% correct for wet mopping but only reached 80% on the dust mopping task. The other two participants reached identical accuracy rates of 80% for both tasks. Over the course of the study, it became evident that there were tasks steps that the participants consistently had problems acquiring.

With dust mopping, the task step that all three participants failed to acquire was step 2 (sweep section of hallway). For this task step, two participants failed to
demonstrate it correctly at any point during the study and the third participant had an error rate of 80% across intervention sessions. This step required the participant to demonstrate a level of thoroughness that they were not able to meet. They had to emulate the video with correct gross motor movement and broom handling to ensure that the entire designated floor surface was reached. This combination of motor movement and thoroughness in response was rarely if ever demonstrated by the participants. The incorrect responses of the participants included such behaviors as walking with the broom not touching the floor or dragging the broom with one hand behind them. The other dust mopping task steps that the participants had low accuracy rates on were steps 4 (sweep dust into pile) and step 3 (shake dust mop). Step 4 required a very similar response in terms of motor movement and thoroughness to step 2, which was routinely missed. Often, the participants would fail to display correct handling and manipulation of the broom. For task step 3 (shake dust mop), the participants would regularly fail to shake the dust mop and would often times engage in other behaviors such as swinging it or simply picking it off of the floor and not shaking it. When the participants did attempt to shake the mop they would frequently fail to shake it with enough effort to release the debris from the mop to be swept up. During video prompting Abe and Ben demonstrated high rates of visual inattention from the iPod Touch and it was unclear in some instances if they had watched part or any of a given video clip prior to attempting the task step. It is speculated that visual inattention may have resulted in the decreased level of accuracy on task steps for which visual prompting may have been more critical and on steps for which the auditory instruction may not have been sufficient to prompt an accurate response. For example, this could have played a role in the limited ability of the participants’ to gain
the task step of *Sweeping the section of hallway* for dust mopping which required a specific topographic response in order to achieve accuracy or thoroughness which was required for a correct response. In contrast, for the dust mopping task step of *Take dust-mop to hallway* it may have been more likely that the student could have exhibited the correct response after only hearing the auditory instruction. Compared with Abe and Ben, Liam was able to visually attend to the video prompts with minimal interruption and was only observed to avert his visual attention from a video clip in the event that a loud disturbance occurred in the area he was working. This may have accounted for the high accuracy rate demonstrated by Liam. Also, although Liam also failed to develop a high rate of accuracy on task step (2) of dust mopping a closer look at the data showed that unlike Abe and Ben, Liam was able to demonstrate the step after watching the video a second time during error correction across the last four sessions of the study.

Analysis of the wet mopping task steps showed that the step which had a 100% error rate by both Abe and Ben was step 6 (mop section of hallway). The motor movements required for this step were similar to those required in step 2 (sweep section of hallway) for the dust mopping task which was also missed across 100% of trials by Abe and Ben. When this task step was missed the participants would often fail to reach the full section of the floor or would attempt to carry the broom rather than pushing it across the floor. Consistent with the behaviors exhibited during dust mopping both Abe and Ben demonstrated frequent inattention to the video prompt when presented. Compared with Abe and Ben, Liam was able to visually attend to the video prompts with minimal interruption and was only observed to avert his visual attention from a video clip in the event that a loud disturbance occurred in the area he was working. However, Liam
was observed by the experimenter to demonstrate behaviors indicating favoritism of the wet mopping task over the dust mopping task. When Liam exited the room with the experimenter to participate in a study session he would attempt to lead the experimenter to the location of the wet mopping task and would point and make gestures requesting that task. It was also visually obvious during sessions that Liam enjoyed the wet mopping task and did not express this same level of enthusiasm during dust mopping sessions.

Data for the three participants show that video prompting with error correction did not produce an increase in accuracy for dust mopping when compared to video prompting without error correction for wet mopping. These results do not replicate previous research which has shown that the addition of an error correction procedure increases skill acquisition. This is exemplified when compared to the results of the study by Malone et al. (under review) which showed that the addition of an error correction procedure improved participant accuracy when compared to the task assigned to video prompting alone. A possible reason for this result could be that the error correction procedure was not as effective as the one implemented in the Malone et. al. study. The current study did not incorporate physical prompting as part of the error correction procedure. This might suggest that the results do not provide evidence to support that video prompting with error correction does not improve accuracy compared to video prompting without error correction but instead that the type of prompting used in this study (video review and modeling plus verbal instructions) did not increase accuracy compared to video prompting alone for the tasks targeted and participants used.
Research Question 2

Is video prompting presented on an iPod Touch an effective method for teaching vocational tasks to individuals with intellectual disabilities?

The results of this study demonstrate support for the effectiveness of utilizing an iPod Touch as a device to present video prompting and to teach vocational skills to students with intellectual disabilities. All three participants demonstrated a significant increase in accuracy over the course of the study in their ability to perform both the wet and dust mopping tasks while receiving prompting presented on an iPod Touch. When the study was concluded 1 participant had gained the skill of wet mopping with 100% accuracy and no longer needed video prompting to demonstrate the skill. All remaining results for participants and tasks showed an 80% accuracy rate. These results clearly support previous research which has demonstrated the effectiveness in using video prompting to teach independent skill acquisition. In the Malone et. al. study video prompting delivered via an iPod Touch was effective in teaching participants table washing and sweeping skills. Specifically looking at vocational skills, Laarhoven et. al. (2009) demonstrated the effectiveness of utilizing a Video iPod to deliver video prompting which resulting in the acquisition of three employment tasks by a young man with developmental disabilities.

The results of this study contribute further support for the use of handheld prompting devices and more specifically the use of commercially available technology such as the iPod Touch as a platform for the delivery of video prompting to teach independent skills to individuals with disabilities.
Limitations

Several limitations have been identified in this study. First, the study was conducted over a long period of time and there were gaps in data collection. This occurred as a result of students being on school breaks in addition to scheduling challenges experienced by the experimenter. Also, Ben was frequently unavailable for research sessions due to behavior issues in addition to the lack of a classroom aide who was required to accompany him during sessions. Second, the study should have been continued until a clear separation between treatments was evident and thus a more accurate result indicating which treatment was more effective could have been analyzed. The results for Liam show this separation but it is lacking for both Abe and Ben whose data both show an overlap for both tasks at 80% accuracy. If the study had been continued we would have looked for either the movement of both tasks to 100% accuracy or a clear separation in acquisition rates of the two tasks over time. If the study had been continued we might have seen an eventual increase in accuracy as a results of continued exposure to video prompting with and without error correction. Third, lower than desirable amounts of IOA and Procedural Integrity data were collected during the study. This occurred as a result of limited availability of trained observes as well as the frequent scheduling interruptions that occurred over the course of the study. Fourth, the addition of debris during intervention was not instituted from the beginning of the intervention for all participants. This change was made after the experimenter observed a lack of dust or debris in the hallway during sessions. Fifth, the experimenter accounted for sequence effects by flipping a coin to determine which task to work on first during each session but she did not record this data for further analysis. Sixth, for each task the participant was
only required to either sweep or mop one small section of hallway. They were only required to make one pass of the section of hallway, which may represent a smaller than typical area than would normally need to be mopped.

**Future Research**

As future research is conducted using video prompting and the integration of error correction procedures are used future research consideration may be implicated by this study. First, future studies might investigate the use of different error correction procedures whose effects have not been researched when paired with video prompting. At the close of this study video prompting paired with the specified error correction procedure did not correspond to an improved accuracy when compared to video prompting without error correction, perhaps another type, level, or combination of error correction procedures would have resulted in an improved result. These error correction procedures could include prompting strategies such as physical guidance, partial physical guidance, gestural cues, and verbal prompts. Additionally, video referencing could be done more than one time during a single error correction procedure.

Second, the baseline procedures used did not create an opportunity for the participants to attempt all steps in the task analyses and therefore the study did not account for prior knowledge that participants may have had. Future research may look at the incorporation of a baseline procedure that utilized a multiple opportunities method in order to establish a more accurate baseline for each task.

Third, future research might investigate what significance the auditory instruction had on skill acquisition when compared to video prompting without auditory instruction.
During this study, two participants were observed to engage in frequent visual inattention from the video prompt but remained exposed to the auditory instruction; this may have contributed to a lower accuracy rate, particularly on task steps for which a correct response would have been more difficult to achieve without visually attending to the video clip. It may be valuable for future research to select participants with intellectual disabilities who also exhibit deficits' with visual attention or perception in order to compare the effectiveness of video prompting with and without voice over instructions for this subgroup. In the current study the two participants that struggled with visual attention to the video prompts both had a diagnosis of autism so it may be relevant to look at this disability group explicitly.

Future studies should continue to investigate variables affecting and contributing to an increased ability of persons with intellectual disabilities to operate video prompting equipment independently. In relation to error correction methods, these studies could look at ways to incorporate self-administered error correction tools that are embedded in the technology rather than delivered via another person. For example, there could be auditory cues which could signal the participant to review a step or self-check their work before moving to the following step.

This study was able to add to current literature which has shown that video prompting is an effective response prompting strategy to teach individuals with intellectual disabilities new skills. Additionally, the study added to the literature which has shown the effectiveness of using commercially available equipment, such as the iPod Touch, as the platform for video prompting. The study was not able to replicate research
which has demonstrated the effectiveness of an error correction procedure at increasing the acquisition rate and accuracy when added to a video prompting intervention.
References


Appendix A: IRB Approval Letter

Behavioral and Social Sciences Institutional Review Board

Office of Responsible Research Practices
300 Research Foundation
1980 Kenny Road
Columbus, OH 43210-1063
Phone (614) 688-6457
Fax (614) 688-0356
www.orrp.osu.edu

May 28, 2010

Protocol Number: 2009B0126
Protocol Title: INPROMPTU: VIDEO ASSISTED LEARNING AND SELF MANAGEMENT FOR INDIVIDUALS WITH SIGNIFICANT INTELLECTUAL DISABILITIES OF TRANSITION AGE, Helen Malone, Joe Wheaton, PAES.

Request to amend the protocol dated 05/18/10—Add Jamie O’Rourke as key personnel

Type of Review: Amendment—Expedited
Approval Date: May 27, 2010
IRB Staff Contact: Jacob R. Stoddard
Phone: 614-292-6526
Email: stoddard.13@osu.edu

Dear Dr. Malone,

The Behavioral and Social Sciences IRB APPROVED the above referenced research.

Note that if applicable, informed consent (and HIPAA research authorization) must be obtained from subjects or their legally authorized representatives and documented prior to research involvement. The IRB-approved consent form and process must be used. Changes in the research (e.g., recruitment procedures, advertisements, enrollment numbers, etc.) or informed consent process must be approved by the IRB before they are implemented (except where necessary to eliminate apparent immediate hazards to subjects).

It is the responsibility of all investigators and research staff to promptly report to the IRB any serious, unexpected and related adverse events and potential unanticipated problems involving risks to subjects or others.

This approval is issued under The Ohio State University’s OHRP Federally Assured #00006378.

All forms and procedures can be found on the ORRP website – www.orrp.osu.edu. Please feel free to contact the IRB staff contact listed above with any questions or concerns.

Jarome Clement, EdD, Chair
Behavioral and Social Sciences Institutional Review Board

In-017-03 Approval Amend
Version 01/15/09
Appendix B: Wet mopping data sheet

Task: **Mop Hallway Using Custodial Mop**  
Student: ________________________________

Data Collector: ___________________________  
IOA (circle one): Y  N

Condition (circle one): **Baseline Video Prompting VP with Error Correction**

<table>
<thead>
<tr>
<th>Instruction: Mop hallway</th>
<th>Reinforcer:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open closet door</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>2. Put caution sign out</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>3. Take bucket to hallway</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>4. Squeeze mop</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>5. Take mop to floor</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>6. Mop section of hallway</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>7. Put mop in bucket</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>8. Take bucket back to closet</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>9. Put sign away</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>10. Close closet door</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
</tbody>
</table>

**Date**

**Percent Correct**

**Reliability**

**Procedural Integrity Percentage**

I: Independent after watching the video for the first time  
I+: Independent response without watching the video  
X: correct response after watching the video for the second time (error correction)  
0: Incorrect
Appendix C: Dust mopping data sheet

Task: **Dust Mop Hallway**

Data Collector: ___________________________  IOA (circle one): Y N

Condition (circle one): **Baseline Video Prompting**  **VP with Error Correction**

<table>
<thead>
<tr>
<th>Instruction: Mop hallway</th>
<th>Reinforcer:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Take dust mop to hallway</td>
<td>I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>2. Sweep section</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>3. Shake dust mop</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>4. Sweep dust into pile</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>5. Put dust mop away</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>6. Take broom and dustpan to dust</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>7. Sweep pile into dustpan</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>8. Take broom and dustpan to cafeteria</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>9. Empty dustpan</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
<tr>
<td>10. Put dustpan away</td>
<td>I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + I + X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0 X 0</td>
</tr>
</tbody>
</table>

### Date

<table>
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<tr>
<th>Percent Correct</th>
<th>Reliability</th>
<th>Procedural Integrity Percentage</th>
</tr>
</thead>
</table>

I: Independent after watching the video for the first time

I+: Independent response without watching the video

X: Correct response after watching the video for the second time (error correction)

0: Incorrect

47
Appendix D: Procedural integrity data sheet (wet mopping)

Procedural Integrity Check (Mop hallway using custodial mop without error correction)

Date:______________ Data Collector:______________ Student: _______________

1. Place the student in front of the task ___
2. The experimenter holds the iPod Touch in hand ___

3. The participant is oriented toward the screen by the experimenter saying, “watch this”. ___

4. The experimenter shows the video clip of the ___ step of the task. ___

5. The experimenter pauses the video clip of the ___ step. ___

6. The experimenter says to the participant, “now you do it”. ___

7. ___
   (a) The experimenter does nothing when the participant completes the step correctly within 30s.
   (b) If the participant failed to complete the step within 30s the experimenter completed or corrected the step as unobtrusively as possible.

8. The experimenter terminates the session by saying “Good participation/thanks for working with me”, when the last step of the task is completed. ___

9. The participant is given access to the reinforcer after the session is terminated (Optional. Could be verbal praise only.) ___

Steps Correct: /54
Percentage Correct: ____________________________
Appendix E: Procedural integrity data sheet (dust mopping)

Procedural Integrity Check (Dust Mop Hallway with error correction)

Date:______________  Data Collector:______________  Student: _______________

1. Place the student in front of the task ___

2. The experimenter holds the iPod Touch in hand ___

3. The participant is oriented toward the screen by the experimenter saying, “watch this”.

4. The experimenter shows the video clip of the ___ step of the task.

5. The experimenter pauses the video clip of the ___ step.

6. The experimenter says to the participant, “now you do it”.

7. (a) The experimenter does nothing when the participant completes the step correctly within 30s.
   (b) The experimenter interrupts the participant if he/she attempts to complete the step incorrectly by saying, “sorry, [name] that’s not quite right. Here watch this”

8. The experimenter shows the video clip of the ___ step of the task a second time.

9. The experimenter pauses the video clip of the ___ step.

10. The experimenter says to the participant, “now you do it”.

11. The experimenter counts 30s for the participant to finish the task.

12. The experimenter completes the step while saying “watch me”, if the participant fails to correctly complete the step within 30s.

8. The experimenter terminates the session by saying “Good participation/thanks for working with me”, when the last step of the task is completed. _____

9. The participant is given access to the reinforcer after the session is terminated (Optional. Could be verbal praise only.) _____

Steps Correct: /104
Percentage Correct: 