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EFFECTS OF PARTICIPANT CONTROLLED VIDEO PROMPTING ON NOVEL TASKS IN A VOCATIONAL SETTING FOR ADULTS WITH AUTISM SPECTRUM DISORDER

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EFFECTS OF PARTICIPANT CONTROLLED VIDEO PROMPTING
ON NOVEL TASKS IN A VOCATIONAL SETTING
FOR ADULTS WITH AUTISM SPECTRUM DISORDER

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Education
at the University of Kentucky

By

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2017

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ABSTRACT OF THESIS

EFFECTS OF PARTICIPANT CONTROLLED VIDEO PROMPTING ON NOVEL TASKS IN A VOCATIONAL SETTING FOR ADULTS WITH AUTISM SPECTRUM DISORDER

The purpose of this study was to evaluate the effectiveness of teaching self-instructional skills to navigate to a mobile device to access video prompts to teach novel behaviors to two adults with autism spectrum disorder (ASD) in a vocational setting. This study used a multiple probe across conditions design to evaluate effectiveness. In baseline, the researcher directed the participants to complete a novel task and collected data on correct steps completed. In technology training the researcher used a system of least prompts procedure to teach participants to initiate the use of the mobile device, navigate to an app, navigate to the specific behavior schedule, watch video prompt, navigate to the next step, and complete the modeled behaviors. After mastery of technology training, researcher evaluated performance of novel tasks following self-instruction to access video prompts on the mobile device. Participant's fidelity of navigation skills was assessed, however was not included in mastery criterion. Both participants learned to self-instruct to independently access video prompts on a mobile device. One participant self-instructed using the mobile device and video prompts to correctly complete novel tasks.

KEYWORDS: Video prompt, self-instruction, video modeling, Autism Spectrum Disorder, community setting

Amanda M. Hogue
December 7, 2017

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Section 1: Introduction

Students who qualify for special education services are allotted Free and Appropriate Public Education from age 3 until age 21 (Individuals with Disabilities Education Act [IDEA], 2014). Within this 18-year entitlement, students are taught not only academic skills such as reading, writing, and math, but also practical living skills such as independent living, money management, and vocational skills to aide in quality of life post high school. Knowledge of practical living skills allows individuals the necessary abilities to achieve post high school goals (Thomas & Getzel, 2005). Whether the goal after high school is college or employment, educators work tirelessly preparing these individuals with repertoires of skills to reach the goals set by the individual and the individual education program team. Despite educators' efforts, the employment rate of individuals with a disability remains low (i.e., around 17%), whereas the employment for the general population falls at around 65% (U.S. Department of Labor, 2016). Compared to other IDEA disability categories, individuals with autism spectrum disorder (ASD) have the lowest rate of employment, with less than half of the population of individuals with ASD between ages 21 to 25 years old reported being employed or previously employed (Roux et al., 2013). Community service programs are offered to individuals with ASD post high school in efforts to gain employment; however, the steps necessary to access and pay for these services often prove complicated and overwhelming for families who are accustomed to in-school services (Sullivan, 2007).

Although adults with ASD and other disabilities are not entitled to full protection and rights under IDEA after graduation from high school, they are protected under the Americans with Disability Act (ADA, 1990). Under ADA, people with disabilities have the right to be free from discrimination in the workplace, providing them a fair and equal opportunity to be hired for a job. Employers also are required to reasonably accommodate the individual with a disability starting with the interviewing process, ensuring that the interview is modified to give equal opportunity. Once hired, an employer has the responsibility of reasonably accommodating work environments and tasks to set the employee up for success, and hopefully sustain employment.

However, these laws protect qualified persons with disabilities, meaning the individual applying for a job must hold the expected requirements and prerequisites as the other candidates, in order to be considered for hiring (ADA, 1990).

Employers often are intimidated to hire an individual with a disability due to the lack of knowledge of typical characteristics that encompass the diagnosis, and are unaware of the accommodations that are necessary to support the individual (Basas, 2008). Characteristics of an ASD diagnosis may prove to be an obstacle when working with employers (Hagner & Cooney, 2005). For example, an individual with ASD may have significant social and communication deficits as well as restricted and repetitive behaviors and interests (American Psychiatric Association, 2013). Specifically related to employment, the characteristics of an individual with ASD may include resistance to change, especially in a routine schedule, sensitivity to over stimulating environments, and deficits in the areas of social communication (Suomi, 1993). Individuals with ASD may not have the ability to understand social cues making it difficult for them to interact and

form relationships with customers, coworkers, etc. (Suomi, 1993). Furthermore, individuals with ASD may require extra support to complete tasks. These features of ASD may be viewed as unemployable qualities to a business if the employer does not know reasonable ways to accommodate these deficit areas.

Once an employer hires an individual with ASD, reasonable accommodations may be needed to create an environment in which the employee can succeed and the business can benefit (Hagner & Cooney, 2005). Areas most often targeted for accommodations or modifications in work environments are social supports, skill acquisition training, and direct communication (Hagner & Cooney, 2005). However, with these accommodations and through acquisition of an expanded skill set in the work place, the employee diagnosed with ASD has the opportunity to gain more opportunities in their place of employment, which has the possibility to lead to more paid working hours, leading to more independence in life outside of work. Specifically related to skill acquisition training, there are a few studies in which researchers targeted job skill acquisition for individuals with ASD after high school (e.g., Kellems & Morningstar, 2012; Lattimore, Parsons, & Reid, 2006). However, few studies have been conducted pertaining to job retention for this population.

In order to be successful in a work setting and retain employment, an individual, regardless of disability, must be able to complete the tasks that are assigned to them. Employers do not have the resources to provide one-on-one supports for employees; therefore, an individual must have some way to access support independently (Van Laarhoven, Johnson, Van Laarhoven-Myers, Grider, & Grider, 2009). The ability to independently access needed supports or prompts to acquire knowledge is known as self-

instruction (Cihak & Schrader, 2008). Self-instruction can include viewing a video model of a person performing the selected skill from start to finish. After the video is initially created, it is then readily available for the individual to access to view and learn how to do the skill through observation (Cihak & Schrader, 2008). Research has shown that self-instruction through use of video instruction (video modeling [VM] and video prompting [VP]) on a personal device eliminates the dependence of support from another person, thus alleviating the need of the constant prompting and modeling from another employee (Smith, Ayres, Alexander, Ledford, Shepley, & Shepley, 2015).

The literature supports VM and VP as effective interventions for a variety of different skill areas and for different age groups, including play behavior and social interaction in young children with ASD (e.g., Nikopoulos & Keenan, 2003), transitional behaviors in all ages of students with ASD (e.g., Cihak, Fahrenkrog, Ayres & Smith, 2010), and daily living skills for adults with developmental disabilities (e.g., Cannella-Malone et al., 2006). In the past, video models and video prompts were not as accessible and socially valid due to the technology and equipment available (Kellems & Morningstar, 2012). Prior to 2006 when pocket-sized video cameras were introduced, creating videos was a time intensive and costly process (Mechling, Gast, & Fields, 2008). Instructors or researchers recorded videos with heavy camcorders, purchased expensive editing programs to cut and splice videos together, and transferred the edited film to an external file for storage (e.g., DVD or VCR tape; Schreibman, Whalen, & Stahner, 2000). Furthermore, a TV with a VCR or DVD player was necessary to view the custom video, which, due to the large size and bulky features, hindered portability to the place of employment.

While VM and VP for learners with ASD have been included in the literature for two decades (Mechling, 2005), the usability and size of the technology materials have made it impractical for the participants to initiate and utilize the technology independently (Kellems & Morningstar, 2012). In the majority of the VM and VP literature, the video itself is controlled by someone other than the participant of the study (e.g., Allen, Wallace, Renes, Bowen, & Burke 2010; Buggiey, 2005; Reagon, Higbee, & Endicott, 2006). Today's mobile device technologies not only offer a variety of options to play video models through applications on the phones, but also create and edit simple videos for self-instructional use. These technologies make creating, initiating, and viewing video models and video prompts a streamlined process that can be easily adopted as a self-instruction tool for adults with ASD. Kellems and Morningstar (2012) sought to evaluate the effectiveness of self- instruction with VM via an iPod on the acquisition of three vocational tasks for young adults diagnosed with ASD within an employment setting.

Skills taught included chained tasks such as taking inventory, vacuuming, cleaning, and other janitorial jobs. Three out of four participants acquired the skills in five sessions or less during intervention condition, with all four participants maintaining the behaviors. This study found using iPods to deliver video models within the employment settings increased percentage of correctly completed tasks. Shepley, Spriggs, Samudre, & Elliot (2017) evaluated the effectiveness of system of least prompts (SLP) to teach four adolescents diagnosed with ASD and other developmental disabilities to independently initiate self-instruction using a mobile device to access instruction on a known task. Furthermore, Shepley, Spriggs, Samudre, & Elliot (2017) utilized VP to teach novel

chained behaviors to students with intellectual disabilities where students were taught SI behaviors to pause and play videos on the mobile device. Three of four participants were able to SI to the VP and independently complete the novel behavior. Results indicated the use of SLP was effective in teaching self-initiating in the presence of a task direction to access technology, and VP was effective in teaching a novel chained behavior. Smith et al. (2015) utilized a time delay procedure in teaching SI behaviors to complete a novel task. Much like Shepley, Spriggs, Samudre, & Elliot (2017), this study found that using a time delay procedure along with novel tasks is effective when teaching SI skills. The purpose of this study was to expand the findings of Kellems and Morningstar (2012) and Shepley, Spriggs, Samudre, & Elliot (2017) by replicating Kellems and Morningstar's procedures, but including a VP as it is a more efficient form of instruction (Mechling, Ayres, Bryant, and Foster, 2014; Taber-Doughty, Bouck, Tom, Jasper, Flanagan, & Bassette, 2011).

Expanding on Bereznak's findings, this study utilized portable mobile devices to teach vocational tasks within the natural vocational setting. Furthermore, this study embedded components of Smith et. al (2015) in that participants were taught to self-initiate to their mobile device when presented with a novel task, using a time delay procedure. This study used novel tasks while teaching SI behaviors in order to build a motivating operation (MO) to use SI behaviors to gain access to the videos.

The focus of this study was to teach novel skills to adults diagnosed with ASD in a vocational setting through video self-instruction in an effort to increase independence in the work site, leading to job retention.

Section 2: Research Question

The specific research question for this study was: Is there a functional relation between participant controlled VP via mobile technology and independent completion of three novel tasks in a vocational setting for adults with ASD?

Section 3: Methods

Participants

Inclusion criteria for this study were as follows: (a) current medical diagnosis of ASD (b) gainfully employed (i.e., received payment for consistent work), (c) at least 16 years old (legal working age), and (d) ability to imitate a video prompt.

Dale. Dale was a white 25-year-old male diagnosed with ASD based off the current DSM-5 (5th ed.; *DSM-5*; American Psychiatric Association, 2013) criteria with an IQ score of in the low 70s, as reported by a caregiver, who was employed at a local coffee shop where his job tasks were mainly janitorial (e.g., washing dishes, sweeping the floor, wiping off tables) as well as refilling salsa cups that were served to customers. Dale was also employed at a convenience store where he worked once a week. In the summer, he also worked at a local butcher shop to help prepare for their weekly cook outs. He was an employee at the coffee shop for less than a year at the time of the study and completed his tasks independently while working. Dale used full sentences to communicate, followed single verbal prompts, and often engaged in social communication with peers.

Dale owned his own mobile device which he used on a daily basis, so he was familiar with independently accessing technology. Dale had history with VM in the past; however, not with VP to learn a new skill.

Brennen. Brennen was a white 25-year-old male who was employed at a University hospital. Brennan was diagnosed with ASD and severe intellectual disability based off on the current DSM-5 criteria. Brennen scored 40 on the Kaufman Brief Intelligence Test, 2nd Edition (KBIT-2; Kaufman & Kaufman, 2006). Brennen's adaptive behavior based on the Vineland Adaptive Behavior Scales – Second Edition (VABS-II;

Sparrow, Cicchetti, & Balla 2005) was low with severe deficits for areas of communication, daily living skills, and socialization. His job at the hospital included converting documents into a computerized data base by scanning the documents and creating folders for them. While at work, Brennen was accompanied by a community living support worker (paid employees that spend time with individuals who qualify through a financial waiver in order to increase experiences in the community and work toward personal goals) who provided him with 1:1 support to complete work tasks. Brennen relied on verbal, gestural, and physical prompts to complete his tasks. Brennen did not engage in conversations with peers or any other person around him; however, he was vocally imitative and engaged in echolalia.

Brennen had history with both technology and VM. He was taught to swim using a VM; however, unlike this study, an edible reinforcer was used. Brennen owned an iPad that he was able to independently navigate.

Efforts to recruit participants included months of emailing job coach companies, email chains to associations of parents with children with ASD, emails to heads of supports for adults with disabilities. These efforts were unsuccessful, thus participants were recruited through peers who worked as community living support workers. A community support worker is paid to assist adult and child clients with various disabilities in meeting goals related to personal hygiene, social interaction, and academics to encourage overall independence. The primary researcher was a second-year master's student of Applied Behavior Analysis, and reliability data collectors were second and first year master's students.

Task selection

Once identified as a participant, a meeting with the researcher, participant, parent or legal guardian, and the employer was conducted. This meeting identified novel target tasks in the work place for the participant. The researcher composed a list of around 10 behaviors the manager identified, and the manager then chose the top three that they wanted the participant to learn (see Table 1 for target tasks). These target behaviors were chosen for each individual participant based on of the job setting, responsibilities, and identified areas of need.

Table 3.1. Identified target tasks for each participant

	Task 1	Task 2	Task 3
Dale	Changing garbage	Dusting	Restocking tea
Brennen	Copying paper	Printing papers	Vacuuming

Setting

All sessions were conducted at the participant’s place of employment during regular scheduled business work hours. Sessions were conducted during a time decided during the initial interview with the employer and with participant consultation. Baseline sessions, the majority of tech training sessions (remaining sessions conducted at participant’s home), and video prompt self-instruction (PCVP) sessions were conducted at the participant’s place of employment. Dale’s place of employment was at a local coffee shop where he worked two days a week, for 2 hours each day (2pm-4pm). During Dale’s sessions, he worked alongside one or two coworkers during a busy time for the restaurant. Brennen worked in an office shared with five other employees who worked in cubicles, three times a week for 2-3 hours per day (10am-12/1pm). Brennen worked at a desk in the middle of the office next to the

printers, scanners, and copiers.

Materials

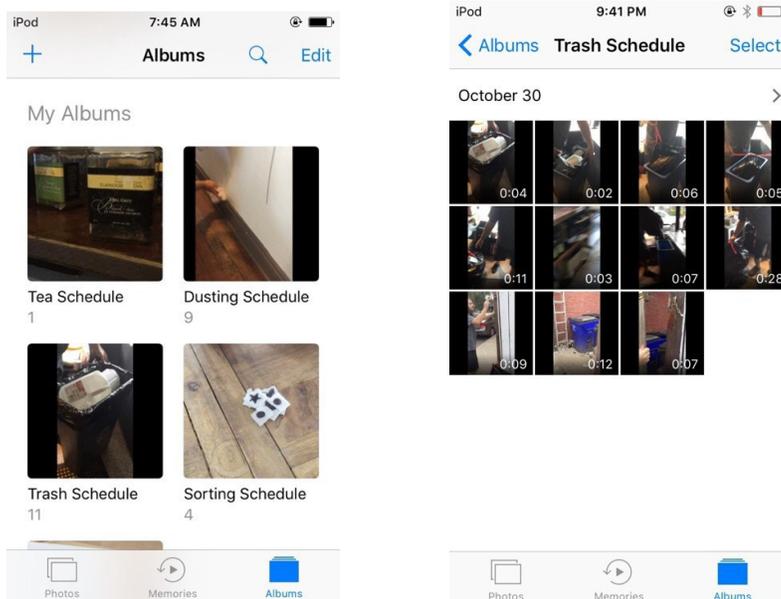
Task materials. Materials for each participant differed based on the chosen novel tasks. Each behavior required a different set of materials. Phones had cover photos and titles that corresponded to the tasks, as well as the VP to complete the tasks (in PCVP condition). Data sheets for each condition were needed (see Appendices A-F), along with a writing utensils.

Table 3.2. Materials for selected target tasks

Dale		
Changing garbage	Dusting floorboards	Restocking tea
1. New garbage bags	1. Clean rag	1. Tea jars
2. Full trash can	2. Water faucet	2. Notepad
3. iPod "Phone"	3. Bucket for dirty rag	3. Pen
	4. iPod "Phone"	4. Tea refill bags
		5. Paper cup
		6. iPod "Phone"
Brennen		
Copy papers	Print papers	Vacuum area
1. Papers to copy	1. Computer with file of	1. Vacuum
2. Copy machine	papers to print	2. Staples
3. Copy/Finished boxes	2. Printer	3. iPod "Phone"
4. iPod "Phone"	3. Finished box	
	4. iPod "Phone"	

Mobile technology. Each participant was provided an Apple iPod Touch that was referred to as a “phone.” Videos were stored under the “Photos” application. Within the app, videos had a cover photo of the target task with a corresponding title (see Figure 1). For example, the novel task of changing the trash bags had a static picture of a trash can labeled “trash schedule.” Within each target behavior’s album, each step of the TA had a corresponding 4-16 s video model of each step (i.e., video prompts for the total task; see Figure 1).

Figure 1. Target skill album cover and VP



Videos. Videos were filmed on the iPod using spectator perspective where

each video depicted an employee completing the full task. The spectator perspective was used in order to view the entire setting with a voiceover narrating the task analysis (e.g., “Get new trash bag from box under the counter and bring it back to the trash can.”). The camera hovered over key features in the video (e.g., the trash bag box) by switching to performer view to ensure the participant was able to focus on critical features of each stimuli (e.g., camera hovers over the copy button to highlight the key features). The videos were edited using iMovie where the researcher cropped the original video into separate videos that each modeled a separate step in the TA. Each novel task had its own corresponding album for these videos. Each album was composed of 4-16 s videos depicting each individual step of the target behavior’s TA. The video ended after the step was over, and in order to view the next step (video) the participant had to swipe left on the screen and press play for the next video.

Several video prompts that modeled behaviors unrelated to work tasks were created, using the process described above, to use during technology training sessions (e.g., how to sort a stack of cards).

Table 3.3 Dale’s target behavior TAs

Album/Target behavior	Steps
Changing garbage trash can	<ol style="list-style-type: none"> 1. Lift black trash bag edges from the 2. Pull red tabs up 3. Tie red tabs twice 4. Lift trash bag out of trash can and set on ground 5. Locate trash bag box

Table 3.3 (continued)

- under the counter and take
one back to the trash can
6. Find side with red tabs
and pull sides apart until
the top is open
Shake trash bag until all parts are open
 7. Put new trash bag in trash can
 8. Take full trash bag out
the back door to the white
fence
 9. Unlock white fence
 10. Put trash bag in a trash can

Dusting

1. Get white rag from back room
2. Walk to sink and turn on the water
3. Place rag under water to
get wet and then turn off
water
4. Ring out rag in the sink
5. Walk to dining room and
squat down to reach
baseboards

Table 3.3 (continued)

	<p>6. Wipe baseboards along the entire wall with wet rag</p> <p>7. Walk into main dining room and wipe the ledge on the wall</p> <p>8. Take rag back to sink and throw in bucket</p>
Restocking Tea	<p>1. Turn tea containers to see if they are half empty and pull out the ones that are out</p> <p>2. Locate pen and paper and write down the names of the teas that need refilling</p> <p>3. Walk to back room and take tea bags that are written on piece of paper</p> <p>4. Walk back to counter and put tea bags down</p> <p>5. Take lids off tea jars</p> <p>6. Get paper cup from the top of the coffee machine and place on</p>

Table 3.3 (continued)

- counter
7. Scoop tea from bag with same label as jar using paper cup to fill tea to top of jar.
- Complete all jars that are out
8. Put lids on jars and close tea bags
 9. Put jars back on shelving unit and throw away paper cup
10. Take tea bags back to back room

Table 3.4. Brennen's target behavior TAs

Album/Target behavior	Steps
Copies "Copy"	<ol style="list-style-type: none"> 1. Take paper from basket labeled 2. Put papers right side up on top of scanner 3. Press start copy button 4. Wait for machine to stop <p>and take all papers off of copier and place in the "Finished" basket</p>

Table 3.4 (continued)

Vacuum

1. Locate vacuum behind desk and wheel out by chair
2. Unwrap cord and plug into outlet by door
3. Press red power button on right side of vacuum
4. Press wand release button and pull out silver pole from vacuum
5. Vacuum the floor with the pole underneath desk and chair so all staples and trash are gone
6. Vacuum the top of the desk so all staples and trash are gone
7. Press red power button and place silver pole back in vacuum
8. Unplug cord from wall and

Table 3.4 (continued)

wrap cord back on vacuum

9. Place vacuum back behind desk

Print

1. Locate file on computer desktop that says “Print” and double click to open

2. Double click on the first picture in the file

3. Click “file” in top left corner

4. Click “print: at bottom of dropdown menu

5. Click blue button “print” on the pop up menu

6. Take papers from printer and place in

“finished” basket

Experimental Design

This study used a single case multiple probe across behaviors research design (Gast & Ledford, 2014). This design allowed for continuous observation across participants with a time-lagged introduction of the independent variable and demonstrates experimental control through replication across tiers at different moments in time.

Behaviors that were not receiving PCVP were probed once every week, or at least

every eight sessions, to control for history effects, testing effects, and to control for covariation. Upon mastery of tier one, the researcher probed the remaining tiers one time to ensure baseline data levels for the other behaviors remained stable and that a covariation did not occur where the other skills were acquired before the introduction of PCVP. If data remained stable, the researcher uploaded the corresponding VP to the phone to begin instruction on the next behavior.

Data Collection

The primary dependent variable in this study was the percentage of correct steps completed for the novel task. Each participant had three identified target behaviors that were defined and task analyzed based on the interview with the employer (see Tables 3 & 4). Performance was scored based on completion of task steps after viewing VP for each individual step and were operationally defined depending on the chosen target behavior after initial interview with employer. A secondary dependent variable of (SI) behaviors were measured during baseline and PCVP sessions to assess participant technology fidelity. Data were collected on participant's ability to independently check their phone during all sessions. During PCVP data were collected on whether the participant needed to be prompted to use the technology or if they initiated independently. Decisions were not made based on technology navigation data. This data were collected to track whether each participant was self-fading the use of technology, or relying on it every time.

General Procedures

All sessions occurred during the participant's regular scheduled hours within his employment setting, upon consent from employer. Two to three sessions occurred per

day in all conditions, with a 30 min (minimum) break in between sessions. Participants were provided with phones at least 5 min before session and instructed to place phone in pocket. After a general attending cue (e.g., “Hey Dale”) the participant was presented with a task direction to check the current condition’s schedule (e.g., “check your trash schedule”). Reinforcement in the form of praise was delivered on a CRF schedule per correct completion of task step. Reinforcement was thinned to a VR-3 upon mastery of skill (100% correct across three sessions, with two being consecutive).

Baseline. Phones were not pre-loaded with the video prompts of how to complete the novel tasks. However, phones had static pictures as album covers with a picture that corresponded with the novel behavior, and were also labeled (e.g., album titled “trash schedule” with static picture of the trash can and no videos in album). After the task direction (e.g., “check your trash schedule”), the participant had 5 s to initiate the first step of the TA and then another 5 s to complete the initiated step. In the first session of baseline, a multiple opportunity probe (MOP) was conducted in which each error or no response (after 5 s) resulted in the researcher blocking view of task and completing the current step before allowing the participant the opportunity to complete the subsequent steps. According to Alexander, Ayres, Shepley, & Smith (2017), both MOP and single opportunity probe (SOP) procedures produce testing effects, thus proving one procedure is not more effective than another. Due to time constraints, the remaining sessions of baseline SOP were conducted in which the session ended contingent on no response (after 5 s) or error (performing wrong skill) for critical steps (steps that were done incorrectly or out of sequence that would have effected the outcome of the task to) in the task analysis; steps completed incorrectly or not completed were scored incorrect

(Shepley, Spriggs, Samudre, & Elliot (2017)). Baseline was conducted a minimum of five times per behavior, or until baseline data were stable, before technology training was implemented with a participant.

Technology training. After the researcher delivered the task direction to check a specific schedule (e.g., “check your copy schedule”) the participant retrieved the phone from his pocket, navigated to the correct application (‘Photos’) within the phone, navigated to the correct album schedule by choosing the corresponding video title and cover photo, chose the first video, and, viewed the video to complete the task. Using SLP, the researcher taught the participant self-instructional (SI) behaviors (initiation, how to access videos, imitate VP, how to locate new prompt). After the researcher delivered the task direction (e.g., “check your sorting schedule”), a 5 s time delay was implemented between levels of prompt hierarchy. If the participant did not independently initiate the step within the 5 s delay or began to perform an incorrect response, a gesture + verbal prompt was implemented in which the researcher vocally labeled the step (e.g., while pointing to home button, the researcher said, “press the home button to unlock”). Following another 5 s delay, if the participant still did not initiate the response or began to perform an incorrect response, the researcher implemented a controlling prompt, which consisted of physical hand over hand prompting. Once the task was initiated, participants were allowed 5 s to complete the step before the next prompt level was delivered (Shepley, Spriggs, Samudre, & Elliot, 2017).

Technology training continued until the participant reached 100%

unprompted correct for navigation skills (grey area found on Table 5) and 100% unprompted correct for skills (white steps found on Table 5) for 3 sessions, with at least two being consecutive. After mastery of technology training the remaining tiers were probed once to ensure data were stable before starting PCVP.

Table 3.5 Technology Training TA

Step	Navigation Skill
1	Get phone from pocket
2	Press home button
3	Press home button or slide to unlock
4	Press the Photos button on iPod
5	Press the 'drawing schedule' album
6	Pick the 1 st picture on iPod
7	Press the play icon on iPod.
8	Watch the first
Task step 1	Video of task 1
9	Swipe video to the left
10	Press the play icon on iPod.
11	Watch the next
Task step 2	Video of task 2
12	Swipe video to the left
13	Press the play icon on iPod.
14	Watch the next
Task step 3	Video of task 3
15	Swipe video to the left
16	Press the play icon on iPod.
17	Watch the next
Task step 4	Video of task 4

Participant controlled video prompting (PCVP). Following mastery of technology training and stable probe sessions, PCVP procedures were introduced for the first behavior (i.e., changing the garbage for Dale and making copies for Brennan).

Procedures were identical to baseline procedures, except video prompts depicting the TA of the corresponding behavior were loaded to the album in the photos app (see Figure 1). Independent navigation to the VP was measured as the participant had 5 s to initiate each technology step, however these data did not drive decision making. Upon no initiation to the phone after the delay or error, the researcher provided a verbal + gestural prompt which served as a controlling prompt. Upon the completion of the participant watching the VP, the participant was given 5 s to initiate the step, and 20 s to complete the step.

Each session in the PCVP condition was conducted using a single opportunity probe, in which the session ended contingent on error in the task or no response for the target behavior task step after 20 s time delay. This duration was chosen based off the longest duration of the VP, aside from walking the trash to the white fence (employer took 28 s to walk to fence) where the participant was allotted 30 s to complete the step. Technology training videos remained on phones to promote discrimination between video schedules. Criterion to move to another tier was two consecutive sessions at 50% above baseline of correct completion of steps of the target behavior. Mastery criterion of a tier was 100% independent correct responses of tasks across three sessions, two being consecutive, across two days.

As participants moved into the new tier of PCVP, the corresponding video was loaded to the phone. Data continued to be collected on technology use, however this data

did not drive decision making nor did an error result in termination of a session, but was kept to determine the need of more technology training.

Interobserver Agreement

Interobserver agreement was calculated using the point by point method (number of agreements/ number of agreements + disagreements x 100; Gast & Ledford, 2014) and was collected on percentage of correct steps completed of a novel task as well as SI behaviors. Interobserver agreement data were collected for at least 20% of sessions in each condition at 80% or above. If interobserver agreement fell below 80%, data collectors were retrained.

Table 3.6. IOA across conditions (Dale)

<u>Condition</u>	<u>% of conditions</u>			<u>IOA average</u>		
	Tier1	Tier 2	Tier 3	Tier1	Tier 2	Tier 3
Baseline	33%	43%	43%	100%	100%	100%
PCVP	50%	38%	50%	95%	99%	100%
Technology Training		43%			98%	

Table 3.7. IOA across conditions (Brennen)

<u>Condition</u>	<u>% of conditions</u>			<u>IOA average</u>		
	Tier1	Tier 2	Tier 3	Tier1	Tier 2	Tier 3
Baseline	33%	43%	43%	100%	100%	100%
PCVP	40%	33%	100%	100%	93%	100%
Technology Training		50%			98%	

Procedural Fidelity

Procedural fidelity data were collected for at least 20% of sessions in each condition and were calculated by dividing number of steps correctly implemented by the number of steps planned to be implemented multiplied by 100 (Gast & Ledford, 2014). In baseline, fidelity data were collected for the following: a) environment arranged for target behavior, b) researcher provided the phone to participant at least 5 min before session, c) phone loaded with static pictures/no videos for behaviors still in baseline, and d) researcher waited the time delay/duration before ending session/completing skill. Fidelity data were taken on the following in technology training condition: a) researcher provided the phone to participant at least 5 min before session, b) researcher provided task direction “check your drawing schedule”, c) Researcher waited 5s for initiation/5s for task completion. In PCVP condition, procedural fidelity was collected on: a) environment arranged for target behavior, b) researcher provided the phone to participant at least 5 min before session, c) task direction delivered (“Check your _____ schedule”), and d) researcher waited 20 s for participant to complete task before ending session.

Table 3.8 PF across conditions (Dale)

<u>Condition</u>	<u>% of conditions</u>			<u>PF average</u>		
	Tier1	Tier 2	Tier 3	Tier1	Tier 2	Tier 3
Baseline	33%	43%	43%	100%	100%	100%
PCVP	50%	40%	50%	92%	97%	100%
Technology Training		100%			100%	

Table 3.9 PF across conditions (Brennen)

<u>Condition</u>	<u>% of conditions</u>			<u>IOA average</u>		
	Tier <u>1</u>	Tier <u>2</u>	Tier <u>3</u>	Tier <u>1</u>	Tier <u>2</u>	Tier <u>3</u>
Baseline	33%	43%	43%	100%	100%	100%
PCVP	40%	33%	100%	100%	100%	100%
Technology Training		100%			100%	

Social Validity

The employer was provided with a social validity questionere upon the conclusion of the study. It contained three questions regarding the employer’s attitude toward the participant and their work within the company. A Likert scale was used where the employer had the option of choosing a number with a corresponding answer that reflected their opinion on the three statements provided. The employer was asked to answer the three questions based on their opinions prior to the study, and then again at the conclusion of the study. The questions asked were as follows: 1) I am confident the employee can independently complete a task, 2) I am willing to give the employee more responsibilities, and 3) The employee is a vital part of this work force. The employee was

given the following scale to choose as an answer: 1) strongly disagree 2) disagree 3) slightly disagree 4) slightly agree 5) agree 6) strongly agree.

Section 4: Results

Technology Training

Both participants mastered technology training using SLP with known discrete skills combined to create an unknown chained behavior. The data in Tables 10 and 11 represent participant fidelity in initiating the use of technology, navigating to the correct video album, playing videos, and locating the next step for the remainder of the task. The tables also display the percentage of steps completed correctly on the known tasks depicted in the videos during technology training. Dale mastered using the VP in 7 sessions with a mean average of 87.3% (range 71-100%). He completed the known tasks 100% correct for all 7 sessions. Brennen mastered technology training using the VP in 9 sessions with a mean of 78.5% (range 41-100%). He completed a mean of 97.2% (range 75-100%) steps correct on the known tasks depicted by the VP.

Table 4.1 Dale's technology training data

<u>Session</u>	<u>% Unprompted Correct</u> <u>(Independent)</u>	<u>% Task Steps Correct</u>
1	82%	100%
2	82%	100%
3	76%	100%
4	71%	100%
5	100%	100%
6	100%	100%
7	100%	100%

Table 4.2 Brennen’s technology training data

<u>Session</u>	<u>% Unprompted Correct</u> <u>(Independent)</u>	<u>% Task Steps Correct</u>
1	41%	100%
2	71%	100%
3	71%	75%
4	100%	100%
5	100%	100%
6	65%	100%
7	71%	100%
8	88%	100%
9	100%	100%

Effectiveness of PCVP

Dale. The selected target behaviors for Dale were changing the garbage, dusting the floor boards, and restocking the tea. Effectiveness data for these behaviors were based on his ability to correctly complete each step of the behavior (see Table 3) after viewing a VP for the step. These data are represented in Figure 2 as closed circles. Dale completed 27% of steps correctly in baseline for his first session of multiple opportunity probe for changing the garbage. However, after the second session and the implementation of single opportunity probes for the remainder of baseline sessions, data decelerated to 0% and remained stable for the following 4 sessions of baseline. Data were at 0% correct steps completed for the remaining two behaviors and remained stable for all 5 sessions of baseline. After Dale mastered technology training in 7 sessions, (represented on Figure 2

as condition after dashed line; see Table 10) all tiers were probed and data remained stable at 0% across behaviors. Upon introduction of PCVP in tier 1 there was an immediacy of effect as the data accelerated from floor level to ceiling level. Dale correctly completed 100% of the steps for changing the garbage for 5 consecutive sessions. Data for his SI behaviors remained above baseline, and both prompted and unprompted correct navigation skills decelerated in a contratherapeutic trend as sessions continued. Dale's independent SI behaviors are represented as the grey bars in Figure 2. His prompted SI behaviors are represented by the horizontal stripes. If Dale performed a task step without viewing the VP, he was not given credit for those SI steps. Independent SI behaviors were calculated based on the number of steps independently completed.

After Dale reached criterion to move to the next tier (2 consecutive sessions at 50% or above baseline level), a probe session was conducted for tier two behavior (dusting). Data remained stable at 0% so PCVP was introduced with the dusting behavior. Upon introduction of PCVP in tier two there was an immediacy of effect as data accelerated in a therapeutic trend from floor to ceiling level. Dale correctly completed 100% of the steps for dusting for 5 consecutive sessions. Data for unprompted SI behaviors remained above baseline but were variable with data for prompted SI behaviors decelerated in a contratherapeutic trend as the sessions continued (Table 12). After reaching mastery criterion to move on to the next tier with dusting, a probe session was conducted in the last tier (tea restock). With the probe session data remaining stable at 0%, PCVP was introduced. There was an immediacy of effect upon the introduction of PCVP in the last tier. Dale correctly completed 40% of the steps for tea restocking behavior for one session. Due to environmental factors (coffee shop not having tea

supply) sessions of tea restocking were not run for a period of sessions. However, when the coffee shop's tea order arrived and a session was ran the data moved in a contratherapeutic trend to 10% of the tea restocking behavior. Unprompted SI data remained above baseline upon introduction of PCVP.

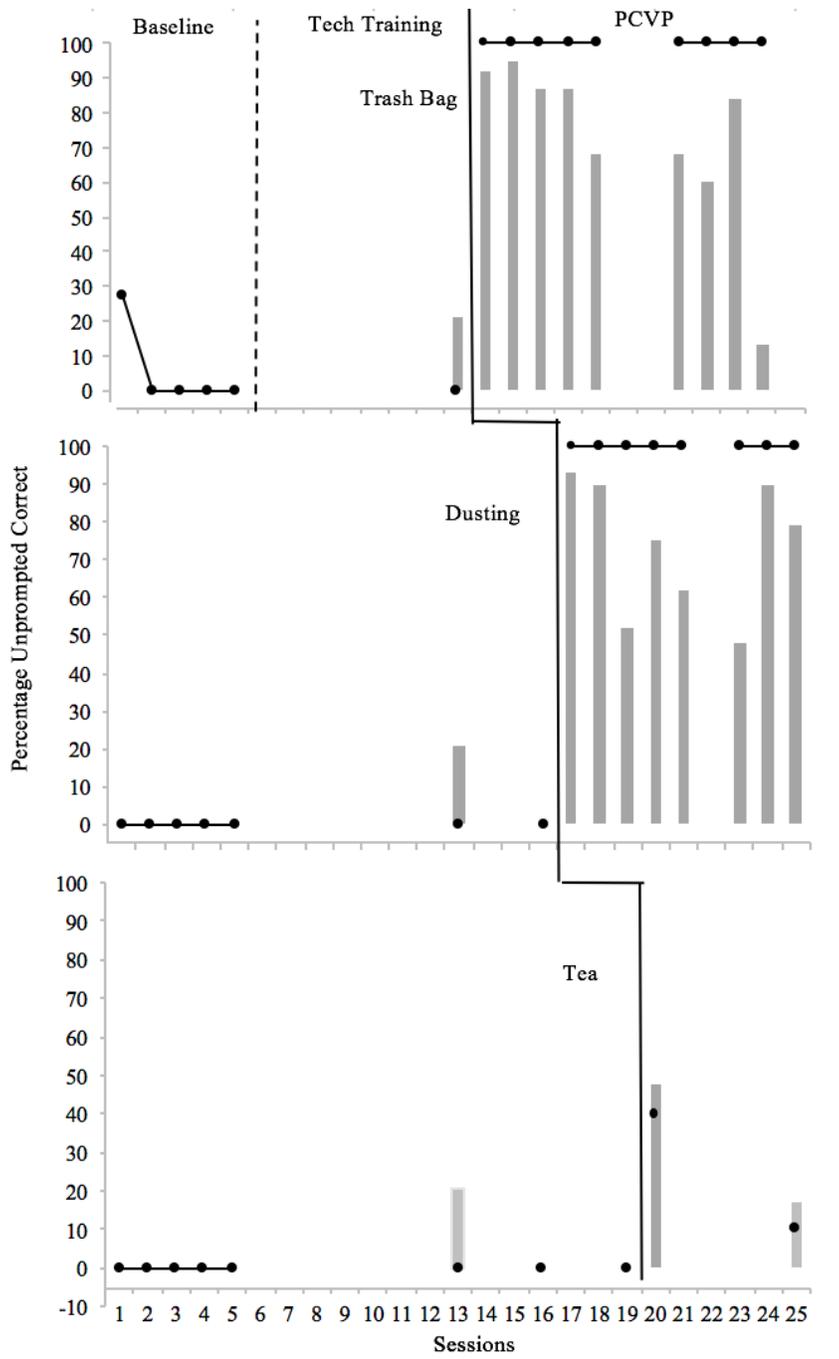


Figure 2. Dale's Graph of Results.

Table 4.3 Dale's prompted navigation steps

<u>Session</u>	<u>Condition</u>	<u>Percentage of Prompted</u> <u>(verbal+gesture) Navigation Steps</u>
14	Trash	8%
15	Trash	5%
16	Trash	5%
17	Trash	0%
	Dust	7%
18	Trash	3%
	Dust	10%
19	Dust	17%
20	Dust	7%
	Tea	8%
21	Trash	0%
	Dust	3%
22	Trash	0%
23	Trash	0%
	Dust	0%
24	Trash	0%
25	Dust	0%
	Tea	6%

Brennen. The selected target behaviors for Brennen were copying papers, printing papers, and vacuuming his work area. Effectiveness data for these behaviors were based on his ability to correctly complete each step of the behavior (see Table 4) after viewing a VP for the step. These data are represented in Figure 3 as closed circles. Brennen completed 0% steps correct for 5 consecutive sessions of baseline across behaviors. After technology training mastery (represented on Figure 3 as condition after dashed line; see Table 11), all tiers were probed using baseline procedures where data remained stable at 0%. Upon introduction of the video prompts, Brennen completed 3 consecutive sessions at 0% steps correct. Brennen would navigate to the correct video with fidelity, view the VP, and not initiate to complete the step. A verbal + gestural prompt was added after the 5 s given to initiate the step during the fourth session. After the modification was introduced, data began to accelerate in a therapeutic trend as Brennen met the criterion to move on to the next tier (50% above baseline). However, data immediately decelerated in a contratherapeutic trend to 0% where it remained for 2 consecutive sessions.

Data then accelerated in a therapeutic trend to ceiling levels for the final 2 sessions of PCVP. Brennen's independent SI behaviors are represented as the grey lines in Figure 2. His prompted SI behaviors are represented in Table 13. If Brennen performed a task step without viewing the VP, he was not given credit for those SI steps. Independent SI behaviors were calculated based on the number of steps independently completed thus the absence of 100% prompted or independent SI behaviors on the graph.

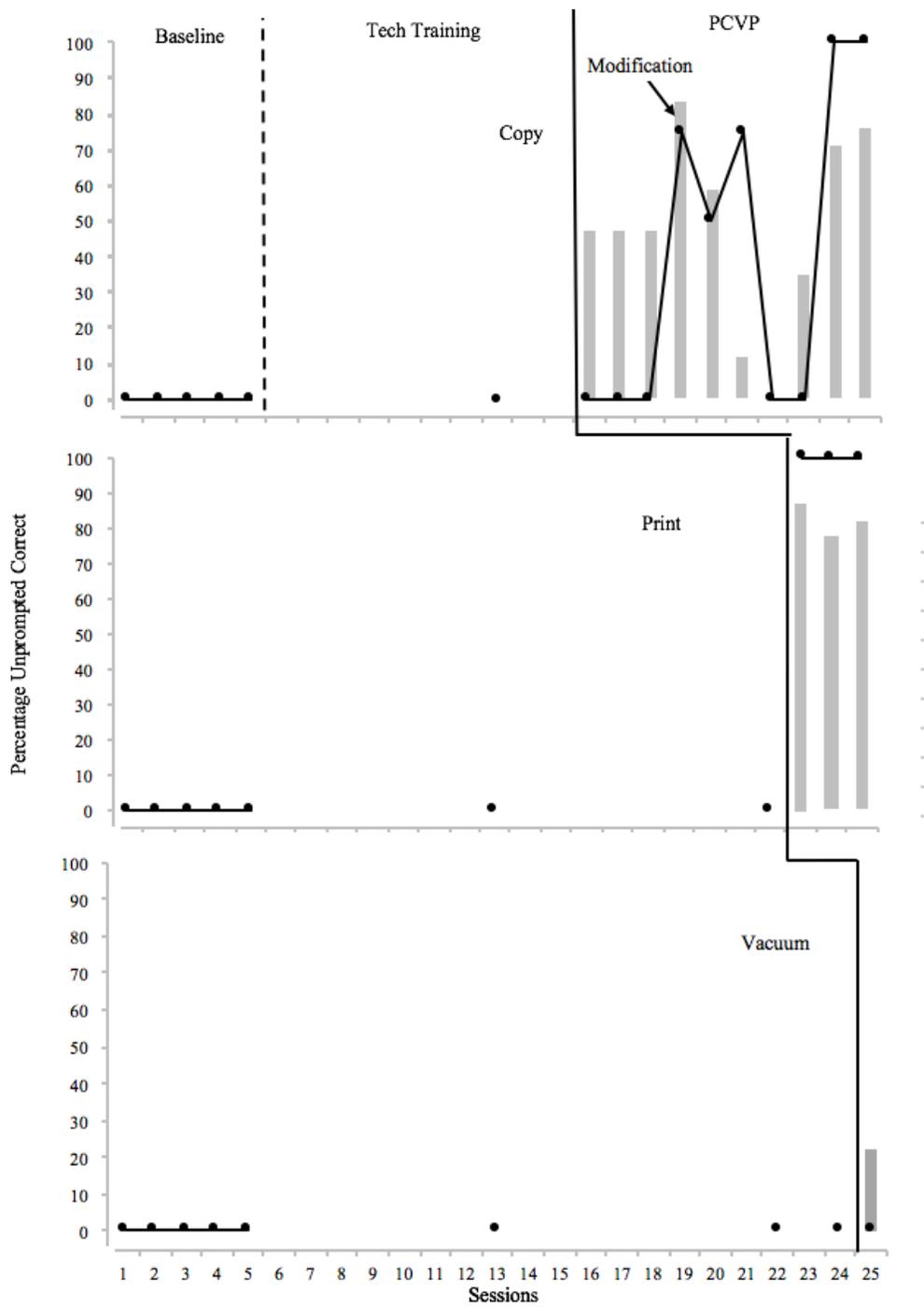


Figure 3. Brennen's Graph of Results

Table 4.4 Brennen’s prompted navigation steps

<u>Session</u>	<u>Condition</u>	<u>Percentage of Prompted (verbal+gesture) Navigation Steps</u>
16	Copy	0%
17	Copy	0%
18	Copy	0%
19	Copy	17%
20	Copy	41%
21	Copy	5%
22	Copy	0%
23	Copy	11%
	Print	13%
24	Copy	11%
	Print	22%
25	Copy	24%
	Print	17%
	Vacuum	22%

Social Validity

At the conclusion of the study, both employer’s attitudes toward the participant improved according to the social validity questionere. Dale’s employer’s answers increased from “slightly disagree” to “strongly agree” for two of the three questions. The third answer rose from “slightly agree” to “strongly agree” (Table 14). Brennen’s employer originally marked “slightly disagree” for all three statements. At the

conclusion of the study, he ranked two statements at “agree” and one statement at “slightly agree” (Table 15).

Table 4.5 Dale’s employer social validity

	Question 1	Question 2	Question 3
	“I am confident the employee can independently complete a task”	“I am willing to give the employee more responsibility”	“The employee is a vital part of this work force”
Pre-intervention	4	3	3
Post intervention	6	6	6

Table 4.6 Brennen’s employer social validity

	Question 1	Question 2	Question 3
	“I am confident the employee can independently complete a task”	“I am willing to give the employee more responsibility”	“The employee is a vital part of this work force”
Pre-intervention	3	3	3
Post intervention	5	5	4

Section 5: Discussion

Individuals with ASD are provided with many opportunities for support throughout their schooling including state mandated accommodations, therapies, support groups, and inclusion organizations. However, once an individual ages out of school those supports become scarce and the tools they have learned throughout their lifespan are not put to use. This study further highlights the lack of support for adults with ASD through the difficulty in contacting and identifying participants. Months of contacting companies and associations that claimed to support adults with ASD in post education endeavors with no responses led to including the only two participants that were recruited for the study. Employment is how the majority of typically developing adults gain independence and contribute to society. Employers shy away from hiring individuals with ASD due to the unknown accommodations they would need to provide in order for the individual to complete their assigned tasks (Hagner & Cooney, 2005). One way to lessen the anxiety of the employer is to focus instructional tasks on pivotal skills instruction, such as self-instruction. Teaching an individual self-instruction skills can decrease the time an employer will spend training, and re-training the individual. Findings from this current study expand on the findings of past studies that taught participants to self- instruct using VP to teach novel skills. VP is an evidence- based practice for teaching novel tasks to individuals with ASD, however the setting in which the video prompts are used have been limited to school and home settings (Bereznak et al., 2012; Buggey, 2005; Cihak & Schrader, 2008; Nikopoulos & Keenan, 2003; Reagon, Higbee, & Endicott, 2006).

Furthermore, studies that have utilized VP even in vocational settings implemented procedures that would be difficult for a practitioner to replicate. The purpose of this study was to expand the literature and teach self-instruction skills to learn a novel task in a vocational setting while using procedures that practitioners can easily replicate. This study demonstrated that SLP is an effective procedure to teach self- instruction skills to access technology and correctly complete known tasks. However, it was unable to demonstrate that these behaviors can maintain and generalize. VP was also shown to be effective in teaching novel skills in a vocational setting with an individual with high functioning ASD.

These findings contribute to the literature in that it extends the external validity of self-instruction and VP research to teach novel skills. Studies have demonstrated that VP with embedded pauses in the form of a video ending is an effective way to teach novel skills (Cannella-Malone, Sigafos, O'Reilly, de la Cruz, Edrisinha, & Lancioni, (2006)). Bereznak et al. (2012) was able to demonstrate that VP was effective in teaching novel tasks by using the “pause” symbol where the participant was taught to physically pause the video. In this study, participants were not taught to pause the video as each step of the behavior (according to the TA) was its own VP, and the participant was taught to navigate to the next step (video). Rather than learning how to edit videos in order to add pauses, practitioners now can video tape each step of a behavior separately before compiling the videos into an album of each behavior.

Implications for Practitioners

The results of this study have implications for practitioners of individuals with ASD post-secondary age. Similar to the findings of Kellems and Morningstar (2012), this study found that a participant was able to self-instruct using technology to complete a novel task independently. When used in a vocational setting, this not only means increased job opportunities for the participant and increased independence, it also alleviates the time needed for the employer to train, and retrain the participant.

Furthermore, with the simplicity of the video prompts, employers and/or practitioners have the ability to record many video prompts of different tasks to load and keep on the participant's personal mobile technology. Storing task analyses of skills on a personal device allows the participant to independently problem solve and not rely on another employee to help with a task. Again, these factors can lead to an increase in job opportunities, increase in wages earned, and in return an increase in independence.

Social Validity

During the initial meeting with the employer, a list of potential new behaviors were presented. On this list was a mixture of skills that mirrored their current tasks (janitorial jobs; e.g., taking out the trash, vacuuming) and also jobs that were more complex and specific to their employment setting (e.g., making a cup of coffee, sorting mail, etc.). The employers were instructed to pick the three tasks that they considered top priority. Dale's employer picked mostly janitorial jobs and Brennen's employer picked jobs that were more complex, but mirrored his current skills. At the beginning of this study when probe sessions were conducted, Dale's employer exhibited frustration with the study. The employer would interrupt sessions to remind Dale of his other duties, and would protest attempts to video behind the counter. However, as sessions continued and Dale began

acquiring the novel behaviors, Dale's employer asked the researcher what else this strategy (VP) could be used for, and if the videos used during the study could be downloaded to the employee's personal phone for future use. The change in Dale's employer's attitude toward Dale's ability to perform tasks within the workplace is a vital component to this study. Dale's employer was able to see Dale independently acquire a chained task within a few sessions, and now is willing to expand his task list even further. Brennen's employer's attitude also increased and as reported on the social validity questionere, is now more willing to give Brennen more responsibility at work. These findings can help start to shift employer's attitudes and preconceived notions about hiring individuals with disabilities and prove that with the right support they are able to independently complete tasks.

Limitations and Recommendations for Future Research

There are several limitations to this study. First of all, Dale correctly completed 27% of task steps in his first session of baseline for changing the garbage. The first session was a multiple opportunity probe; therefore, he was able to complete some steps of the first behavior. The known steps are not reflected in the remainder of the data in baseline because they were conducted using a single opportunity probe, and sessions ended contingent upon error or no response. Dale failed to respond on the first step for the last 4 sessions of baseline. Therefore, during PCVP when Dale was able to perform the remaining steps he was able to once again correctly complete those steps without viewing the VP. Future researchers should utilize multiple opportunity probe during all sessions of baseline and intervene on unknown steps to compare efficiency time of acquisition of skills. Another limitation of the study is that there was not procedural

fidelity or interobserver agreement data collected on the first session of baseline for Dale. Therefore, all sessions of multiple opportunity probe in baseline do not have interobserver agreement or procedural fidelity data.

Another limitation is the need for the modification made for Brennen in PCVP of the first tier. After three consecutive sessions of PCVP with no acceleration a verbal plus gestural prompt was added after a 5 s delay of no response after viewing the VP. The goal of the current study was for the participant to correctly and independently complete steps of a novel task using video prompts, and the addition of the verbal plus gestural prompt demonstrated the lack of immediacy of effect of the PCVP. However, each person with ASD is unique and some may need higher levels of prompting before fading out the prompts. Future research should continue to replicate studies using a video as a level in a prompt hierarchy.

A limitation was discovered with Brennen dealing with environmental factors. The researcher provided Brennen with the materials needed to complete the copy and printing behaviors including the baskets marked “Copy” and “Finished.” The researcher brought them to his place of employment on the first day and left the items there. Brennen’s community living support worker then began using those baskets in Brennen’s routine for his mastered tasks within his job. Therefore, during PCVP when the baskets were used factors, such as learning history, could have been impacted with Brennen associating the baskets with the mastered tasks he routinely completed.

The inclusion criteria is a limitation for this study as it does not take into account the participant’s ability to complete a task independently. The two participants in this study differed in many ways, one being Brennen was prompt dependent when completing

any task, even the mastered tasks he routinely completed daily. Therefore, his ability to independently complete the steps of each behavior independently after watching a video was impacted. Consideration of abilities to complete tasks should be included in future research.

Conclusion

Upon aging out of the school system, individuals with ASD who once had many services provided for them through the school such as state mandated modifications, and in some cases 1:1 support at all times, are left with little to no supports. Opportunities for maintenance of skills learned while in school, nor opportunities to implement these skills in employment settings to increase independence are bountiful. Employers are intimidated to hire individuals with ASD due to unknown accommodations that may need to be made. However, by teaching individuals with ASD pivotal skills, such as SI, opportunities for employment and job retention may increase. Educating employers about SI behaviors and the positive implications associated with this pivotal skill may encourage them to hire individuals with ASD. Some of these implications include increased independence in the work place resulting in less time spent 1:1 with the individual training/retraining and increased effectiveness and efficiency of learning new skills using SI behaviors.

Furthermore, by using mobile technology such as the “phones” and user- friendly programs such as iMovie used in this study, VP is a viable tool for employers to use within their employment settings.

Further research on working with the participant’s employer on creating video prompts and implementing procedures with fidelity are needed to further prove the need

for these behaviors in employment settings. By continuing research using personal devices, SI behaviors, and VP within the employment setting, individuals with ASD may be presented with more job opportunities, resulting in increased independence.

Appendix A: PCVP Tier 1 Dale Data Sheet

Date:				
Session:				
Condition:				
Researcher Initials				
IOA initials:				
Environment arranged (trash full, bags available):				
Correct task direction delivered:				
Instructor waited 5s to initiate task/ 20s to finish to end trial:				
Phone loaded with trash schedule videos:				
Instructor provided participant with phone at least 5min before session began:				
Total +				
Total + and -		5	5	5
Percentage				
	Get phone from pocket			
	Press home button			
	Press home button to unlock			
	Press the Photos button on iPod			
	Press the 'trash' album			
	Pick the 1 st picture at the top on iPod*			
	Press the play icon on iPod.			
	Watch the first step			
1	Lift black trash bag edges from the trash can			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
2	Pull red tabs up			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
3	Tie red tabs twice			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
4	Lift trash bag out of trash can and set on ground			

	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
5	Locate trash bag box under the counter and take one back to the trash can							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
6	Shake trash bag until all parts are open							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
7	Put new trash bag in trash can							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
8	Take full trash bag out the back door to the white fence							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
9	Unlock white fence							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
10	Put trash bag in very last trash can							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
11	Lock white fence and go back inside							
			SI	D	SI	D	SI	D
				V		V		V
		Total +						
		Total + and -	38	11	38	11	38	11
		Percentage						

Appendix B: PCVP Tier 2 Dale Data Sheet

Date:				
Session:				
Condition:				
Researcher Initials				
IOA initials:				
Environment arranged (clean rags available, bucket at sink):				
Correct task direction delivered:				
Instructor waited 5s to initiate task/ 20s to finish to end trial:				
Phone loaded with dusting schedule videos:				
Instructor provided participant with phone at least 5min before session began:				
Total +				
Total + and -		5	5	5
Percentage				
	Get phone from pocket			
	Press home button			
	Press home button to unlock			
	Press the Photos button on iPod			
	Press the 'dusting' album			
	Pick the 1 st picture at the top on iPod*			
	Press the play icon on iPod.			
	Watch the first step			
1	Get white rag from back room			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
2	Walk to sink and turn on the water			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
3	Place rag under water to get wet and then turn off water			
	Swipe video to the left			
	Press the play icon on iPod.			

	Watch the next step									
4	Ring out rag in the sink									
	Swipe video to the left									
	Press the play icon on iPod.									
	Watch the next step									
5	Walk to the dining room and squat down to reach baseboards									
	Swipe video to the left									
	Press the play icon on iPod.									
	Watch the next step									
6	Wipe baseboards along the entire wall with wet rag Continue for all the walls in the room									
	Swipe video to the left									
	Press the play icon on iPod.									
	Watch the next step									
7	Walk into main dining room and wipe the ledge on the wall									
	Swipe video to the left									
	Press the play icon on iPod.									
	Watch the third step									
8	Take rag back to sink and throw in the bucket									
				SI	D V	SI	D V	SI	D V	
				Total +						
				Total + and -	29	8	29	8	29	8
				Percentage						

Note: + = independent response, (-) = prompted correct response, - = error

Appendix C: PCVP Tier 3 Dale Data Sheet

Date:				
Session:				
Condition:				
Researcher Initials				
IOA initials:				
Environment arranged (pen/paper available, paper cup, empty tea jars):				
Correct task direction delivered:				
Instructor waited 5s to initiate task/ 20s to finish to end trial:				
Phone loaded with tea schedule videos:				
Instructor provided participant with phone at least 5min before session began:				
Total +				
Total + and -		5	5	5
Percentage				
	Get phone from pocket			
	Press home button			
	Press home button to unlock			
	Press the Photos button on iPod			
	Press the 'tea' album			
	Pick the 1 st picture at the top on iPod*			
	Press the play icon on iPod.			
	Watch the first step			
1	Turn tea containers to see if they are half full			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
2	Put back containers that are more than half full			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
3	Locate pen and paper Write down the names of the teas that need refilling			
	Swipe video to the left			
	Press the play icon on iPod.			

	Watch the next step								
4	Walk to back room Locate the teas that are written on the paper and take back to bar								
	Swipe video to the left								
	Press the play icon on iPod.								
	Watch the next step								
5	Match tea bags with the tea containers Place bags behind the tea containers								
	Swipe video to the left								
	Press the play icon on iPod.								
	Watch the next step								
6	Get paper cup from the top of the coffee machine and place on counter								
	Swipe video to the left								
	Press the play icon on iPod.								
	Watch the next step								
7	Scoop tea from bag behind jar using paper cup to fill tea to top of jar Complete all jars that are out								
	Swipe video to the left								
	Press the play icon on iPod.								
	Watch the next step								
8	Throw away cup and put lids back on jars								
	Swipe video to the left								
	Press the play icon on iPod.								
	Watch the next step								
9	Put jars back on shelving unit and close the tea bags								
	Swipe video to the left								
	Press the play icon on iPod.								
	Watch the next step								
10	Take tea bags back to stock room								
			SI	D	SI	D	SI	D	
			V	V	V	V	V	V	
		Total +							
		Total + and -	35	10	35	10	35	10	
		Percentage							

Note: + = independent response, (-) = prompted correct response, - = error

Appendix D: PCVP Tier 1 Brennen Data Sheet

Date:				
Session:				
Condition:				
Researcher Initials				
IOA initials:				
Environment arranged (papers in copy basket):				
Correct task direction delivered:				
Instructor waited 5s to initiate task/ 20s to finish to end trial:				
Phone loaded with copy schedule videos:				
Instructor provided participant with phone at least 5min before session began:				
Total +				
Total + and -	5	5	5	
Percentage				
	Get phone from pocket			
	Press home button			
	Press home to unlock			
	Press the Photos button on iPod			
	Press the 'copies' album			
	Pick the 1 st picture at the top on iPod*			
	Press the play icon on iPod.			
	Watch the first step			
1	Take paper from basket labeled "COPY"			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
2	Put papers right side up on top of scanner			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
3	Press start copy button			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
4	When machine stops take all papers off of copier and place in the "FINISHED" basket			
		SI	DV	SI
		DV	SI	DV
		SI	DV	SI
		DV	SI	DV

		Total +					
		Total + and -	17	4	17	4	17
		Percentage					

Note: + = independent response, (-) = prompted correct response, - = error

Appendix E: Tier 2 Brennen Data Sheet

Date:				
Session:				
Condition:				
Researcher Initials				
IOA initials:				
Environment arranged (print folder is in view, paper in printer):				
Correct task direction delivered:				
Instructor waited 5s to initiate task/ 20s to finish to end trial:				
Phone loaded with print schedule videos:				
Instructor provided participant with phone at least 5min before session began:				
Total +				
Total + and -		5	5	5
Percentage				
	Get phone from pocket			
	Press home button			
	Press home to unlock			
	Press the Photos button on iPod			
	Press the 'Printing' album			
	Pick the 1 st picture at the top on iPod*			
	Press the play icon on iPod.			
	Watch the first step			
1	Locate file on computer that says "PRINT" and double click to open			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
2	Double click on the first picture in the file			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
3	Click on file in the top left corner			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
4	Click "Print" at the bottom of the menu			

	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
5	Click blue button "Print" on the pop up menu							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
6	Take papers from printer and place in the "FINISHED" basket							
			SI	D	SI	D	SI	D
			V	V	V	V	V	V
		Total +						
		Total + and -	23	6	23	6	23	6
		Percentage						

Note: + = independent response, (-) = prompted correct response, - = error

Appendix F: PCVP Tier 3 Brennen Data Sheet

Date:				
Session:				
Condition:				
Researcher Initials				
IOA initials:				
Environment arranged (vacuum behind desk, staples on floor/desk):				
Correct task direction delivered:				
Instructor waited 5s to initiate task/ 20s to finish to end trial:				
Phone loaded with vacuum schedule videos:				
Instructor provided participant with phone at least 5min before session began:				
Total +				
Total + and -		5	5	5
Percentage				
	Get phone from pocket			
	Press home button			
	Press home button unlock			
	Press the Photos button on iPod			
	Press the 'vacuum' album			
	Pick the 1 st picture at the top on iPod*			
	Press the play icon on iPod.			
	Watch the first step			
1	Locate vacuum behind desk and wheel out by chair			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
2	Unwrap cord and plug into outlet by door			
	Swipe video to the left			
	Press the play icon on iPod.			
	Watch the next step			
3	Press red power button on the right side of vacuum			
	Swipe video to the left			
	Press the play icon on iPod.			

	Watch the next step							
4	Press Wand release button and pull out silver pole from vacuum							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
5	Vacuum the floor with the pole underneath desk and chair so all staples and trash are gone							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
6	Vacuum the top of the desk so all staples and trash are gone							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
7	Press red power button and place silver pole back in the vacuum							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
8	Unplug cord from wall and wrap cord back on vacuum							
	Swipe video to the left							
	Press the play icon on iPod.							
	Watch the next step							
9	Place vacuum back behind desk							
			SI	D	SI	DV	SI	D
			V				V	
		Total +						
		Total + and -	32	8	32	8	32	8
		Percentage						

Note: + = independent response, (-) = prompted correct response, - = error

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